Posters presented at the

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001. Carvalho V.G.G., Venturini M.A.F. & Gioso M.A. 2007. **Reconstruction of a dog’s face as treatment for oral squamous cell carcinoma.** Pesquisa Veterinária Brasileira 27(Supl.). Departamento de Cirurgia, FMVZ-USP, São Paulo, SP, Brazil. E-mail: vanggc@uol.com.br

**Introduction:** The oral squamous cell carcinoma is the second most common malignant oral neoplasia in dogs, representing 20-30% of the tumors in dogs and 61 to 70% in cats (Stebbins et al. 1989, Withrow 2001). This tumor most often originates on gingiva and tonsils in dog, gingiva and tongue in cats; it deeply infiltrates, proliferates and is almost always ulcerative in dog, resulting in excessive salivation, halitosis and bleeding (Harvey & Emily 1993). In the first stages of gingival carcinoma, the tumor can be similar with local gingivitis. The loss of teeth is common and the owner sometimes believes that there is relationship between the extraction and the tumor appearing (Harvey 1985). In dogs, local and distance metastasis are rare, except in cases of tonsilar and tongue carcinomas. In cats, the regional limphnodes is frequently affected but lung metastasis is rare (Postorino Reeves et al. 1993). An important characteristic about the tonsilar carcinoma is that this kind of tumor normally is unilateral, a good information to differential diagnosis (Harvey 1985). The principles of treatment involve surgical procedure with excision of 1cm of healthy tissue, as safety margin (Wiggs & Lobprise 1977). The radiotherapy can be indicated before surgical treatment or can be done in association of surgery with satisfactory results (Harvey 1985). The purpose of this study is to present a clinical case of reconstruction of a dog face after surgically removal of oral squamous cell carcinoma.

**Case Report:** A Cocker Spaniel, male, 12-year-old, was consulted in the Veterinary Hospital of the School of Veterinary Medicine, University of São Paulo, presenting a small mass located in the maxilla, around the right fourth premolar tooth and ulcerate lesions spread out to the jugal mucosa, involving all of the labial commissures. These same signals had initiated one year before, at the caudal region of the upper right maxilla. In that period, the animal was treated in a private veterinary clinic with excisional biopsy. The histological diagnosis confirmed the oral squamous cell carcinoma. During the physical examination, the aspect of the skin and upper lips suggested local invasive lesions at these structures; there was halitosis and pain during the manipulation of the oral cavity. Skull radiographs as well as intra-oral did not show bone resorption or any kind of lesion on the region of neoplasia. Thorax X-ray did not show also signs of metastasis. The owner was informed about the necessity to procedure another radical surgery, to try to remove all tissue affected. But, the extension of the lesion could result in a difficult suture because it was expected a large skin loss, resulting in some deformities of the animal face. The anesthetic protocol was pre-medication with Acepromazine (0,1mg/Kg) and Meperidine (5mg/Kg) IM and Propofol (0,5mg/Kg IV) for induction, IV. The anesthesia was maintained with Isofluorane inhalation. The surgery was done with excision of all tumor and 2cm of health tissue beyond, removing part of the maxilla, mucosa and skin. The regional lymphnode was removed too, particularly because it was slightly increased. A large defect was caused by the excision and a reconstruction of the face needed to be realized to close the wound, providing a flap of the neck skin. The internal mucosa was sutured with poliglactin 910 (VicrylR 4.0) and the skin was sutured with nylon 2.0. The final aspect of the suture was good but a deformity of the right side of the dog face was evident. To assure that the animal would kept the mouth closed, an acrylic interdental block was realized until the total heals of the soft tissues. One week after surgery, the nylon of the skin sutured was removed and the owner related excellent health conditions and good control of pain during the first days. The prescribed drugs were tramadol (1mg/Kg/8h/5d), enrofloxacin (5mg/Kg/24h/10d), chlorhexidine (4xd/10d) and it was recommended an Elizabethan collar 24h/day. The patient presented edema at the surgical region (controlled with anti-inflammatory drugs) and an upper labial small defect. A second physical examination was realized one month after surgery. The animal was re-anesthetized to remove the acrylic splint and no signals of tumor recurrence were observed.
Introduction: The Mysticeti has tooth buds temporarily in a certain fetal period (Dissel-Scherft & Vervoort 1954, Karlsen K. 1962.). Our previous reports revealed that disappearance of some extra cellular materials was closely related to the fetal tooth bud degradation in the baleen whale (Ishikawa H. & Amasaki H. 1995, Ishikawa H. et al. 1999). Regression of deciduous tooth from the root part is induced by the activated odontoclast of the deciduous dental pulp in the common mammals (Sasaki T. et al. 1988, Ten Cate A.R. 1989). While the embryonic teeth buds of baleen whale is degraded gradually from whole part during fetal period (Ishikawa, H. & Amasaki H. 1995). It is not clear what kind of cells related to this degeneration of the baleen whale tooth bud and also not revealed the degradation mechanism of temporal fetal tooth bud in the baleen whale. Present immunohistochemical examinations reveal two types of specific immunocyte related to this degeneration of tooth buds in the Antarctic minke whale, Balaenoptera bonaerensis.

Materials and Methods: We used forty fetuses (body length 6.7-197cm) of Antarctic minke whales in the Japanese Whale Research Program under the Special Permit in the Antarctic Sea (JARPA) from 1993 to 2002. After routine histological procedures, we observed immunohistochemical expressions of the immunocyte markers; CD4, CD8, CD11, CD14, Al-1, and of the immunocyte functional markers as tissue digestive enzymes; mmp9, mmp13, triptase, type II carbonic anhydrase (CA2), acid phosphatase.

Results and Discussion: Tooth buds of Antarctic mink whales started to degenerate from the fetus of 53.8cm length. Almost of tooth buds have been degenerated before birth. The calcified dentin matrix was degenerated from the starting period as 65cm CRL fetus by the large sized odontoclast, which was immunopositive to CA2 and acid phosphatase antibodies. These cells also reacted to Al-1 (Macrophage marker), mmp9 and mmp13.
Distributional pattern of these cells was spreaded over the outer surface of dentine matrix. While many number of small sized macrophage-like cells were distributed over the inner surface of the dentine space. These small cells were immuno reacted only to AI-1, mmp9 and mmp13, but not to CA2 and acid phosphatase (Fig.1, 2, 3, 4).

Degenerating tooth buds of the Mysticeti during the fetal periods was destructed by the two ways of other types of immunocytes; one was the large typed odontclast which is destructed the calcified dentine, and other small one was the macrophage like cells which might be destructed collagens and some matrix protein. Large number of later type cells might be quickly destructed huge volume of dentine matrix (proteoglycans and glycosaminoglycans in the dental pulp.


INDEX TERMS: Immunocyto, tooth bud, development, Antarctic Minke Whale.

Introduction: The intra-oral radiography in the veterinary dentistry must be considered as a powerful tool to get to a diagnosis in the clinical practice. Some clinical or surgery decisions can be made just by signs of pain, appetites, time of occurrence of the trauma and owner’s report. Although lots of mechanisms of investigation in dentistry nowadays, unfortunately they can't be applied in a veterinary patient. So, some radiological signs can be used to make a decision plan on a treatment. This paper intends to describe a case where a cat, with an enamel trauma and tooth displacement, had its pulp integrity evaluated by a intra-oral radiography.
Materials and Methods: A 3 years-old male cat (Felis cattus), non-breeded and non-castrated, had been taken to the Veterinary Dentistry Lab of Castelo Branco University (LOVE UCB/RJ) by the owners with a complaint of hiporexia and a discreet loss of weight. The animal had been described as a peri-domiciliary pet, sometimes with soft tissue injuries. On the physical examination, there was no signs of pain or injuries, and it’s left maxillary canine (element #204) could be observed with a rostral displacement in a comparison by the homologue. No gingivitis or stomatitis could be noted. There was a little loss of a piece of this tooth, and no terciary dentine reparison was detected. By the way, a radiography was made to evaluate the integrity of the tooth, just because the owners said that this tooth positioning must be considered normal, and since it was a kitten the tooth had this appearance and positioning. To proceed the radiography, an association of ketamine (10mg/Kg, IV), diazepam (0.5mg/Kg, IV) and Atropine (0.04mg/Kg, IV) was administrated as a chemical containment. An intra-oral film was placed in parallel and an oblique-lateral maxillary technique was obtained (Gioso 2004). A FNX x-ray machine was used, with a combination of 60 Kvp/5mAs (Ticer 1987). After that, the film was developed in conventional ways.

Results: The analysis of the radiographs showed a visible difference about the pulp chamber between the left superior canine and the right one. A widening pulp can be observed in comparison with the homologue tooth, but no peri-apical radioluscence could be described. The diagnosis of pulp death was obtained. The enamel has a normal radiopacity, like the alveolar bone pattern that surrounded the tooth. In an specific examination, under anesthesia, no signs of mobility or gingivitis could be observed after periodontal exploration.

Discussion and Conclusions: The chemical containment used shows a good perform, making the radiography possible, even though the clinical examination. The use of diazepam in association was useful to restrain the tongue movements characteristic in cats with ketamin administration. The oblique-lateral technique to obtain a radiological image of the canine was very helpful, like tells Gioso, 2004. The size and pulp chamber visualization was very near to the tooth itself. A good contrast obtained by the technique related by Ticer (1987), was helpful to evaluate the pulp chamber, even if a conventional machine was used, showing that the radiological acknowledgement is essential to proceed this exam and its evaluation. The trauma itself could be an important etiologic factor for a pulp disease, like tell us Simon (1982). It’s justified by the pulp death in a tooth that showed signs of trauma and a little avulsion process. For instance, the radiology in the veterinary dentistry routine is a useful tool, and its acknowledgement is of an essential way to have an excellence service.


INDEX TERMS: Radiography, cat, tooth.

Introduction: The graduation of a veterinarian currently asks for that the graduate be a critical, inserted individual knowledgeable of his part as a professional close to the society. In this context, during the academic life, some sources of our profession are presented to the students, being of their own choice the way to follow, either for vocation or as an opportunity, since they all have a generalist formation. It cannot be ignored that the profile of the education institution suffers direct influence from where it is located, suggesting a directed formation to such determined area, either it clinical in all its modalities, animal production or technology and inspection of animal origin products. However, it is observed that some sub-areas, especially at clinic discipline, due to its plurality, pass merely as topics when it could be seen as other discipline, and not only as prompt lessons or lectures. It is known, however, that the curricular grade, for many times, cannot support all disciplines considered as important for us. The present work has as objective to report as the Course of Veterinary Medicine of Castelo Branco University (UCB), Rio de Janeiro, is developing its activities in the area of Veterinary Dentistry Medicine, and its contribution to the formation of the involved academics.

Materials and Methods: The veterinary dentistry is inserted in different points of the course, applying itself the principle of the union between lots of disciplines. The first contact of the student with the subject happens at basic disciplines such as Anatomy and Physiology, where in a practical way he become able to develop agreement on the future importance of this area in his professional life. In the disciplines of Small Animal Medical Clinic, more specifically in the module of Neonatology and Pediatrics, the student develops the basic concepts of Prophylaxis, pointing out the importance of Pediatric Routine as a basic method for education in animal health to the owners. At this moment, they are also capable to identify related alterations of the development to the subject matter. Still in Medical Clinic, in the module of Diseases of the Digestive System, practical lessons with corpse use are given (deriving of the clinical routine of the Hospital), with the purpose of familiarization with the practical aspects of the oral cavity. Periodontic diseases are the keys at the boarding of teeth diseases, on which etiology, physiopathogeny, diagnoses, treatment and prophylaxis are argued. Diseases the resolution of which is merely surgical, as exodontics and endodontics, are again boarded in the Discipline of Clinical Surgery. Through practical lessons in the hospital routine or with the corpse use, the student has the chance to apply the theorical knowledge obtained in classroom. The Laboratório de Odontologia...
Introduction: Endodontic treatment of necrotic pulp is intended to reduce infection to a level that allows the body to respond successfully to the bacterial load. Tanomaru Filho (2002) and Holland et al. (2003) observed by histopathological evaluation that tissue repair of apical and periapical regions was more effective where teeth were treated with calcium hydroxide (double session) compared to definitive obturation (single session). Other studies (White et al. 1997, Komorowski et al. 2000) showed the importance of temporary endodontic dressing material aimed at bacterial elimination in the apical delta region. Calcium hydroxide has both a bactericidal effect and neutralizes endotoxins (Savafi et al. 1994). The present study examines the persistence of microorganisms in the root canal, dentine tubules and apical delta of dog’s teeth with induced pulp necrosis after two sessions of endodontic treatment, using temporary endodontic dressing cements for different periods of time.

Materials and Methods: The present study was performed in four mixed breed dogs. The second, third and fourth lower premolar teeth and the second and third upper premolar teeth of the maxilla were used at the experiment. Intraoral radiographies were performed every 15 days, until day 120. During these procedures the animals were anesthetized. Surgery procedure: At day 0, the animals were anesthetized and periapical radiographs of all experimental teeth. Thirty of the forty teeth were opened at the crown to expose the pulp chamber. The remaining 10 teeth were kept intact during this first phase. At the end of the first phase the animals were medicated with anti-inflammatory drugs to control the inflammatory reaction and pain. After 60 days the root canals in the 30 opened teeth were surpassed the offered vacant number, the fast capacity of the graduates of a student, without privileges, so that no other important area is forgotten, but in a way that the student can have his first contact with an area that could be his choice for the future. The reported case showed to the students the necessity to remain always up to date, studying and dedicating themselves to their area of interest, whatever it is, especially at veterinary dentistry medicine by many ethical reasons that surround it in our country, as said Gioso (2003).

Discussion and Conclusions: Although the curricular lines of direction guided by the Ministry of Education, tell us that the graduate of a course of Veterinary Medicine must have a generalist graduation, and be able to act in the area of his profession, the growth of the sub-areas is undisputed and demanded for the work market. The Graduation Institution does not intend to graduate specialists, but it can stimulate the interest and introduce the student to its existence, leaving planted on them this small seed. The growth and the perfection of the Veterinary Medicine are a reality, and the professional who is aware of such fact, is unique for introducing on his routine many simple practices that demonstrate his update. A specialty can be inserted in the graduation of a student, without privileges, so that no other important area is forgotten, but in a way that the student can have his first contact with an area that could be his choice for the future. The reported case showed to the students the necessity to remain always up to date, studying and dedicating themselves to their area of interest, whatever it is, especially at veterinary dentistry medicine by many ethical reasons that surround it in our country, as said Gioso (2003).


INDEX TERMS: Veterinary dentistry, academics, school, Brazil.

005. Domingues-F L.M., Ferreira J., Lopes F.M., Tymoszczenko A. & Gioso M.A. 2007. Use of different times for temporary endodontic dressing cements in root canal therapy of induced pulp necrosis in dog’s teeth. Pesquisa Veterinária Brasileira 27(Supl.). Departamento de Cirurgia, Faculdade de Medicina Veterinária e Zootecnia, Universidade de São Paulo, São Paulo, Brazil. E-mail: lesliedf@usp.br

Vetorinária (LOVE/UCB) was created in 2004 at the Veterinary Medicine School of UCB, with the intention to create study groups and workshops for the students who were interested in the area, based on the necessity of a better graduation to the academics and the personal experience of the veterinarians dedicated to the study of the veterinary dentistry medicine (Cruz 2004). Since then, weekly meetings for scientific previously selected article and clinical cases of the Clinical School discussion, or practical training with cases of the routine take place supervised for professors and professionals of the Institution. Short-term courses are being developed as activities of LOVE, bringing different subjects of the area, and in addition a schedule for veterinary dentistry in the annual Academic Week of this institution was implemented.

Results: Understood as work with results in the long run, the boarding on dentistry in the Course of Veterinary Medicine starts to show repercussion by means of the learning interest. The search for participation in the study group, always surpassing the offered vacant number, the fast capacity of the groups of mini-courses, the choice of subjects related for accomplishment of Works of Conclusion of Course, and mainly in the intense commitment and devotion to solve the different clinical cases taken care of, that depend on study and update is an indicating of this interest. The work of the Laboratory of Veterinary Medicine Dentistry, Castelo Branco University (LOVE/UCB), currently starts to pass the borders of the Institution, being its mini-courses searched for students from other Institutions and professionals. The LOVE still stimulates its integrant through the offering of scholarships for course carried through by entities of classroom in partnership in the cession of the space of the University. We can cite as an initial result of this work the attendance made exclusively of academics, where a cat (Felis catus), male, 2 years old, not spayed, was proven to have a traumatic opening of a oral-nasal communication next to the lingual face of maxillary teeth of the right hemi-arches after being hit by a car. The surgical procedure was supervised by the professors and veterinarians of UCB/RJ, being solved with the closing of the oral-nasal communication and reduction of the fracture using a splint technique. The animal began feeding with soft food about 24 hours after the intervention, and dry feeding about 36 hours after the surgery.
technique of root canal therapy was performed in this study. The 80 roots were divided into three experimental groups: Group I: control; Group II: calcium hydroxide/PMCC for 7 days, followed by zinc oxide eugenol paste and gutta-percha; Group III: calcium hydroxide/PMCC for 15 days, followed by zinc oxide eugenol paste and gutta-percha and Group IV: calcium hydroxide/PMCC for 30 days, followed by zinc oxide eugenol paste and gutta-percha. After 120 days, the teeth were extracted en bloc (teeth and periodontal tissue). The specimens were fixed and demineralized for preparation of histological sections.

**Results:** Histopathological analysis revealed intense inflammatory process in the periapical area. The pattern of inflammatory response was similar in all groups. Thus the root canal exposure to contamination with induced pulp necrosis was sufficient to promote the periapical inflammatory process. The presence of bacteria in the apical delta and dentine tubules were analyzed in all groups. Longer periods of calcium hydroxide lead to a lower percentage of bacteria in these regions. Although even at 30 days of temporary endodontic dressing there was still evidence of microorganisms. Besides the delta and dentine tubules, inside the root canals were also evaluated. A complete removal of microorganisms could be observed at day 7. Only the control group presented microorganisms inside the root canal. When evaluating bacteria in the dentine tubules, located at the apical third, there was a significant reduction of bacteria proportional to the period of the temporary endodontic dressing cements. However even after 30 days of exposure bacteria could still be observed in this region.

**Discussion and Conclusion:** The longer the period of temporary endodontic dressings were left in the root canal, the deeper the effect penetrated and the more severe the reaction; reaching periapical alveolar bone at 30 days. This would be expected since calcium hydroxide causes an inflammatory response when used alone, but in association with PMCC the response is more severe since PMCC is more aggressive to tissues. The use is recommended by some authors for short periods. The histomicrobiological analysis demonstrated that the presence of temporary endodontic dressing reduces microbial loading, agreeing with Holland et al. (2005) and Vianna et al. (2005). The control group showed the highest concentrations of microorganisms. There was a decrease proportional to the exposure time to the temporary endodontic dressing cements in the root canal. This agreed with Vianna et al. (2005) in demonstrating the bactericidal effect of calcium hydroxide, and showed that PMCC was an effective power over the studied periods. Significantly however, even after 30 days of treatment microorganisms were still found in some of the studied regions. The periods (7, 15 and 30 days) of temporary endodontic dressing cement in the root canal were not sufficient to totally eliminate bacteria in all regions, bacteria were present in the dentine tubules and apical delta. Complete removal is considered essential for a good prognosis of endodontic treatment. Other studies are necessary in order to establish an efficient endodontic treatment.

**Acknowledgments:** To FAPESP for funding this Project.

**References:**


**INDEX TERMS:** Apical delta, endodontic, gutta-percha, camphorated paramonochlorophenol, microorganisms, dogs.

**Introduction:** The calcium hydroxide is a material with antibacterial properties and it also induces the formation of a dentine bridge. Calcium hydroxide is usually recommended for covering exposed pulp (Holland et al. 1999, Melo 1998, Leonardo & Leal 1998). Holland et al. (2005) and Sipert et al. (2005) proposed studies to observe the repair process of dogs’ teeth after the filling of the pulp cavity. They concluded that the cement of the calcium hydroxide promoted better process of apical repair. Although the antibacterial activities of the calcium hydroxide on anaerobic microorganisms have shown effectiveness, it was not active on all of the present aerobic bacteria in the root canal (Chong & Pitt Ford 1996). The association of calcium hydroxide plus camphorated paramonochlorophenol (PMCC), proposed by researchers, had the aim to increase the bactericidal power of the calcium hydroxide, inducing mineralized tissue formation on the tooth apex and resulting in better repair process. Among the antiseptic as root canal dressing, PMCC always offered better results as bactericidal. Although effective in this aspect, is also considered to be a potent cytotoxic. For some researchers the cytotoxicity of PMCC is larger than its antibacterial action. However, the association of PMCC to calcium hydroxide has shown great effectiveness in bacteria elimination and irritation reduction (Vianna et al. 2005). The present study aimed to compare the bactericidal effect and the power of tissue repair of the calcium hydroxide, associated or not to the camphorated paramonochlorophenol (PMCC), in the root canal, dentine tubules and apex of teeth of dogs with pulpar necrosis induced experimentally.

**006. Domingues-F. L.M., Lopes F.M., Ferreira J., Gioso M.A. & Padilha Filho J.G. 2007. Comparative study of bactericide and tissue repair effect of calcium hydroxide with and without PMCC in dental structure of dogs. Pesquisa Veterinária Brasileira 27(Supl.). Departamento de Cirurgia, Faculdade de Medicina Veterinária e Zootecnia, Universidade de São Paulo, São Paulo, Brazil. E-mail: lesliedf@usp.br**
Materials and Methods: Four dogs were used. Second, third and fourth lower premolar teeth and second and third upper premolar teeth were used, in a total of 28 teeth, totaling 56 roots. All animals were submitted to general anesthesia and periapical radiographies were performed in every teeth involved in the study. Nineteen of the 28 teeth were opened on the crown to expose the pulp canal. The remaining 9 teeth were maintained intact. At the end of the first session, anti-inflammatory administration was performed in all dogs in order to control inflammation and pain. The animals were submitted to intra-oral radiographies control every 15 days, totaling 60 days of pulp exposure, under general anesthesia. At day 60 the animals were anesthetized for root canal obturation of the 19 opened teeth in the first phase, and it was performed the coroay opening of the 9 teeth remaining serving as control. The chemical-biomechanical instrumentation (filling) was accomplished through the classic technique. The studied materials were applied and distributed in groups: Group I: calcium hydroxide paste; Group II: calcium hydroxide plus camphorated paramonochlorophenol paste; Group III: control. The animals were accompanied with intra-oral radiographies under general anesthesia, every fifteen days. At day 120, the teeth were extracted in block (teeth and periodontal tissue). The blocks were fixed, demineralized and histological evaluation was performed with hematoxilin-eosin staining. The Brown & Hopps coloration was also realized to evidence microorganisms.

Results: Group III, the control, should contain largest concentration of inflammatory cells, being supposed that most of their samples would be classified as severe. However, Group I presented equivalent number of altered roots. The Group II showed part of the roots with moderate inflammatory infiltration, suggesting that the calcium hydroxide plus PMCC promoted better inhibition of inflammation, reflecting larger bactericidal activity and causing a faster repair process. It was also evaluated the presence of bone resorption (BR), cementum resorption (CR), and necrotic tissue in apex (N). The Groups I and II presented similar patterns and Group III obtained the largest percentile for all the variables. It was also verified the presence or absence of microorganisms in the groups. Group I was the most effective in the elimination of bacteria, because it showed the smallest percentile of microbial presence, followed by Groups II and III. The last one obtained the largest bacterial concentration. Regarding group I, microorganisms were in larger number in the dentinal tubules followed by other areas. In Group II, bacteria were observed in the apex, dentinal tubules and, lacunas cementum, distributed among those areas. Contamination was detected in all areas in Group III, and just the apex was absent of bacteria. The fact suggests that exposure time to the oral cavity was short. Bacteria probably take more time to colonize the apex.

Discussion and Conclusion: Comparing the results obtained from histological and histomicrobiological analysis we can infer that the calcium hydroxide plus PMCC showed low intensity of inflammatory infiltration and the smallest presence of bone resorption and cementum areas, being effective in the process of tissue repair. However, the association was not so effective as bactericidal, because it allowed bacteria to penetrate in the apex, and not being efficient in elimination of microorganisms. The calcium hydroxide alone was the least effective in all parameters. Other studies evidenced its effectiveness in the elimination of anaerobic microorganisms, and not of aerobics, besides the effect of not being irritant to tissues. This study can infer that the method of application the calcium hydroxide plus distilled water was not efficient, because the results obtained in this group was similar to those observed at the control group (not treated). Further studies should be accomplished with long term follow up of the animals.

Acknowledgements: Fapesp for funding this project.


INDEX TERMS: Apical delta, endodontics, calcium hydroxide, microorganisms, camphorated paramonochlorophenol, dog.

Introduction: During the treatment of chronic periapical endodontic lesions the complex internal anatomy of teeth contributes to therapy failure with the millions of dentine tubules and their numerous ramifications (Wada et al. 1998) having both aerobic and anaerobic microbial contamination (Almeida, 1993; Leonardo et al. 1993). With endodontic treatment in dogs microorganisms are the primary consideration since bacteria in the dentine tubules, foramina and apical delta seem to be related to treatment failure with the apical delta being the most important of these structures (Gioso 2003). Holland et al. (2005) and Sipert et al. (2005) observed the process of tooth repair in dogs after the filling the canal, concluding that calcium hydroxide cement was the best material to induce apical repair. The purpose of this study is to evaluate the presence of microorganisms in the root canal, dentine tubules and especially in the apical delta in the teeth of dogs with experimentally induced pulp necrosis. The intention is...
to test the antimicrobial and tissue repair efficacy of gutta-percha with zinc oxide/eugenol cement compared with calcium hydroxide.

Materials and Methods: The present study was performed in four mixed breed dogs. The second, third and fourth lower premolar teeth of both sides and the second and third upper premolar teeth of the left side of the maxilla were used at the experiment. Intraoral radiographies were performed every 15 days, until day 120. During these procedures the animals were anesthetized. At the end of the first phase the animals were medicated with anti-inflammatory drugs to control the inflammatory reaction and pain. Surgery procedure: At day 0, the animals were anesthetized and periapical radiographs of all experimental teeth. Twenty-one of the third-two teeth were opened at the crown to expose the pulp chamber. The remaining 11 teeth were kept intact during this first phase. After 60 days the root canals in the 21 opened teeth were filled. At this time, the 11 intact teeth were opened to expose the coronary chamber, consisting in the control group. The classical technique of root canal therapy, described by Harvey & Emily (1993), was performed in this study. The 64 roots were divided into three experimental groups: Group I (22 roots): gutta-percha with zinc oxide/eugenol cement; Group II (20 roots): calcium hydroxide paste; Group III (22 roots): control. After 120 days, the teeth were extracted en bloc (teeth and periodontal tissue). The specimens were fixed and demineralized for preparation of histological sections. The sectioned specimens were dyed with hematoxylin-eosin (HE) and Brown & Hopps (1973) methods were used to visualize the microorganisms. The non parametric variability method of the Kruskal-Wallis was used for statistical analysis and the results were then compared by the Dunn multiple comparison test.

Results: Histological analysis of the periapical region showed areas of inflammation and resorption of the apical cement, with dentine structures exposure in many cases. As expected Group III (control) had the highest level of inflammation, with the majority of the sample classified as "severe". However, Group II presented the same number of inflamed roots suggesting that calcium hydroxide treatment did not result in inflammation reduction. The bacterial data showed that calcium hydroxide (Group I) was also a less effective anti-microbial treatment than zinc oxide/eugenol cement with gutta-percha cones (Group II). Bone resorption (RO), cement resorption (RC) and necrotic tissue at the apical delta (TN) were also analysed. Groups I and II had a similar response with Group III showing the highest level of all three parameters. The tested groups (I and II) had a high index of RO, RC and TN but with a low percentage, due to the presence of low levels of inflammatory infiltrate. Group I was the most efficient at reducing bacteria followed by Groups II and III with the control (Group III) having the greatest concentration of bacteria. The results were submitted to the non parametric variability method of the Kruskal-Wallis and then tested by the Dunn multiple comparison test, the results were significant (p>0.05) and the average variability was significantly higher as expected.

Discussion and Conclusion: The depth of inflammation and the extent of bone resorption revealed by histopathological analysis indicated a long term infection. This study suggests different antibacterial activity for each substance used. Sixty days after root canal filling, an inflammatory reaction was evident in all samples but with different levels of intensity. According to other researchers the process used for histological staining results in a reduction in the observed bacterial level within the tissues. The apparent absence of gram-negative bacteria in this study could be a result of the complete disintegration of these microorganisms at the acid stage of demineralization. Group I had the lowest bacterial concentration but the greatest concentration of bacteria was in the apical delta, the most difficult region for the test materials to access. This fact could be explained by the viscosity of the zinc oxide/eugenol cement reducing its ability to penetrate the foramina. By contrast this group was most effective at eliminating bacteria in the dentine tubules. Overall this group had the lowest contamination of bacteria. In Group II microorganisms were found in the dentine tubules and in other regions showing that calcium hydroxide alone did not penetrate the dentine tubules well or was a less effective bactericidal agent. The period of time of oral exposure was short and therefore bacteria probably need more time to reach the apical delta. The gutta-percha with zinc oxide/eugenol cement showed effective antibacterial activity and the calcium hydroxide was less effective this parameter. The conclusion of this study is that the gutta-percha with zinc oxide/eugenol is a better protocol to fill the root canal in dogs.

Acknowledgments: FAPESP for funding this Project.


INDEX TERMS: Apical delta, endodontic, gutta-percha, calcium hydroxide, microorganisms, dogs.

Introduction: In the endodontic treatment of dogs, the dentary tubules are not instrumented during the chemical-mechanical preparation. The association of calcium hydroxide plus camphor para-monochlorophenol (PMCC), proposed by other researchers, is thought to increase the bactericide action of calcium hydroxide, inducing the
formation of mineralized tissue on the tooth apex and cause a better tissue repair (Leonardo & Leal 1998, Soares 1999). Vianna et al (2005) accomplished an in vitro research to investigate the microbial activity of calcium hydroxide (CH) combined with different vehicles, concluding that CH plus camphorate paramonochlorophenol (PMCC) became highly effective in the elimination of anaerobes bacteria. This study intended to evaluate the prevalence of microorganisms in the root canal, dentine tubules and, mainly, in the apical delta of teeth of dogs with pulp necrosis induced experimentally, through the gutta-percha with zinc oxide and eugenol and calcium hydroxide plus camphorated paramonochlorophenol.

**Materials and Methods:** Four dogs were used. For the procedure the seconds, third and fourth inferior premolars and the second and third superior premolars were used, in a total of 32 teeth with 64 roots. Periapical radiographies were accomplished of all the teeth involved in the study, under general inhalatory anesthesia. Initially twenty-one of the thirty-two teeth were opened in the crown, in order to expose the pulp chamber, having the remaining teeth (11) intact in this first phase. At the end of the first session anti-inflammatory was administered, in order to control the inflammation and pain process. The animals were submitted to intra-oral radiographic control, every 15 days, in a total of 60 days of pulp exposure. After 60 days the animals were again submitted to anesthesia for filling the canal of the 21 initially opened teeth. Crown opening of the 11 teeth, which did not have their canals exposed in the first session, was done, serving as control teeth. The chemical-biomechanical preparation was accomplished through the classical technique. All of the roots were divided in 3 experimental groups: Group I: Gutta-percha with zinc oxide and eugenol; Group II: calcium hydroxide paste plus camphorated paramonochlorophenol and Group III: control. After the 120 days of study, the teeth were extracted in block (teeth and periodontal tissue).

**Results:** In this study it could be verified after 120 days the presence of inflammatory infiltrate in all the samples, only differing in the level of intensity, suggesting that there was difference in the antibacterial activity of each used substance. Group III, which was not treated, should contain the largest concentration of inflammatory cells, supposing that most of its samples would be classified as severe. Groups I and II had a very similar behavior in relation to the type of reaction, since the percentage of severe inflammation was similar, differing only in the distribution between soft and moderate. Group II had a high percentage of soft infiltration and group I presented a more moderate infiltrate. The histomicro-biological analysis verified the presence or absence of microorganisms in the studied group.

It was observed that Group I was the most effective in the elimination of bacteria, since it presented the lowest percentage of microbial presence, followed by Groups II and III, the latter obtained the largest bacterial concentration. Localization of bacteria was studied in all groups. This evidenced the presence of microorganisms not only in the root canal, but also in the dentine tubules and root ramifications.

**Discussion and Conclusion:** When comparing the results it can be concluded that the gutta-percha with zinc oxide and eugenol was effective reducing periapical lesion, being directly related to the inflammatory process that in this case was mostly found in a moderated form. However, it was the material that obtained better results in the elimination of bacteria. The fact of the low number of microorganism, in contrast with the presence of severe periapical lesion can be supported by the verification done by other authors that, besides the bacterial presence, the process of bacterial death stimulates themselves to liberate lipopolisacarides (LPS), which are constituents of the cellular wall of gram-negative bacteria. These LPS have biological effects such as the increase of the inflammatory reaction. In other words, bacterial elimination can often exacerbate the inflammatory process delaying the tissue healing. The association was not effective in the antibacterial effect, since it allowed the bacteria to penetrate even in apical delta, where it was not efficiently eliminated. It is emphasized the effectiveness observed in groups I and II. Both showed good results in different aspects. It is suggested that it is really necessary the association of both materials, being the dog’s teeth treated in two sessions, using calcium hydroxide plus PMCC as temporary endodontic dressing, and gutta-percha with zinc oxide and eugenol as the definitive obturation material. However new studies are necessary to prove this possible synergistic effectiveness.

**Acknowledgements:** To Fapesp for funding this research.


**INDEX TERMS:** Apical delta, endodontic, gutta-percha, microorganisms, camphorated paramonochlorophenol, dog.

**Introduction:** The lesion occurred in a 7-year-old German shepherd dog during a training of the Military Police in Rio de Janeiro. The element 104 was completely displaced from its alveolus (Westphalen et al. 2007) due the fracture of the vestibular wall of the alveolar bone. According to Eisenmerger & Zetner (1985) the function of the canines is arresting and laceration and has a power of 500 kg/cm².

**Materials and Methods:** The animal received Acepromazine...
0.03mg/kg i.v. as sedative; induced with Thiopental sodium 12.5mg/kg and maintenance with Enfluorano. It also received Bupivicain with vasoconstrictor in the infra-orbital foramen. The analgesia after the surgery was done with Meloxicam 0.1mg/kg for 7 days. After radiographs with lateral incidences, the tooth was replaced into the alveolus and the fractured alveolar bone was reduced; the necrotic tissue of the junctional epithelium at the palatal region around the tooth was removed. The gingival mucous was sutured with nylon 3.0, and the splint was made with an orthodontic wire Twist-flex 0.80mm, supported by the elements 101, 102 and 103; it was also stabilized and involved with an acrylic self-polymerized dripping.

**Results:** A final radiograph was taken showing a very good bone coaptation, the pain was under control and the dog was able to eat his food softened with water. The infection was controlled with Cefalexin-500mg 12/12 hours during 7 days.

**Discussion and Conclusion:** When a tooth is avulsed, attachment damage and pulp necrosis occurs, but if the periodontal ligament is left attached to the root surface, it does not dry out and the consequences of tooth avulsion are usually minimal (Trope 2002). A reattachment between the tooth and the alveolar socket to be successful, the cells of the periodontal ligament which are attached to the root of the tooth must remain vital; an ideal splint is one that is quickly and easily constructed, passive, comfortable and durable enough to last the length of time needed for splinting (Dewhurst et al. 1998). Because dental acrylic hardens by an exothermic reaction, it is important to minimize injury to the gum by washing during the application if the splint; interdental acrylic fixation is a versatile technique and may be applied to a variety of oral injuries (Muir & Gengler 1999). The control of the tooth and the alveolar bone with radiographs is made because, if a fistula develops, an endodontic treatment will be the next procedure. The dog has already returned to its normal life.


**INDEX TERMS:** Tooth avulsion, avulsion of a maxillary canine, fracture of alveolar bone.

**Introduction:** Client prospecting is a process of identifying potential clients for the services provided. It is divided in three categories: referrals, potential clients and qualified potential clients, the latter being the most difficult to identify but the one with the best results due to their buying trends, power and autonomy (Junior & Peter 2000). Thus it is extremely important to create an adequate market positioning for the service provided to guarantee customer loyalty (Cobra & Zwarg 1987). Kotler (1999) stresses that a potential client will choose the supplier with the most attractive value-added proposal, after having evaluated all the physical effort, time spent and psychological distress involved in the proposal. The objective of this work is to present a successful strategy developed to attract qualified clients.

**Materials and Methods:** 133 animal dental care records filled during the period of March 2003 and June 2006 were revised and information regarding date of admission for treatment and animal origin were tallied. The objective was to assess the impact of one event realized in March 2003 on the increase in the number of dentistry cases, services provided through referrals, and companies or professionals that started to recommend the Pró-Animal Clinic Services. After analyzing the regional market, two groups of organizations were identified as the main marketing channels: animal clinics and higher education institutions that provide veterinarian services. Veterinarians from these institutions are considered main influencers. The strategy involved helping these veterinarians to recognize main oral cavity alterations, treatment possibilities, and getting their recommendations for dental services. Training sessions consisted of a lecture-dinner when the value-added offer was introduced: consultation fees would be waived for patients referred, in writing, by a veterinarian, and the Clinic ethical obligation to send the patient back to the veterinarian responsible for the patient together with his dental records, X-ray documentation and a letter describing all the procedures. The objective of this proposal was to value the diagnosis made by the veterinarian responsible for the animal, emphasizing that this is an exclusive benefit he provides his client with. Special care was given to the preparation, dissemination and organization of the event, when the ethical conduct and reliability of the Pro-Animal Clinic Services were reinforced through a clear and transparent language. All participants were personally invited to show their importance. The lecture was divided into two parts. First, the history of Clinic’s involvement with animal dentistry was chronologically presented to show all the effort and investment made on professional development and the necessary infrastructure. Next, all the necessary tools to help participants identify in their patients the most frequent dental problems, as well the benefits of having the services of a specialized professional were emphasized.

**Results:** The action resulted in a 124% increase in dental consultations, 183% increase in the number of consultation through referrals, and in a 114% increase in the number of veterinarians that started recommending the Clinic’s services.

**Discussion and Conclusion:** The Pró-Animal Clinic in Londrina, Paraná, Brazil has provided dental care services for 6 years and has developed many ways to prospect clients such as ads and articles in newspapers, interviews on TV and mail shots with very low return on the investment. Results have shown that the event was successful in creating an adequate image for the company, stressing the Clinic’s capacity to carry out the proposed services, which increased significantly the number of referrals. The choices of specific channels and
influencers as well as of the value to be added to services were adequate to prospect qualified clients.


INDEX TERMS: Prospection in animal dentistry; qualified clients, value-added proposal.

011. Filla S.C.F & Gonzáles J.R.M. 2007. Type 3 malocclusion with type B lesion in a 10-year-old poodle: a case study. Pesquisa Veterinária Brasileira 27(Supl.). Clínica Veterinária Pró-Animal, Londrina, PR, Brazil. E-mail: pro-animal@uol.com.br

Introduction: Malocclusions in dogs are common and are classified in Types 0, I, II and III (Hennet et al. 1992, Harvey & Emily 1993). Several orthodontics adjustment methods have been recommended to malocclusion based on the etiology, animal age and type (Legenfre 1994). If not treated early, malocclusions can cause chewing alterations, tooth wear, soft tissues trauma, periodontal diseases and tooth fractures (Shi et al. 1997, Wiggs & Lopprise 1997, Hallmon 2001). In these cases malocclusions must be adjusted and its consequences treated. The objective of this work is to report on the treatment of enamel and dentine lesions with tooth pulp exposure due to a Type III malocclusion late diagnosis in a 10-year-old poodle.

Materials and Methods: A 10-year-old poodle with tooth enamel lesions on the right upper canine tooth was seen at the Clinic. Clinical tests showed that the right lower canine was occluded towards the right upper canine, touching it lightly and producing an enamel lesion. X-ray analysis classified the lesion as Type B (Harvey & Emily 1990), involving the dentine and exposing the pulp. Due to the pulp exposure, the therapeutic procedure adopted was the penetration of disinfectant into the upper canine, filling it with zinc oxide, eugenol and gutta-percha and restoring the amalgam. A pulpectomy and tooth crown amputation followed by root canal filling with zinc oxide and eugenol and amalgam restoration were carried out due to the malocclusion and animal age.

Results: The right lower canine crown reduction avoided the occlusion of these teeth towards the right upper canine, preventing the development of the problem. Endodontic treatment of the right upper canine treated the focus of infection and the source of pain thus improving the life quality of the animal.

Discussion and Conclusion: Malocclusion late diagnosis led to an occlusion trauma with tooth pulp exposure (Brine 1999). Under an early diagnosis, this problem would have been prevented and the root canal treatment of the right lower canine unnecessary. In this case, a root canal treatment or a crown amputation of the right lower canine and a pulpotomy would be sufficient (one intervention only). A late diagnosed malocclusion requires two or more procedures: an orthodontic and an endodontic or crown amputation, pulpectomy and endodontic treatment. In this case, the age of the animal, its aggressive behavior and cardiac alterations led to the non-adoption of the orthodontic treatment since the use of orthodontic braces would be more complex and demand more anesthesia. Findings from this study showed that the late diagnosis of a malocclusion may lead to endodontic alterations, increase in the number of procedures and prolonged suffering (Yu 2004, De Simoi 2006).


INDEX TERMS: Malocclusion, orthodontics, crown amputation, dentistry animal.

012. Freitas E.P., Rahal S.C., Teixeira C.R., Fornazari F., Giordano T. & Gioso M.A. 2007. Oral cavity evaluation of wildlife Didelphis albiventris from Brazil. Pesquisa Veterinária Brasileira 27(Supl.). Departamento de Cirurgia e Anestesiologia Veterinária, FMVZ-Unesp, Botucatu, SP 18618-000, Brazil. E-mail: eliperezfr@yahoo.com.br

Introduction: Didelphimorphs are small to medium size marsupials including three species: Didelphis virginiana, D. marsupialis, and D. albiventris. Didelphis albiventris are small mammals with black fur covering the greater part of the body and may be divided according to age in juveniles (3.4-8 months), subadults (7.5-9.5 months) and adults (>9.5 months) (Gentile et al. 1995, Cáceres & Monteiro-Filho 1999, Samoto et al. 2006). They are found distributed throughout South America (Muller et al. 2005). Their behavior is nocturnal and during the day they sleep on trees and other shelters (Samoto et al. 2006). Their diet consists mainly of insects, fruits, seeds and vertebrates (Aguiar et al. 2004). The dental formula (one side of one jaw) includes 5 incisors (four on the mandible), 1 canine, 3 premolars and 4 tricuspid molars (Fonseca & Alves 2006). The aim of this study was to evaluate the oral cavity of Didelphis albiventris in wildlife.

Materials and Methods: Three juvenile and six adult Didelphis albiventris weighing from 200g to 1.6kg were studied. Under general
anesthesia a specific dentistry examination was performed and the findings were registered on the previously prepared dental chart, followed by intra-oral radiographies. The oral cavity was examined by visual inspection of the lips, the soft palate, the hard palate, the tongue, the alveolar mucosa, the buccal mucosa, and the gingiva. Each tooth was evaluated as for abnormal number, malocclusion, stains, presence or absence of plaque and calculus, mobility, attrition or abrasion, crown fracture with or without pulp exposure, evidence of furcation involvement and periodontal pocketing. Negative impression of upper and lower dental arches were obtained using irreversible hydrocolloid (alginate). Immediately after the tray was inserted into the D. albiventris mouth, jellification occurred and, upon its completion, the tray was removed and acrylic resin put into the mold. Still under anesthesia action, and a wax registration was taken (by folding the wax lamina under head). The mouth was closed enough to obtain the teeth impression on the wax.

**Results:** Seven of the nine *Didelphis albiventris* presented dental lesions as follows: dental plaque (14.28%), gingivitis (14.28%), calculus (42.86%), dental stain (42.86%), dental wearing (14.28%), dental fracture (14.28%), pulp exposure (14.28%), avulsed tooth (14.28%), and mandibular alveolar bone fracture (14.28%).

**Discussion and Conclusions:** The dental formula (one side of one jaw) includes 5 incisors (four on the mandible), 1 canine, 3 premolars and 4 tricuspid molars similar to the dental formula described by other authors (I 5/4, C 1/1, P 3/3, M 4/4 = 50) for *Didelphis albiventris* species (Fonseca & Alves 2006). Dental plaque were observed in 14.28% of the *D. albiventris*. Probably firm-textured natural diet made up of insects, fruits, seeds and vertebrates cause more natural scaling of teeth, and thus, less accumulation of plaque (Amand & Tinkelman 1985, Wiggs & Lobprise 1997, Eisenberg & Redford 1999, Nowak 1999, Aguiar et al. 2004). Dental calculus occurred in 42.86% of the *D. albiventris* and most of them were of grade 1. Dental calculus is a mineralized dental plaque, composed primarily of carbonate calcium and calcium phosphate mineral salts deposited between and within remnants of formerly viable microorganisms (Harvey & Emily 1993, Harvey 1998). It was possible to conclude that juveniles and adult *Didelphis albiventris* in wildlife did not show severe dental lesion probably associated with their diet and absence of stress observed in captivity.


INDEX TERMS: *Didelphis albiventris*, wildlife, dental alterations.

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**Introduction:** Among wild carnivore mammals, the coatis from the Procyonidae family, Procyoninae subfamily, *Nasua* genus, *Nasua nasua* specie, are frequently found in Brazilian zoos (Mehren 1986, Beisiegel 2001, Braddy 2006). Due to the few dental reports of these animals, the aim of this study was to develop a dental chart, to evaluate any oral cavity disease, to develop gypsum models of the dental arcades and to register the occlusion of coatis kept in captivity.

**Materials and Methods:** Seven coatis of *Nasua nasua* species, five females and two males, having a body weight from 4 to 6 kg, living in the Quinzinho de Barros Municipal Zoo, were used. After fasting of 7 hours, the coatis were tranquilized and 15 minutes later a general anesthesia was induced and maintained with isoflurane. Afterwards, a specific dentistry examination was performed and the findings were registered on the previously prepared dental chart. Negative impression of upper and lower dental arches were obtained using irreversible hydrocolloid (alginate). The endotracheal tube was removed, still under anesthesia action, and a wax registration was taken (by folding the wax lamina under head). The mouth was closed enough to obtain the teeth impression on the wax.

**Results:** The index of dental plaque was 1 for Coati 7, and 2 for the others. Gingivitis was detected in five animals with degree I (Coati 7), degree II (Coatis 1, 2 e 3) and III (Coati 4). Except Coati 4 that had a calculus degree 3, the others had a degree 2. Bleeding on probing of the gingival sulcus occurred with Coatis 3 and 4 at an intensity of 2 and 4, respectively. Through the registration of the occlusion in wax, the markings of the incisor teeth were of little evidence due to the long canine teeth, which avoided the incisor to carve the wax.

**Discussion and Conclusions:** The coati dental formula of the present experiment was made up of three incisors, one canine tooth, three or four premolar and two molars, similar to the dental formula described by other authors (I 3/3, C 1/1, P 3-4/3-4, M 2/2 = 36-40) for *Nasua nasua* species (Mehren 1986, Kertesz 1993). Dental plaque and gingivitis were observed in 71.43% of the coatis. These findings suggest that coatis kept in
Introduction: Numerous factors influence oral health in dogs. Age, diet, and preventive measures taken by owners are the most important ones. (Harvey & Emily 1993, Lyon 1993, Gawor 1997, Lund et al. 1999). It has been observed that older dogs have more serious oral problems. (DuPont 1998, Lund et al. 1999). On the other hand, proper diet, and appropriate homecare can significantly improve oral health status. Anatomical aspects as bodyweight, size, and type of scull may also play a role in oral health. There is very little known about genetic background of oral diseases occurrence. Particularly periodontal disease incidence is very likely linked with the genome. It is possible that anatomy of an individual dog, as a part of genetic expression, is a good example of the influence of genetics on the oral health. Therefore, the aim of the present study was to investigate anatomical factors that may influence oral health in dogs.

Materials and Methods: In 2005, members of the Dental Working Group of the Polish Small Animal Veterinary Association (PSAVA) and representatives of Masterfoods Poland recruited veterinary practices to provide free oral examinations in cats and dogs. The examination procedure consisted of three parts: 1) clinical dental/periodontal examination; 2) history taking and filling in a questionnaire; 3) presentation of diagnosis and management plan to the owner. Parameters such as age of the patients, size of mandibular lymph nodes, presence of dental deposits, and presence of periodontal disease were recorded and scored, utilizing standardized charts. (Gawor et al 2003) Presented studies shows results obtained from pedigree dogs distinguished from the total population of examined animals. The oral health index (OHl) was a sum of single parameters: lymphadenopathy, dental deposits, and periodontal disease (Table 1). The best score was 0 that mean optimal oral health while the worst possible score was 7. The oral health score was related to two parameters: dogs’ weight and type of skull. Based on the proportion of muzzle to the skull dogs were grouped into brachycephalic, mesocephalic, or dolichocephalic type. Complete data were obtained from 5462 pedigree dogs in 730 Polish veterinary practices. The oral health was expressed as oral health index (OHl) that was a sum of single parameters score. (Gawor et al. 2006) Statistical analysis was performed using Chi square test (Statistica 6.0, USA). P<0.05 was considered significant.

Results: In the present confirmed that age is one of the most important factors influencing oral health (Fig.1). Therefore, dogs over 3 years were taken for the further analysis. Adult dogs weighing less that 5 kg showed more frequent OHI 5 while in heavier dogs OHI 1 and 2 were the most frequently scored (Fig.2). Statistical significance in occurrence of OHI equal 0 was observed in dogs weighing more that 25 kg in comparison to dogs weighing less than 5 kg (P<0.001). On the other hand, in dogs lighter than 5 kg occurrences of OHI equal 7 was significantly higher that in dogs weighing more that 5 kg (P<0.01). Moreover, dogs weighing more than 25 kg showed less frequent occurrence of OHI equal 7 than lighter dogs. There was a large disproportion of number of representative dolichocephalic dogs (n=40) in comparison to mesocephalic and brachycephalic dogs n=4791 and 648, respectively. Therefore, the interpretation of the data concerning dogs with long muzzle is questionable. Mesocephalic dogs showed equally frequent incidence of OHI score 0 in comparison to brachycephalic dogs (P=0.48). Similarly, OHl equal 7 had the same incidence in both groups (P=0.23). However, OHI equal 1 was more frequently observed in mesocephalic dogs (P<0.01). On the other hand OHI equal 6 was more frequent in brachycephalic dogs (P<0.01). (Fig.3)

Discussion and Conclusions: Obtained results show that smaller dogs are more prone to the occurrence of oral health problems regardless the age that is very important factor influencing oral health. Moreover, proportions of the skull influence the oral health. Brachycephalic dogs are more often affected than the rest of the population studied. Due to low number of
Introduction: The “dental disarming” (crown amputation) in wild animals consists in cutting the canine teeth in close to the cervical line of the tooth so that they have the incisive teeth crown height. The purpose of this technique is to eliminate the dangerous potential represented by the canine teeth, which can lead the animal to lethal accidents, serious injuries caused by "dental disarming" in chimpanzee (Pan troglodytes). Pesquisa Veterinária Brasileira 27(Supl.). Laboratory of Comparative Dentistry, Surgery Department, FMVZ-USP, São Paulo, Brazil. E-mail: maggioso@usp.br

Table 1. Oral health parameters assessed during patient examination

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Scorea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of mandibular lymph nodes on palpation</td>
<td>0</td>
</tr>
<tr>
<td>Presence of dental deposits (plaque, calculus and stain)</td>
<td>1 to 3</td>
</tr>
<tr>
<td>Presence of periodontal disease</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Oral health index scoring system

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of mandibular lymph nodes on palpation</td>
<td>Normal</td>
</tr>
<tr>
<td>Presence of dental deposits (plaque, calculus and stain)</td>
<td>Absent</td>
</tr>
<tr>
<td>Presence of periodontal disease</td>
<td>Absent</td>
</tr>
</tbody>
</table>

Fig. 1. The influence of age of pedigree dogs on oral health index.
Data expresses as a percentage of OHI incidence in 5 age intervals.

Fig. 2. The distribution of OHI in five weight categories.

Fig. 3. The influence of skull type on incidence of OHI score in dogs over 3 years.

by the animal bite, or self trauma. This procedure is conducted to decrease the risk and severity of bite wound trauma to personnel, other nonhuman primates, and to the primates themselves (Kertsz 2003). Several techniques are used to disarm the canine teeth of nonhuman primates. Disarming nonhuman primate teeth is presently the subject of debate due to the high incidence of abscessation of the affected tooth (Lyon 2001. Pachaly & Gioso 2001). The most common techniques used to disarm teeth include complete extraction of canines, crown reduction followed by a mucoperiosteal flap, crown reduction followed by a root canal, or crown reduction followed by a pulpal capping procedure (Lyon 2001). A pulpotomy is also an acceptable procedure in these cases. To leave an open and exposed pulp canal after disarming is an invitation to infection and litigation (Amand & Tinkelman).

This surgical procedure requires sterile technique. Surgical preparation with rubber dam technique, surgical drapes, caps, masks, gloves, and sterile instruments is indicated (Forrest 1986). After evaluation of dental radiographs, the pulp chamber is entered and the pulp is removed down to about the cervical level of the tooth. It is advisable to avoid the cervical level of the pulp, which is important in dentin production and contributes to the strength of the tooth. Approximately 5 to 10 millimeters of pulp are removed using a water-cooled round diamond bur in a high-speed handpiece. Gently wash the pulp with saline and place a moist cotton pellet on the pulp until the bleeding stops, in general not more than 15 minutes. Then wash the pulp again before placing a pulp dressing. Calcium hydroxide is introduced over the pulp tissue as a powder. Exposed dentin should be coated also. A glass ionomer is over the calcium hydroxide pulp dressing. A crown restoration is completed using a direct bonded composite restorative. Placement of a light cured unfilled resin placed over the pulp tissue without placement of calcium hydroxide has also been described, as well as CO₂ laser vital pulpectomy techniques (LYON, 2001). If the pulp bleeding does not stop after five minutes, remove 2 to 3 millimeters of pulp. If hemorrhage continues, proceed with conventional endodontic pulpectomy and obturation techniques. Assessment of successful vital pulp is made with dental radiographs at six weeks, six months and then yearly. A dentinal bridge may be evident indicating a successful procedure. However, success may be seen without an obvious dentinal bridge. Periodic reassessment with radiographs is the only method of determining a successful procedure.

**Case Report:** A female chimpanzee, belonging to a circus, was referred to the Laboratory of Comparative Dentistry of FMVZ-USP, where its oral cavity was examined and the animal was maintained in an anesthetic plan by Sevolflurane. During the oral evaluation, it was seen that three canine teeth had passed through crown reductions without specific endodontic procedure. However, these teeth were apparently healthy because of the tertiary dentine (reactional) produced by the dental pulp, which occluded the root canal and minimized the traumatic pulp exposure effects. Nevertheless, the upper canine tooth was not with the same reactional pattern and, probably, presented an infectious and inflammatory endodontic lesion that leaded to a pulp necrosis, root resorption and gingival hyperplasia. These last signs were observed during the oral cavity clinical exam. As treatment, the roots of the teeth were extracted, after intra-oral radiography, because the direct inspection of this dental element was not possible due to gingival hyperplastic reaction which was covering the teeth.

**Discussion and Conclusion:** There are ethical elements involved in these “dental disarming” procedures, once they are mutilating to the animal and this procedure has to be accomplished exclusively by veterinarians. The extent of the dental procedure may vary in individual cases from crown amputation of canine teeth to extraction of all teeth. All dental treatments must be performed appropriately, under general anesthesia, understanding the disadvantages and risks. Crown amputations must reduce crown height appropriately, and remaining tooth structure requires endodontic therapy, including periodic long-term radiographic evaluation. Crown amputation with endodontic therapy or extraction of multiple teeth rarely causes long-term complications. Appropriate pain management measures are essential. Even after this procedure is performed, aggressive individuals are still capable of inflicting serious damage, including mortal injury. “Dental disarming” should be reserved as a procedure of last resort.


**INDEX TERMS:** Dental disarming, crown reduction, Chimpanzee, Pan troglodytes, primates, pulpotomy.

**Oclusal adjustment on mare with upper fourth premolars missing.** Pesquisa Veterinária Brasileira 27(Supl.). Dentist and Veterinarian in Private Practice in Brazil. C-D, M-V, MSD. E-mail: rosalina@cpovo.net

**Introduction:** Although horses can have up to forty four teeth, canines are usually present on male horses. Lower woolf teeth are not as common as upper ones but these kind of absences are considered normal (Baker 1999). Missing teeth can occur due to periodontal disease, caries, trauma and also be congenitally missing. Malocclusion will develop when congenitally missing teeth are present because adjacent teeth migrate to the remaining space and diastemata will appear on other areas (Pence & Wilewski 2002). Food impaction will occur between diastemata (Pence 2002) and teeth of the opposing arcade will extrude causing some times gingival and osseous trauma. The antagonist tooth in certain cases should be extracted (Baker 1999).When there is an incisor missing the extruded tooth should be filled (Mitz 2003). Motorized equipment allows a faster and more precise work and also a less stressful job for the veterinarian (Dacre & Dixon 2002).
But it is important to know the technics and risks to use this kind of equipment (Scrutchfield 1999).

Materials and Methods: A 15-year-old thoroughbred mare arrived at the hospital with a history of weight loss. An oral exam was done and it was observed that both upper fourth premolars were missing. Steps were found on the opposing arcade which were causing gingival trauma. Sedation was done with xylazine (0.5mg/Kg) and radiographs were taken before and after the procedures. Mouth was rinsed with water and the oral speculum and dental halter were placed after. Oclusal adjustment was done with motorized equipments and refrigeration was done simultaneously. The oral speculum and dental halter were removed at the end of procedure. Since the steps were so pronounced oclusal adjustments were done three times with intervals of six months in between. The oclusal adjustment was not done all at once to avoid pulp damage.

Results: As a result of the oclusal adjustment there was improvement on the score condition. Also the radiographs show reduction of both steps.

Discussion and Conclusions: There is no doubt that the motorized dental equipments changed the way equine dentistry is done and allows a better and faster job with less force by the professional. But it is important to keep in mind that this kind of equipment should be used by experienced professional because on the contrary there is a risk to remove excess tooth structure and as a consequence reduce its functional life. Besides there is a risk to cause irreversible pulp damage due to the heat produced by the equipment and also pulp exposure on the occlusal surface caused by excess tooth removal.


INDEX TERMS: Equine dentistry, oclusal adjustment, missing premolars.
mental foramen, the premolars teeth can also be desensitized (Hague & Honnas 1998). Complications associated with local anesthetics are rare in the horse, making this agent an attractive option in the high-risk patient. The main complication associated with local anesthetic is over dosage, causing changes in the central nervous system activity (excitement or depression), muscle tremors and hypotension. However, the dose required to produce these effects in the horse is very high (12mg/kg), justifying the uncommon complications (LeBlanc 1990). Short-term or long-term analgesia is most commonly provided with non steroidal anti-inflammatory drugs.

**Discussion and Conclusion:** Although many dental procedures can be performed on the standing standing horse, by the use of local anesthetic agents, the decision to perform this procedure must be made on the basis of the temperament of the horse, severity of the injury and skill of the surgeon. The knowledge of the nerves anatomical sites and the correct use of nerve blocks will greatly facilitate the correct diagnosis and permits a surgical treatment of a great numbers of dental affections avoiding the general anesthesia associated risks and costs.


**INDEX TERMS:** Horses, regional anesthesia, nerves, mandibular, maxilla.

018, Holms C.A.T.A. & Gioso M.A. 2007. **Tooth extraction in horses.** Pesquisa Veterinária Brasileira 27(Supl.):00-00. Laboratório de Odontologia Comparada, Faculdade de Medicina Veterinária e Zootecnia, Universidade de São Paulo, FMVZ-USP, São Paulo, SP 055900-000, Brazil. E-mail: carolaholms@hotmail.com

**Introduction:** Tooth removal is the most frequently performed oral surgery in the horse. Usually, the exodontia should be considerate when other more conservative treatments do not respond well or have failed (Dixon et al. 2000). The most common indications for dental extraction include retained deciduous teeth, advanced periodontal disease, dental fractures, supernumerary tooth, displaced or misaligned teeth, dental impaction and periapical abscesses (Tremaine & Lane 2005). There are many extraction techniques, and the selected one will depend on the tooth to be removed, the kind of tooth disease and the preference of the surgeon performing the procedure (Tremaine & Lane 2005). While many dental extractions can be performed in the sedating standing horse, the necessity for general anesthesia in difficult patients or for complicated procedures must always be considered (Orsini 1992).

**Literature Review:** Dental extraction is a technically challenging procedure, demanding careful preparation, specialized equipment and a surgeon that has a meticulous technique, avoiding intra and post-operative complications (Tremaine & Lane 2005). The purpose of all extraction procedures is to separate the tooth from the jaw, breaking down the periodontal ligament, structure that attaches each tooth to its respective alveolus. This procedure is easily performed in aged horses, which have shorter reserve crowns, and in severe periodontal disease cases, which present a weak periodontal attachment (Dixon 1997b). A great number of radiographs should be made before the exodontia procedure. Dental removal should never be undertaken when doubts remain as to diseased tooth (Mueller 1991; Lane 1994). Clinic and radiographic detailed exams are very helpful to choosing the best extraction technique (Mueller 1991). The oral extraction is the less traumatic technique, and has been associated with a reduced incidence of complications (Dixon et al. 2000). It is the current technique of choice for the majority of horses (Lowder 2000). The oral extraction can be performed with standing chemical restraint and local anesthesia. Extraction of the caudal molars teeth using this technique is more difficult because the limited mouth wide opening of the equine temporomandibular joint. Also, oral extraction could not be applied in dental impaction cases and should not be applied in fractured and severe carious teeth (Dixon 1997b, Tremaine & Lane 2005). The oral extraction technique begins with preoperatively antibiotic and anti-inflammatory drugs administration (Easley 1991). A speculum is inserted and opened to provide access and visual identification of the tooth to be removed (Orsini 1992). After that, the gingival tissue on both sides, buccal and palatal or lingual is elevated from the tooth using a periodontal elevator (Dorn 1989). Molar separators can be used to loosen the rostral and caudal periodontal attachments, except between the first and second and between the fifth and sixth cheek teeth, because the risk of iatrogenical loosening of the first or a last healthy cheek teeth (Tremaine & Lane 2005). Once the loosening of the periodontal attachments, the molar extractors should be firmly placed on the tooth. Low amplitude rotary movements should be done in the horizontal plane. This amplitude should be increased slightly as the tooth becomes loose, but excessive forces need to be avoided, because they can result in fracture or shearing of the clinical crown (Baker 1991, Dixon 1997b, Lowder & Mueller 1998, Tremaine & Lane 2005). Once extracted, the tooth should be inspected for integrity, exceptionally in the apical area. The alveolus should be curetted to avoid the presence of remaining dental or alveolar bone fragments (Easley 1991, Orsini 1992). In this technique, as well as the surgical ones, the dental alveolus may be temporarily protected with dental wax, impression compound or gauze.
soaked in an antibacterial solution, to avoid food and saliva impaction. The packing will be gradually extruded as the alveolar heals (Tremaine & Lane 2005). Radiographic exams should be done again, looking for dental remaining fragments, one of the main post-operative complications (Easley 1991). The surgical extraction of equine teeth is performed under general anesthesia through the utilization of an endotracheal tube, protecting the horse airways (Mueller 1991). It is a procedure that may have many potential complications in the intra and post-operative periods. The skin over the surgical site must be cleansed, and prepared for an aseptically procedure. Preoperatively antibiotics and anti-inflammatory drugs are recommended too. There are basically three techniques that have been used nowadays (Tremaine & Lane 2005). Dental repulsion is the most traditional method for the surgical extraction of cheek teeth in horses (Easley 1991, Lane 1991, Mueller 1991, Orsini 1992, Dixon 1997), where an osteotomy access over the apex of the diseased tooth is made in order to drive it into the mouth with a punch (Turner & McIlwrath 1989, Dixon 1997, Tremaine & Lane 2005). This technique can be used in both, maxillary and mandibular teeth, but the repulsion of the last mandibular teeth frequently requires an incision of the masseter muscle (Gaughan 1998). However, this repulsion technique is suggested as the surgical option to remove all the maxillary molars teeth and the last mandibular teeth (Triadam 109, 110, 111, 209, 210, 211, 311, 411) (Tremaine & Lane 2005). As in the oral extraction technique, the repelled tooth should be inspected for any missing pieces and the alveolus should be curetted. Radiographic evaluation should be done as well (Gaughan 1998). This technique requires careful aftercare because of the long healing time and a secondary sinus empyema development in some cases (Easley 1991; Pascoe 1992; Orsini 1992). The buccotomy technique purpose is to make a horizontal skin incision through the cheek, centered over the diseased tooth, followed by a gingival flap and a removal of the buccal crest of the alveolar bone and a dental longitudinally sectioning, splitting the tooth, which is withdraw laterally (Evans et al. 1981). The alveolus should be curetted and radiographic evaluation should be performed after the procedure. The oral defect should be protected, and the incision is closed in three layers starting with the gingival mucosa. This technique could be used to remove the premolars in all arcades (Tremaine & Lane 2005). The vertical alveolar osteotomy, a modification of the buccotomy technique is an option to remove the 309, 310, 409 e 410 teeth, taking account the position of the linguofacial artery and vein as well as the parotid salivary duct. A vertical skin incision is made, and the vertical osteotomy incisions are made in the dental interproximal spaces, removing at least two-thirds of the lateral alveolar wall before attempting to remove the tooth. Residual root tissues should be removed and the oral defect protected. Radiographic evaluation needs to be performed also. The mucosal and skin defects should be closed (Tremaine & Lane 2005). There are a great number of post-operative complications involving equine tooth removal, frequently caused by incomplete removal of the diseased tooth, causing or maintaining infections and persistent drainage (Pascoe 1992). Also, after the removal of an equine tooth, the opposite one will not be worn down, because there is no more wearing by the antagonists (Orsini 1992).

**Conclusions:** The exodontia remains the most common oral surgery in the horse (Dixon et al. 2000). The surgical extraction techniques should be done with a careful preparation and an appropriate knowledge of the anatomy of the surgical site (Tremaine & Lane 2005). A precise diagnostic is very helpful, and a great numbers of radiographs should be taken before choosing the correct surgical procedure. After all dental removal, radiographs always need to be done, looking for a presence of any dental or alveolar bone fragments. The post-operative care should not be neglected and the healing alveolus should be monitoring until it becomes filled by granulation tissue, avoiding post-operative complications. The opposite teeth need periodic wearing, avoiding overgrowth.


INDEX TERMS: Horse, teeth, exodontia, extraction, buccotomy, repulsion.

019. Jamshidi Sh¹ & Bokaie S² 2007. Epidemiologic study of periodontal disease in dogs referred to the small animal hospital, faculty of veterinary medicine, University of Tehran. Pesquisa Veterinária Brasileira 27(Supl.).¹ Department of Clinical Sciences, Faculty of Veterinary Medicine, University of Tehran, Tehran-Iran; ²Department of Food Hygiene, Faculty of Veterinary Medicine, University of Tehran, Tehran-Iran. E-mail: shjamshidi@vetmed.ut.ac.ir

Abstract: This study as the first time in Iran performed to determine the prevalence of periodontal disease and gingivitis. 300 dogs with 6 months of age and older that was referred to small animal hospital, faculty of veterinary medicine, University of Tehran included in this study. In all cases factors like as age, diet and content of bone in it (hardness of diet) and occlusion...
Introduction: The knowledge of the anatomy of the stomatognathic system has essential importance for clinical practitioners and surgeons in order to be able to present diagnosis and institute an adequate and necessary treatment. Despite veterinary dental books present simple or detailed descriptions of most of the surgeries, none of them describe the dental organ individually, which could contribute for the surgical act, with better precision and knowledge. Almost all of veterinary medicine and veterinary dental researches, in which the dental anatomy is cited, is limited to describing the dental formula, its differentiation, structure, formation and eruption. The individual analysis of each dental element was not found. However, such information exists in abundance in human dentistry literature. Moreover, great part of the human procedures has been done in animals, which lead us to conclude about the importance to get these information into practice. So, we describe, as analogous to the existing books of human dental anatomy, to detail and to nominate the dental organ, through photographs, facilitating the surgical procedures and supplying information that bring greater precision to the surgeon. In addition, the recognition of dysfunctions occurring from morphologic and functional alterations can also be established.

Materials and Methods: The research used ten macerated skulls, being five skulls of dogs and five skulls of cats, studying 210 teeth of the respective skulls and 130 dental elements of cats. The skulls were macerated. The dental correlations of localization and situation of the dogs more than 5 years old showed some degrees of gingival disease. Furthermore gingival diseases were more common in the dogs with soft diets (75.5%). Dental calculus were deposited mainly on maxillary forth premolars and first molars, but dental mobility was more prevalent in incisors. Based on results of the study, gingival problems should be considered as one of the most common disorders in small breeds of dogs and such animals' especially older ones need more attention to oral hygiene procedures.

INDEX TERMS: Periodontal disease, epidemiology, dog.

020, Kowalesky J. & Gioso M.A., 2007. Dental anatomy of the dog and the cat. Pesquisa Veterinária Brasileira 27(Supl.). Departamento de Cirurgia, FMVZ-USP, São Paulo, SP CEP 05508-000, Brazil. E-mail: jukowalesky@hotmail.com

Introduction: The ferret, Mustela putorius furo, is a carnivore in the family Mustelidae, which probably dates back 40 million years ago. This family includes about 23 genera and 67 species that had been recognized in North, Central,
South America, Europe and Africa. The genus Mustela is divided into five subgenera: Mustela (weasels), Lutreola (European mink), Putorius (ferrets), and Grammogale (South American weasels). They showed such adaptation at different ecosystems. Some are arboreal, others fossorial and a few aquatic. The ferret domestication had occurred more than 2,000 years ago, but there are not much record about this. The name “ferret” is derived from the Latin furone and the Italian furone. “Putorius” is derived from Latin putor, a stench, which applies to the musky odor of the ferret. This animals have been used as a pet, biomedical research and hunting. As a result of its behavior, traits and burrowing instincts, they developed some anatomic adaptations. A long neck and placement of the carotid arteries that help the ferret to keep sufficient cerebral blood flow in tight places. With long body, short muscular legs and long tail. Their average varies in 44-46cm from nose to tip of the tail. Powerful jaws, large canines and reduced molars. The cranial skull had the same structures of the dog and cat. They generally live between 5 and 8 years old. Both sexes exhibit seasonal fluctuations of up to 30-40% in body weight. Males can be twice larger than females, even if neutered. Most of the ferrets in Brazil came from one of the major producer, in North America. Neoplasms in ferrets probably have existed since they first evolved, but were not reported. In 1979 some cases were documented. Some researches contribute to this with the reproduction as laboratory animals (in biomedical research) and as a pet, increasing number of neoplasms. Nowadays neoplasia is the major clinical diseases in ferrets. The statistics reveals that 43.7% are endocrine system; 21.5% hemolymphatic; 11% intertegumentary. The most frequently neoplasms are pancreatic islet cell tumors (21.3%); adrenocortical cell tumors (20.1%) and lymphomas (19.1%). Multiple types of neoplasia can occur simultaneously and clinical sign vary depending of it. In ferrets, dental abnormalities are related commonly in older patients and found incidentally on clinical examination, usually fractures of the teeth and periodontal diseases. Symptom are anorexia associated or not with swelling. Oral squamous cell carcinomas, fibrosarcomas, and salivary gland adenocarcinomas have been reported. Severe and extensive involvement of the bone is common, but the metastases are considered low. This kind of disease is rarely seen by the owner; unless the patient presents sings like increase of salivation, weight loss, halitosis, blood discharge, dysphagia, tooth loss and occasionally lymphadenopathy. The cancer diagnostic is difficult because of the wide range of oral cancers and its behavior. It is recommended thoracic radiographs associated with a good abdominal palpation. In oral cases regional radiography and computed tomographies establish the prognosis and evaluate neoplasia extension (bone, adjacent tissue, pharynx, nasal cavity and others). These subsidiary exams are suggested, in most animals, before a careful anesthesia. A biopsy and histopathologic examination are essential. The lymph nodes should be palpated and if possible a cytology with a fine needle. In ferrets it is not common because of the lymphonode diameter. A cytology preparation is contra-indicated when is associated with necrosis, inflammation or infection. The most common therapy used in oral neoplasia is surgery and cryosurgery. Radical surgeries such as mandibulectomy and maxillectomy are well tolerated by most of the patients and are indicated when there is a large bone invasion. The literature recommends margins at least 2cm for malignant cancers, like squamous cell carcinoma, malignant melanoma and fibrosarcoma. Some recent reports suggest chemotherapy and radiation therapy as adjuvant. Oral neoplasia does not respond well to this therapy alone. The cryosurgery may be indicated for lesions minimally invasive.

**Case Report:** The owner noticed a mass involving the rostral area of the mandible from her ferret, male, 5 years old. The mass was ulcerated and around 0.8centimeter at the rostral part of the jaw, another mass on the right upper lip with 0.3centimeter of diameter, where the inferior canine (404) made direct contact. The animal was clinically well, eating normally and without any sign, except the visible increase of volume in oral cavity, for two weeks. It was suggested an abdominal ultra-sound and X-Ray to investigate the possibility of metastasis or local osteolysis. And it was detected a radiotransparency at cranial skull (around the inferior incisors). The ferret was submitted to general anesthesia with isoflurane after orotracheal intubation. The histopathologic results indicated the squamous cell carcinoma. After 20 day a surgery resection with the same anesthesia was done. The only difference was the use of premedication with acepromazine (0.05mg/kg) and morphine (0.3mg/kg). At surgery it was noticed an increase of mandible volume with approximately 1.5cm of diameter and 0.5cm of diameter in the right upper lip. The incision was carried through with conventional scalp, distal to the 3rd premolar bilaterally, mucosa and gingiva was dissected and bone exposed. The bone was removed with a surgical drill and the mandible vascularization isolated bilaterally for the ligature. After that the rostral portion at the jaw was removed in block, with the canines, incisors and pre-molars teeth. For suture it was used 4-0 nylon. At the right upper lip the mass was removed without a free margin because there was no more area for excision. Postoperatively the animal was submitted to flusher with 0.12% chloroxidine, antiinflammatory, antibiotic and analgesic. The ferret was very well and eating paste food and drinking water normally. Until 30 days after the surgery there was no sign of recurrence. Three months after the surgery, it showed a mass on right upper lip, a small nodular and ulcerated mass. It was suggested cryosurgery, but not approved by the owner. Since then the ferret was treated with prednisolone (1mg/kg). Five months after surgery the animal return and at that moment it was no more life quality, they choose by euthanasia.

**Discussion and Conclusions:** The ferret domestication occurred since more than 2,000 years ago, but many veterinarians still have doubt about how to manipulate this species. Mainly because there is only a small number of studies, we must investigate and report more about this and it’s individual interaction with different therapies including neoplasms. These case showed that we can do surgery to make this animals live longer and with quality.

Introduction: Feline chronic gingivostomatitis (FCGS) is an oral disease of unknown etiology and frequent presentation, characterized for chronic and persistent inflammation of oral tissue, also presenting ulceration and proliferation of mucogingival tissue and glossopharyngeal folds. It has uncertain prognosis and sometimes is untreatable (Anderson 2003).

Case Report: The patient was a 2.5-year-old red striped tabby queen called “Niña” of 2.9 kg weight. She had no vaccines, was dewormed and ate commercial food. The patient had been treated with antibiotics and NSAIDs for a previous case of gingivitis, but reappeared when stopping medications. - Owner’s complaint was anorexia, weight loss and sialorrhea. Physical exam showed a body condition (BC) of 2/5, she was depressed, scared and had tangled hair. Physiological parameters (T, HR, RR) were within normal limits, she had pale ocular mucous membranes, 7% dehydration and no relevant abnormalities in abdominal compression. Intraoral exam showed pain upon opening mouth, sialorrhea, gingivitis, bilateral fasciitis, bleeding and friable mucosa. When examining under general anesthesia there was little tartar and no periodontal disease. Radiographic evaluation excluded the presence of feline odontoclastic resorptive lesion (FORL). - Feline chronic gingivostomatitis, eosinophilic granuloma, squamous cell carcinoma, and retroviruses (Feline Leukemia Virus and Feline Immunodeficiency Virus) were considered as possible diagnoses. Complementary exams were suggested. Laboratory Exams were taken: complete blood work was made including: CBC, biochemical panel (both within normal ranges), FIV and FELV testing (both negative) and oral lesion biopsy. Biopsy informed mucous and submucous inflammatory lympho-plasmocytic infiltration, establishing the diagnosis of lympho-plasmocytic feline chronic gingivostomatitis. - Treatment: The patient underwent periodontal treatment (dental mechanical hygiene) and extraction of all dental pieces except for the following teeth: 104, 204, 304, and 404. She received a prescription for amoxicillin (20mg/kg TID PO), Metronidazole (10mg/ kg BID PO) and Prednisone (1 mg/kg BID for a week, tapering dose 50% each following week ending with 1mg/kg EOD for 7 times). Intralesional triamcinolone was applied before the surgery. - Post surgical evaluation showed improvement in premolar and molar areas but no changes in fasciitis. Three weeks later a long acting depot corticoid was prescribed (Methylprednisolone 20mg/cat IM) diminishing oral lesions. Six weeks later she presented new lesions showing bloody and friable mucosa, pain and salivation. She received again methylprednisolone using the same dose. She came back before the 6 week period with dermatologic lesions such as diffuse alopecia, thin skin and angioedema in the abdominal area. - Corticoid administration was suspended and a Cyclosporine therapy was made in a topical oral presentation of 0.5%. Oral ointment was applied directly over the affected areas every 12 hours for a month. A 3-week later evaluation showed significant improvement of fasciitis, hair condition and an increase of 200g in weight. The next evaluation (30 days later), fasciitis was completely absent and complete blood work panel was normal. - Evaluations were made 2 and 4 months after suspending treatment, no oral lesions were found. A year later the patient didn’t show any oral lesion, her final weight was 3.6 kg.

Discussion and Conclusions: The present case involved a domestic feline queen; literature says that it can affect cats of any age and breed, although there is some controversy pure breeds such as Siamese, Persians, Himalayan and Burmese cats can be overrepresented (Cristal 2000). - The patient underwent the detection of Feline Leukemia Virus antigens and Feline Immunodeficiency Virus antibodies, because FIV has an important role in FCGS. Both tests were negative. Different authors have found FIV to be present in 10 to 81% of FCGS cases. Oral inflammation is also very common in cats positive to FELV, which is shed in high concentration in saliva of persistent carrier cats. However other studies have failed to show any association between severity of oral lesions and concurrent infection by FELV. Prevalence of infection with this virus in FCGS cases has been consistently low in different studies with values that go between 0% and 20% (Unno 1996, Harley 2003) - In this case the exact cause of the pathology couldn’t be established, but most authors’ theories imply that cats with FCGS have a severe inflammatory response derived from an immunologic dysfunction. Peripheral T CD4 cells (T helper cells) and high levels of T CD8 cells (T cytotoxic and suppressor cells) have been found (Harley et. al. 2003a,b) showing associations with other infectious agents (bacteria and viruses) like Bartonella henselae (Anderson 2003, Unno 1996). In Chile there aren’t testing available for B. henselae or calicivirus, despite the fact that they are highly associated with this disease. B. henselae testing is only available for humans. - The patient showed characteristic signs of FCGS: weight loss, salivation, oral pain, halitosis. The affected area was symmetrical, inflamed, ulcerated and granular. Oral mucosa lesions were in the gingiva, glosoplatan arches and pharynx which is consistent with findings mentioned by several authors (Harvey 1994, Klein 1999, Sparker 2001). - Even though clinical signs were similar to findings described by specialists, a biopsy was made to rule out other possible diseases like squamous cell carcinoma and eosinophilic granuloma. Biopsy showed great number of inflammatory cells (neutrophils), lymphocytes and plasmatic cells. Lymphocyte and plasmatic cell infiltration was found in chronically exposed connective tissue, also there was mucosal hyperplasia with great infiltration of the same cells. A small number of neutrophils, eosinophils and macrophages were found in the submucosa (Anderson 2003, Harley 2003c). - In many patients tooth extractions (molars and premolars) by itself is an effective treatment. Eighty percent of the patients respond successfully to dental extractions and the 20% remaining are refractory. Our patient was in this 20% that showed no response to corticoid and dental procedure (Hennet 1997). A proven and effective treatment
Cyclosporine has the ability to inhibit enzymes that catalyze
a process. In this case topical immunosuppression. Remission is described but the economical others prefer an oral dose of 5mg/kg BID. In this case renal treatment as ointment in 0.5% or in tablets using oral dosage of 3mg/kg BID for a maximum of 3 months or until clinical cure. Other authors prefer an oral dose of 5mg/kg BID. In this case renal and hepatic evaluations must be made. Secondary reactions are soft stools, gingival hyperplasia, nephrotoxicity, hepatotoxicity and immunosuppression. Remission is described but the economical cost is expensive. (Harvey & Brethnach 2004). In this case topical cyclosporine 0.5% ointment (prepared in a base that insured adherence to damaged mucosa) was used showing positive results 30 days after starting treatment and full recovery in 6 months, allowing the patient to gain weight and improve her general condition. A year later there were no signs of the disease. - Cyclosporine has the ability to inhibit enzymes that catalyze reactions necessary for the immunologic system, it alters the proliferation of T helper cells, T cytotoxic cells and leads to significant and reversible immunosuppression, maintaining the function of B cells (Anderson 2003, Harvey & Brethnach 2004). In this patient blood work was made without abnormal findings.


023. Maia J.Z.1, Witz M.I.1, Pinto V.M.1, Oliveira M.E.M.2 & Leães A.N.2 2007. Retrospective study on the incidence of mandible fractures in the small animal clinic at Brazil Lutheran University Veterinary Hospital (HV-ULBRA), from 2000 to 2005. Pesquisa Veterinária Brasileira 27(Supl.). 1Departamento de Cirurgia Veterinária, ULBRA, Canoas, RS, Brazil; 2Aluno de Residência Médica Veterinária, ULBRA, E-mail: juzanimaia@yahoo.com.br

Introduction: Mandible fractures sum up to 3% of all fractures in canines and 15% in felines. Mandible fractures usually present traumatic etiology such as running over, falls or other forms of trauma. They are mainly characterized by edema, deviation of the fracture segments, dental malocclusion and the presence of saliva with blood streams (Piermattei & Flo 1999). Roza (2004) and Hulse & Johnson (2002) mention as a possible cause of mandible fractures, especially in small breeds, the advanced periodontal disease, which causes bone loss, leading to spontaneous fractures. Piermattei & Flo (1999) describe that, with rare exception, all mandible fractures are open and contaminated or infected. These fractures may be unilateral or bilateral, with single or multiple fracture lines. Symphysis fractures are the most common lesions in cats (73%), and fractures in the mandible body area are the most common in dogs. Lopes et al. (2005) wrote a retrospective study in which was observed that young dos and dog over 8 years of age were the most affected by maxilla or mandible fractures. Dog fight was the most common etiology (43%), followed by unknown cause, which happened to 23% of the dogs, while pathologic fractures occurred in 13% of cases. The objectives of corrections to the orthognathic system are occlusion correction, return to feeding as soon as possible, adequate stability, maintenance of the greatest number of teeth (Roza 2004). Generally, consolidation is rapid (three to five weeks) at the rostral portion of the mandible, but slower (four to seventeen weeks) at the caudal region. Exception to this generalized information about consolidation are fractures infected and symphysis fractures in old “toy” breed dogs, in whom considerable osteoporosis precedes the fracture. Complications are fairly common, 34% in dogs, with malocclusion being the most common followed by infection and delayed union (Piermattei & Flo 1999). This study aims to show and evaluate mandible fracture cases taken in at HV-ULBRA, between January 11, 2000 and May 30, 2006.

Materials and Methods: The animals used in this study come from HV-ULBRA’s clinical routine. Between January 11, 2000 and May 30, 2006 a total of 46 patients were attended with mandible fractures (23 dogs and 23 cats). These patients 54 mandible fractures with different locations and etiologies were diagnosed.

Results: Among the animals assisted, the higher incidence of mandible fracture appeared in patients without definite breed, followed by Poodle and Pinscher dogs, and felines of the Siamese.
breed. Most of the canines presented fracture by bite trauma, for being run over or trauma with unknown origin. On the other hand, felines presented trauma with unknown origin, running over and falls as most common etiologies. Of all 46 animals assisted 30.43% were less than 1 year old; 43.47% were between 1 and 5 years old, and 26.1% were between 6 and 14 years old. In dogs, 45.15% of the fractures were unilateral and located on the mandible body area; 26.92% were mandible symphysis fractures, 19.23% were bilateral body fractures, and 8.7% were mandible ramus fractures. In cats, 75% of the fractures were located on the mandible symphysis; 17.86% were unilateral body fractures, and 7.14% were bilateral mandible body fractures.

**Discussion and Conclusions:** Mandible fractures occur often in dogs and cats, but etiology differs due to the habits of each species. In this study the most common location of mandible fractures were the mandible body on dogs and mandible symphysis on cats. Ages between 1 and 5 years and traumatic etiology were the most prevalent in this study.


**INDEX TERMS:** Mandible fractures, oral fractures, mandible symphysis.

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**Introduction:** The mechanical chemical preparation of the root canals represents one of the most important of the endodontic treatments, and the sodium hypochloride is the most used chemical substance for this purpose (Hales et al. 2001). The objective of this study was to evaluate the inflammatory response through the cellular reaction caused by different concentrations of sodium hypochloride: 1%, 2.5% and 4% of active chlorine, comparatively to the physiological solution, after intraperitoneal injection in Whistar rats. Were analysed global counting of inflammatory cells and protein dosages of the peritoneal washings. As result it was observed that all the correlations were not significant, indicating that there is no relation between the analyzed variable, however the increase of the concentration of the sodium hypochloride developed significantly the proteinic infiltrated one, demonstrating that this solution causes intense inflammatory response even in low concentration, being the concentration a determinative factor of the cytotoxic potential of the solution.

**Materials and Methods:** 32 Whistar rats were used, randomly distributed into 4 groups. Group C: NaCl solution at 0.9%. Group 1%: sodium hypochloride solution at 1%. Group 2.5%: sodium hypochloride solution at 2.5%. Group 4%: sodium hypochloride solution at 4%. 0.3 ml of the solutions was administered in the peritoneal cavity of each rat, using the paramedian approach with a hypodermic sterile needle. 72 hours later the euthanasia of the animals was done and, later, the cleansing of the peritoneal cavity with 4 ml of PBS solution and it was collected 3ml of this liquid. From the collected liquid a global counting of inflammatory cells and total proteins was made. The values from the counting of the 4 groups were characterized and statistically analyzed through the Kruskal Wallis test for analysing the groups and correlations were established between the variants.

**Results:** The values from the inflammatory cells global counting and total protein dosage of the 4 experimental groups are expressed in Tables 1 and 2. Table 3 represents the investigation of the possibility of correlation between the inflammatory cells global counting and total protein dosage.

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**Table 1. Kruskal-Wallis test for comparing the global counting between the groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>Minimum</th>
<th>Médium</th>
<th>Maximum</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory global cells</td>
<td>C</td>
<td>1300</td>
<td>3700&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6100</td>
</tr>
<tr>
<td>Counting (mm3)</td>
<td>1%</td>
<td>2600</td>
<td>8000&lt;sup&gt;b&lt;/sup&gt;</td>
<td>9300</td>
</tr>
<tr>
<td>2.5%</td>
<td>5000</td>
<td>8500&lt;sup&gt;b&lt;/sup&gt;</td>
<td>14600</td>
<td></td>
</tr>
<tr>
<td>4%</td>
<td>1300</td>
<td>4600&lt;sup&gt;c&lt;/sup&gt;</td>
<td>9100</td>
<td></td>
</tr>
</tbody>
</table>

<sup>*Significant statistic difference between groups at 5% level. Average levels followed by the same letter do not differ quite significantly by the Mann-Whitney test (5%).</sup>

**Table 2. Kruskal-Wallis test for protein comparison between groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>Minimum</th>
<th>Médium</th>
<th>Maximum</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total protein (g/dL)</td>
<td>C</td>
<td>0.310</td>
<td>0.430</td>
<td>0.730&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>1%</td>
<td>0.620</td>
<td>0.730</td>
<td>2.030&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>2.5%</td>
<td>0.360</td>
<td>1.460</td>
<td>2.870&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>4%</td>
<td>0.400</td>
<td>3.250</td>
<td>9.680&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

<sup>*Significant statistic difference between groups at 5% level. Average levels followed by the same letter don’t differ quite significantly by the Mann-Whitney test (5%).</sup>

**Table 3. Correlation between the analysed average levels**

<table>
<thead>
<tr>
<th>Group</th>
<th>Correlation&lt;sup&gt;a&lt;/sup&gt;</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.053</td>
<td>0.909</td>
</tr>
<tr>
<td>1%</td>
<td>-0.276</td>
<td>0.549</td>
</tr>
<tr>
<td>2.5%</td>
<td>0.292</td>
<td>0.525</td>
</tr>
<tr>
<td>4%</td>
<td>-0.502</td>
<td>0.251</td>
</tr>
</tbody>
</table>

<sup>a All correlations were non-significant, indicating that there is no relation between the average levels.</sup>

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024. Maia J.Z.<sup>1</sup>, Witz M.I.<sup>1</sup>, Salles A.A.<sup>2</sup> & Allgayer M.C.<sup>3</sup> 2007. Intraperitoneal injection of different concentrations of sodium hypochloride: a study in rats. *Pesquisa Veterinária Brasileira* 27(Supl.).<sup>1</sup>Departamento de Cirurgia Veterinária, Faculdade de Medicina Veterinária, ULBRA;<sup>2</sup>Departamento de Endodontia, Faculdade de Odontologia, ULBRA; <sup>3</sup>Departamento de Análises Clínicas, Faculdade de Medicina Veterinária, ULBRA, Canoas, RS, Brazil. E-mail: juzaniamaia@yahoo.com.br
**Discussion and Conclusions:** The main aim of mechanical chemical preparation is the cleansing and modelling of the root canal systems. In order to obtain such intent, the combined utilization of auxiliary chemical substances and tools during the preparation stage is essential, the non-utilization of these chemical substances results in the remaining of micro organisms and dirt within the root canal. The sodium hypochloride has been used as an endodontic irrigatory solution for over four decades, however, being toxic to the periapical tissue (Kuruvilla & Kamath 1998, Siqueira Jr et al. 1998). The evaluation method of the inflammatory response facing the different materials of endodontic usage has been experimented from the migration of inflammatory cells to the peritoneal cavity in rats (Tanomaru Filho et al. 2002). In particular, in this study it was demonstrated that the capacity of provoking the protein exudation of the control solution (physiological serum) was discreet when compared to the tested sodium hypochloride solutions, reflecting the aggression promoted by the process of inoculation, as well as the chemical reaction in the area. The data were statistically analysed by the Kruskal-Wallis non-parametric test, complemented by the Mann-Whitney test due to the large variability between the average levels in the different groups. The analysis of inflammatory cells global counting in the experimental groups, expressed by the average levels, was analogue to the utilization of the sodium hypochloride at 1% and 2.5%, statistically different from the 4% group and control. It is well worth remarking that the smallest average level of inflammatory cells from the 4% group is justified by the shorter aggression time, given that this group’s specimens were slaughtered with 72 hours experimental period. Parallel to that, a significant raise in the number of proteins has been observed in the peritoneal cavities, fact directly related to the raise in concentration of the test solutions and indicative of higher toxicity. A probable justification is represented by the tissue irritation induced by the capacity of the sodium hypochloride of dissolving organic matter (Gordon et al. 1981, Grossman & Meiman 1941). In agreement with our findings is the study from Leonardo et al. (1984), from Yesilsoy et al. (1995) and from Siqueira Jr et al. (1998) who observed the aggressive effect of the hypochloride, particularly with high concentrations. In this study, similarly to other methodological lines which used rats (Pasternak et al. 2002) and from Tanomaru Filho et al. (2002), we worked with tested solutions directly in the peritoneal cavities, evidencing of the real cytotoxic potential on cells and tissues; such lesion demonstrated depend upon concentration, being more expressive in the group of the sodium hypochloride at 4%, where it could be observed intense hemolysis, in accordance to Santos & Sampaio (2002). However, it is important to highlight that when such substances are used in the endodontic clinic routine, possible toxic effects on the cells in normal conditions are minimized. Many researchers observed that the sodium hypochloride did not present harmful effects to the apical region when used in concentrations of up to 5%, even when kept in the canal as a intracanal dressing, where the periapical tissue kept a regular structure, without leakage of inflammatory cells (Tepel et al. 1994). Such assertion is justified by the reduction of the contact between the solution, independent of the concentration, and the apical tissues which is given essentially by the apical foramen. Having in mind the exposed and the described previous results, the utilization of sodium hypochloride solutions in high concentrations (higher than 2.5%) must be indicated with restrictions, fundamentally when applied by students and inexperienced professionals. Furthermore, in special incomplete rhizogenesis clinical situations, ample foraments, reabsorptions, and perforations, more attention must be paid, due to the higher probability of extrusions of such chemical substance in larger volumes, mainly when an excessive pressure is applied to the syringe at the moment of the irrigation. So, although the sodium hypochloride is a chemical substance of outline use for presenting a higher quantity of desirable properties, due to its cytotoxic potential we agree with Hales et al. (2001) that it is necessary to search for knowledge and for routines which allow adequate and safe results, consequently facilitating the cure reaction process. Facing the results attained it is valid to affirm that no correlation between the global cell counting and total protein dosage has been observed; the tested sodium hypochloride solutions, independent of the concentration, caused tissue damage, represented by the average total protein levels (p=0.014); sodium hypochloride in the concentrations of 1% and 2.5% presented similar cytotoxic effects, diverting significantly from the more concentrated solution, at 4% and from the control solution; the sodium hypochloride in direct contact with the peritoneal tissue was irritating and toxic.


**INDEX TERMS:** Sodium hypochloride, toxicity, rats, chemical substance auxiliary.
Introduction: Pemphigus is the most common autoimmune skin disease in cats and dogs. It is an erosive and ulcerative autoimmune disease that affects the skin and mouth mucous membrane due to the deposition of auto-antibodies on epidermal cells (Fioravanti et al. 2004). Records show that 90% of the cases happened with dogs while only 10% affected felines. Most common lesions are lip, palate, tongue and mucocutaneous junctions (breeds like Akita, Chow Chow, Collie, Dachshund, Doberman and Rottweiler are the most predisposed to this dermatosis (Rhodes 2003). No sex or age predisposition is observed, but it occurs more often in young adults. Autoimmune diseases that affect the mouth must be differentiated from allergic reactions to drugs and also from toxic epidermal necrolysis (San Roman et al. 1999). Usually the animal shows erythematic macules that quickly progress to pustules and later to yellowish crusty lesions. These lesions usually appear in the auricular pavilions, perioral areas, perioral areas, nasal plane and claw beds, and manifest less frequently on the oral and mucocutaneous areas (Rhodes 2003). This work aims to describe a case of Pemphigus vulgaris in a dog, Akita, 3.5 years old male taken in at ULBRA Veterinary Hospital.

Materials and Methods: Canine, Akita, male, 3.5 years old was taken to ULBRA Veterinary Hospital with intense halitosis and anorexia, a recurrent clinical signal for longer than 8 months. In specific clinical examination the presence of ulcers in the oral mucous membrane and mucocutaneous junction of the oral cavity, abundant purulent secretion, intense oral pain and halitosis was verified. The patient was anesthetized, an incisional biopsy was performed and the material was sent to histopathology. The result of the histopathological exam accused Pemphigus vulgaris. The adopted therapy was the use of prednisone, 5mg/kg BID metronidazole 30mg/kg BID, oral hygiene with physiological solution SID and return in 7 days for re-evaluation. Upon return the patient seemed active and the oral lesions were 80% healed. The gradual reduction of the prednisone dose and interruption of metronidazole was recommended on the 10th day of treatment. For the prednisone dose reduction was prescribed: 4mg/kg BID for 4 days; 3mg/kg BID, 4 days; 2mg/kg BID, 4 days; 1mg/kg BID, 4 days; 1mg/kg SID, 4 days; 0.5mg/kg SID, 4 days and the same dose for 4 more days in alternance. This prescription afforded 28 more days of treatment and the patient was dismissed with total remission of the symptoms. 75 days after the end of treatment, the patient returned for assistance at ULBRA Veterinary Hospital with recurrence of the clinical signs, but much less intensive when compared to the previous instance. Hence was adopted the same clinical therapy with prednisone and metronidazole. After five days of treatment the patient showed clinical improvement, with total remission of the oral mucous membrane and mucocutaneous lesions.

Results: The treatment indicated in this clinical case was satisfactory for Pemphigus vulgaris lesion control.

Discussion and Conclusions: Diagnosis was made through histopathology, while in literature is indicated to be made by direct intact pustule smear slides, antinuclear antibody tests, histopathology or direct immunofluorescent antibody test (Harvey & Emily 1993, Wiggs & Lobprize 1997, San Roman et al. 1999, Rhodes 2003, Fioravanti et al. 2004). The treatment established aimed to keep the infection under satisfactory remission with safe medication dosage. Prednisone was used for it. Therapeutical protocols may be based on steroid administration (Rhodes 2003, Fioravanti et al. 2004, San Roman et al. 1999, Wiggs & Lobprise 1997) or steroid administration combined with immunossupressor agents such as azathioprine, cyclosporine, clorambucil and cyclofosfamide (San Roman et al. 1999, Rhodes 2003, Fioravanti et al. 2004).


INDEX TERMS: Pemphigus vulgaris; autoimmune disease; oral ulceration.


Introduction: Equine dental disorders have clinical importance (Dixon et al. 1999). These disorders are classified as the third more common problem to the equine practitioners in the United States (Traub-Dargatz et al. 1991). Even though, the equine dentistry is few taught at Universities in Europe and United States yet (Lowder 1997). The rate of meets of dental disorders and in oral cavity have a big variability, may be because the clinic exam is very difficult (Uhlinger 1987): Silbresbiepe & Berger (1954) meet 6% of dental disorders, but Anon (1965) 10%, Uhlinger (1987) 24%, Kirkland et al. (1994) examined 500 skulls in a slaughterhouse and discovered evidences of dental and oral cavity disorders in 80% of the specimens investigated. - The purpose of this study is to analyse the clinic discovery of 607 equine dental procedures. Cases review of 607 horses confined to stalls submit to service of equine dentistry shows a occurrence of disorders discovered in oral cavity; bad occlusion of incisors and cheek teeth (hooks, beaks, ramps, waves, step and fractures), retention of deciduous
Premolars (caps), tooth absent, infundibular caries, occurrence of first Premolar (wolf tooth and blind wolf tooth).

Materials and Methods: 607 horses were examined by the first author, in Brazil, at São Paulo, Minas Gerais and Rio de Janeiro states from 2001 to 2005. Cases whose informations were lost or not complete were reject. 374 (61.6%) males and 233 (31.4%) females, of following breeds: Brasileiro de Hipismo 287 (47%), Lusitano 86 (14.2%), Mangalarga Marchador 54 (8.9%), Thoroughbred 48 (7.9%), Quarter horse 44 (7.2%), Mangalarga Paulista 28 (4.2%) and others breeds 60 (10.2%) were examined. Animals age was from 2 years to 22 years old. After put the McPherson dental speculum, the oral cavity was washed with water and examined by manual palpation and visual inspection with a dental mirror (Backer & Easley 2005). The discoveries were identified and noted in equine dental charts using the modified Triadan system (Easley 1996). It is possible that in other studies, with different breeds and ages, occur diversification at incidence of discovers in the equine dental evaluation.

Results: Incisors: 607 animals examined it was noted that 273 (44.97%) had problems in deciduos: 190 (31.3%) ventral curvature, 30 (4.9%)dorsal curvature, 46 (7.6%)overjet and 7 (1.4%) underbite. In 250 (91.57%) of 273 cases noticed the presence of diagonal curvature concomitant with others disorders. Incisors fractures: in 15 (2.47%) fractures, 13 (86.7%) were in the first incisor and 2 (13.3%) were in the thrid incisor. Retained deciduos Incisors: In 89 (14.6%) cases, 19 (21.3%) were localized at first Incisor; 20 (22.8%) at second Incisors and 50 (55.9%) at thrid Incisors. Cheeck teeth; the occlusion disorders looked different according to the pathology and site of diseased teeth: Hooks and beaks in 1010 teeth; 495 (49.9%) rostral and 515 (50.1%) caudal.Waves in 1825 teeth; 465 (25.5%) in 108, 208, 308 and 408 (PM4), 453 (24.8%) in 109, 209, 309 and 409 (M1), 501 (27.4%) in 110, 210, 310 and 410 (M2) e 406 (22.2%) in other teeth. In 2122 teeth; 367 (17.3%) in 108, 208, 308 and 408 (PM4), 436 (20.5%) in 109, 209, 309 and 409 (M1), 727 (34.3%) in 110, 210, 310 and 410 (M2), and 592 (27.9%) in other teeth. 201 fractured teeth were looked; 65 (32.3%) fractures in 108, 208, 308 and 408 (M1), 112 (55.7%) in 109, 209, 309 and 409 M2 (55.7%) e 24 (12%) in other teeth. 40 teeth were absent; 4 (10 %) were 106, 206 208 or 209 (PM2), 2 (5 %) were 207 and 307 (PM3), 10 (25%) were 108, 208, 308 or 408 (PM4), 12 (30%) were 109, 209, 309 or 210 (M1) and 12 (30%) were 110, 210, 310 or 410 (M2). 136 teeth showed carie infundibular; 3 (2.2%) in 106 and 206, PM2, 5 (3.6%) in 107 and 207 (PM3), 22 (16.2%) in 108 and 208 (PM4), 81 (59.6%) in 109 and 209 (M1), 21 (15.5%) in 110 and 210 (M2) e 4 (2.9%) in 111 and 211 (M3). The 250 (20.6%) PM1 (“Wolf tooth”), with 229 (91.4%) in 105 and 205, 1 (0.4%) in 405 and 20 (8%) didn’t have eruption at oral mucosa (“blind Wolf tooth”). Ulcers; during the clinical exam, 1709 wounds or ulcers in the vestibular mucosa were discovered. These lesions were located beside the following teeth: 132 (7.7%) beside 106 and 206 (PM2), 267 (15.6%) beside 109 and 209 (M1), 688 (40.3%) beside 110 and 210 (M2), 460 (26.9%) beside 111 and 211 (M3) and 162 (9.5%) beside other teeth. 607 horses were examined, 81 (13.4%) showed scars in the tongue and 71 (11.7%) showed wounds or hematoma in the bars.

Discussion and Conclusions: The high incidence of disorders in the Incisors (44.97%) is a consequence when horses are confined to stall. Easley (1996) wrote that the function of the Incisor is to cut the forage during the grazing. Confined animals do not use the Incisors to shearing, and would lead to Incisor overgrowth from back of attrition. This would make possible a higher incidence of Incisors disorders. The incidence of 8% of blind Wolf teeth from all PM1 discovered suggests a special care at this region during the clinic dental exam. The high concentration of occlusion disorders, fractures and infundibular caries at PM4, M1 e M2 teeth suggests that prematurity and oclusal trauma in these sites occur (Pimentel 2004), probably because this is a transition region between diphyodont and heterodont teeth. Easley (1996), and there is the Spee curve in M1 and M2 (La Flure, 2003). With this data, we can conclude that the prophilactic dental procedures (Alves 2004), with the subject to obtain the ideal functional occlusion (Pimentel 2004) is fundamental to dental arcade and oral cavity of horses sanity and not only float sharp emanel points.

dogs and cats (Verstraete 1998). The dental riots can have deep genetic or ambient factors, which interfere with the fetal or neonatal development (Verstraete 1998, Silva 2004). In human beings hereditary factors and pathological ambient factors represent each one about 10% of the development anomalies, while the others 80% are of unknown etiology (Verstraete 1998, Silva 2004). One is unaware of if these aspects also apply in veterinary medicine (Verstraete 1998). The teeth are formations of two embryonic leaves, the ectoderm and the mesoderm. The first one will constitute the enamel (Whyte et al. 1999). The formation and the development of the dental agencies respect a definite histological standard, obeying the following stages: initiation, histodifferentiation, morphodifferentiation, apposition, calcification and eruption. Each one of these periods of training is sensible the inductions of modifiers agent, that affect the physiology and the morphology of the fabrics = tissues (Silva et al. 2004). The anomalies of the dental development can in accordance with be classified the number, size, form and structure of the teeth (Whyte et al. 1999). The hypodontia is a numerical anomaly, that expresses the lack of development of one or more teeth, already the anodontia is the complete tooth absence, that can involve deciduous teeth in such a way, how much the permanent one, being a sufficiently rare affection in dogs and cats (Verstraete 1998). The dental agenesis term is used to assign the congenital absence of one or more teeth had the alterations suffered in plates dental during the embryonic life, taking not the formation or incomplete formation of the dental germ (Bastidas 2004, Guerisoli et al. 2002). This is the anomaly form most frequent human being, affecting about 20% of the population (Silva et al. 2004). Alterations in the dental occlusion had the lack of one or more dental units, leading to occlusional disequilibrium, with consequent maxillofacial and functional implications, are the main consequences of the dental agenesis (Loaiza 2001). It enters the causes that can explain the sprouting of this condition, are ambient factors, as traumas and infections, that they take the alterations of them you plate dental during the embryonic phase and genetic mutations, these take the alterations in the cellular production and of proteins that participate of the formation of the dental germ (Bastidas 2004, Guerisoli et al. 2002). In human beings this anomaly is studied still under the anthropological and filogenic point of view (Mozo 1996). The objective of this work is to tell a case of dental agenesis in a dog of the Labrador race.

Case Report: A dog of the Labrador race, female of 4 months of age, was taken care of in the Hospital Unit for Animals of Company of the PUCPR with description of gingival ulceration in right jaw in the region of daily pay-molar teeth with presence of light hemorrhagic episodes with evolution of two weeks. The proprietor related, still, tooth absence in the place of the injury. To the clinical examination any systemic alterations had not been evidenced. To the oral examination increase of gingival volume in right jaw was evidenced, with presence of necrotic points and granulation fabric, had not been observed teeth in the place. In the radiographic evaluation, carried through in the incidences oblique right and left soft fabric increase was observed in the region of daily pay-molar teeth, being that these were absent, had not been observed lytic alterations or proliferations in jaw and the dental alveolus were preserved and in its interior the presence of radiopacity material could be observed. Daily topic cleanness with chlorhexidine and administration of spiramycin (75.000UI/Kg/SID) and metronidazole had been prescribed (12.5mg/Kg/SID). One week after was carried through curettage of the tissue inflammatory and the cartilaginous material contained in the interior of the alveoli of 1º, 2º and 3º tooth pay-molar and extraction of 4º tooth pay-molar upper right. The gotten material was sent for histopathological evaluation. The animal remained under antibiotic therapy per more 30 days. After the procedure was carried through new radiographic examination, that evidenced absence of the radiopacity structures in the alveolus, corroborating with the possibility of the animal to present only the dental sprouts of daily pay-molar teeth superior rights, being characterized agenesis dental. The oral injuries treatment involution and the animal meet in good condition. The finding of the histopathological examination disclosed to an inflammatory reaction chronic active with granulation fabric and fibrosis, the fabric observed in the intra-alveolar material was compatible with enamel and dentine, being the compatible finding with the suspicion of dental agenesis.

Discussion: The anomalies of development of plate dental, as the agenesis, are rare in dogs and cats (Verstraete 1998), being little registered. The consequence of this alteration of development is the congenital absence of all the teeth, anodontia, or only of some dental parts, that are the case of the hypodontia or oligodontia (Verstraete 1998, Whyte 1999). The animal of the present story presented a hypodontia picture, where only 1º, 2º and 3º daily pay-molar right superiors were absent. The numerical dental alterations can have as cause the genetic inheritance, a time that if observes this problem in different individuals of one same family, as much in animals, as in human beings (Mozo 1996, Aksenovich 2006). In the told case, this relation cannot be established, a time that the proprietor was unaware of the antecedents of the patient. In a study carried through for Aksenovich et al. (2006), the lack of one or more teeth in a family of Kerry Blue Terrier was observed. The standard of dental absence was presented of two distinct forms in the population, showing that the characteristic is transmitted in different ways depending it gene that controls it. In dogs the affected teeth more are 1º daily pay-molar and 3º molar (Verstraete 1998, Whyte 2006), while in the men the agenesis of the third molar ones is more common (Silva et al. 2004). The diagnosis of dental agenesis if gives through the familiar description and radiographic evaluation (Loaiza 2001), in the present study the curettage if it made necessary due to the great inflammatory reaction generated by the dental sprouts. Later the correction of the bad occlusion will be necessary, in case that the lack of teeth light the severe alterations in the chew and face deformity, a time that the treatment through the use of orthodontic
Introduction: Well known as Sticker Tumour, the Transmissible Venereal Tumour (TVT) is a round-cell neoplasia, of the young dogs genitalia mainly, both sexes and sexually active, with a tendency to spontaneous returning (Kitchell & Marretta 1998). Rarely it may occur in region as the oral and nasal cavities, rectum, skin e inguinal lymph nodes. It’s possible to find it less frequently in organs as intestine, spleen, liver, lungs, eyes, kidneys and brain (Oliveira et al. 2004). The presence of the neoplasia in these organs is due to metastasis, with rare occurrence. The transmission is made by transfer of viable cells from the primary tumour, that happens on coitus, licking and on the smelling act, it has been seen most in high hight density places, where there are many street dogs, promiscuous and bad fedded (Brandão et al. 2002). The genital TVT incidence is not related to sex or race (Roger et al. 1998). The best choice treatment is chemotherpy using vincristine, as it has been giving cure in the largest cases treated with the drug (Costa 1999). This work objective is to report an oral TVT case without affecting genital region.

Case Report: An animal of the canine specie, female, Rottweiler, with 12 years of age was taken care of in the Unit Hospital for Animals of Company of the PUCPR, with hyporexia description it has two weeks. In the clinical evaluation a tumor in right jaw was proven, that may happens with TVT or, probably, cause it didn’t happen the tumor cels establishment in genitalia, but in the oral cavity, during the licking, therefore, this patient oral TVT could be a primary focus or a metastasis. The chemoterapic drug of chose was efficient for the pacient’s healing, to sustain with Oliveira et al. (2004) reporting that the chemoterapy using vincristine is efficient in extra-genital cases of this neoplasia. When TVT presents on genital region, the clinic diagnostic may be concluded, but when it occurs in extra-genital region, it’s necessary a cytotologic study or histopathologic to confirm (Moutinho et al. 1995). Due to the diversity on presentation form of this neoplasia, TVT must be considered as differential diagnoses for masses including oral cavity and elementos dentais (Kroger et al. 1991), mainly in Brazil, that according to Costa (1999) the TVT frequency is very high.

Discussion: According to Rogers (1997), oral TVT rarely occurs when there is no evidence of transmissible venereal tumour, the nasal cavity and the inguinal lymph nodes are the places most attacked by TVT localized in no genital region, by the other hand on the case reported, the neoplasia was situated in the oral cavity, wich is most rare. The tumor genital absence may be explained by Varaschin et al (2001) who relates a possible spontaneous returning, that may happens with TVT or, probably, cause it didn’t happen the tumor cels establishment in genitalia, but in the oral cavity, during the licking, therefore, this patient oral TVT could be a primary focus or a metastasis. The chemoterapy using vincristine is efficient in extra-genital cases of this neoplasia. When TVT presents on genital region, the clinic diagnostic may be concluded, but when it occurs in extra-genital region, it’s necessary a cytotologic study or histopathologic to confirm (Moutinho et al. 1995). Due to the diversity on presentation form of this neoplasia, TVT must be considered as differential diagnoses for masses including oral cavity and elementos dentais (Kroger et al. 1991), mainly in Brazil, that according to Costa (1999) the TVT frequency is very high.


INDEX TERMS: Tumor, oral, transmissible, dog.

029. Prado A.M.B.¹, Bacchi R.², Tasqueti U.I.³, Macedo T.R.⁴ & Werner J.⁵ 2007. Adenocarcinoma of salivary gland: case report. Pesquisa Veterinária Brasileira 27(Supl.), ¹Anatomia Veterinária Geral e Comparada e Odontologia Veterinária, Pontifícia Universidade Católica do Paraná, Curitiba, PR, E-mail: antonia.prado@pucpr.br; ²Clínica Médica e Cirúrgica de Animais de Companhia, Pontifícia Universidade Católica do Paraná, E-mail: rebecca_bacchi@hotmail.com; ³Estudo Anatómico de Imagem e Diagnóstico por Imagem, E-mail: ubirajara.tasqueti@pucpr.br; ⁴Médica Veterinária Autônoma, E-mail: thamedvet@yahoo.com.br; ⁵Médica Veterinária Autônoma, E-mail: juliana@wernervet.br

Introduction: Neoplasias of salivary glands in dogs and cats are uncommon, being its majority adenocarcinomas (Koestner & Buerger 1965). Parotid can affect the glands salivary, mandible, sublingual and zygomatic or the accessory glands salivary that be situated in the oral mucosa, the palate, the buccal wooden floor, the tongue, pharynx, in the larynx and the paranasal sinus, of all they mandible it is more the attack. It does not have racial predilection or sexual and the average age of the patients is of ten years.

The clinical signals are unspecific and generally they include halitosis, dysphasia, exophthalmia unilateral or bilateral and increase of volume in regions related to the localization of the tumor (Withrow 2001). Mucocele, abscesses, infarct of salivary gland, sialadenitis, lymphoma and lymphadenopathy are the main distinguishing diagnostic to be considered (Spangler & Culberton 1991). The definitive diagnosis is carried through the histopathological evaluation, being the useful cytology to define the degree of malignity of the neoplasia (Withrow 2001).

Case Report: The objective of this work is to tell the case of an animal of the canine species, male, Husky Siberian, with six years that aphathy description presented, hyporexia, gradual emaciation and increase of volume in the oral socket with evolution of 20 days. To the clinical examination light dehydration was evidenced, and increase of volume in regions related to the maxillary right with areas of calcifications and absence of adjacent osseo destruction. To the thoracic x-ray suggestive images of pulmonary metastasis had been observed. Therapy with metronidazol associated to the amoxicilina with acid clavulônico was instituted and meloxicam. Incisional biopsy incisional suggestive images of pulmonary metastasis had been observed. To the oral examination, a firm mass of red coloration was observed involving the right superior tooth (104) and part of the hard palate. The skull x-ray demonstrated increase of volume of soft fabrics in region to maxillary right with areas of calcifications and absence of adjacent osseo destruction. To the thoracic x-ray subjective images of pulmonary metastasis had been observed. Therapy with metronidazol associated to the amoxicilina with acid clavulônico was instituted and meloxicam. Incisional biopsy incisional of the tumor was become fulfilled, being breaks up it directed for histopathological examination, which diagnoses adenocarcinoma of gland to salivary in ductal standard. The recommended treatment was tumoral resection, but due to pulmonary metastasis presence, the proprietor opted to not the accomplishment of the surgical intervention. The patient evolved for death.

Discussion: The neoplasias of glands salivary constitute heterogeneous group of injuries, whose clinical aspects in its majority they are similar, contrasting with the ample variety of histopathological aspects (Silva et al. 1998). Costa et al. (2006) they affirm that the evolution of these tumors depends mainly on the histological classification, being that the adenocarcinoma is a neoplasia of high degree of high malignity and with being able metastatic. As Alves (2004) e Withrow (2001) metastasis in regional linfonodos and other agencies is common, the lung is the small farm more affected, followed of bones, liver and brain, as observed in the presented case, where the thoracic x-ray demonstrated compatible images with metastasis pulmonary. Cantisano (1998) e Silva (1998), had told that the presence of ulcers, hyperemia, pain, osseo invasion and paralysis in the face nerve signal for the diagnosis of malignant neoplasia, however in the presented case, only volume increase was observed to maxillary and hyperemia of the tumor. The therapy includes resection surgical complete of the tumor with good x-ray and safety margin in the postoperative period, this increases the supervened one of the patient according to Evans & Thrall (1983), however if it does not find available easily for the medical veterinarians. Alves et al. (2004) in study epidemiologist they affirm that the evolutional period of training of the illness, the surgical localization of the tumor, edges and the invaded anatomical area are factors of important value prognostic, however Withrow (2001) says that he is generally shady. Considering the ample variety of biological behaviors and histological types that these tumors present, added low the prevalence of these neoplasias in dogs and cats the boarding of this subject becomes a challenge (Santos et al. 2003, Brown et al. 1997).


INDEX TERMS: Neoplasias, salivary gland, adenocarcinoma, dog.

030, Radighieri R., Quinzani, M. & Medeiros EP. 2007. Craniomandibular osteopathy in a West Highland White Terrier. Pesquisa Veterinária Brasileira 27(Supl.1). Petcare Hospital Veterinário, São Paulo, SP, Brazil. E-mail: radighieri07@yahoo.com.br

Introduction: The craniomandibular osteopathy (CMO) is a nonneoplastic condition of periosteal proliferation of the bones of skull (Huchkowsky 2002). All the skull bones can be involved, but it is most frequently observed in the horizontal ramus of jaw, tympanic bullae, temporomandibular joints and calvarium (Pastor KF, Boulay JP, Schelling SH, et al 2000). Also called lions´s jaw, the CMO has unknown etiology and occurs along the development of subcondral bones and ossification (Johnson & Hulse 2005). This condition usually regresses in 11-13 months of age, but depending of the severity of the lesions at temporomandibular joints, regression may not mean total recovering of the patient (Wiggs & Lobprise 1997). Either gender can be affected by this condition, and the most frequently breeds affected are West White Highland Terrier, Scottish Terrier, Boston Terrier and other terriers. CMO in Shetland Sheepdog, Doberman pinscher, Bull Terrier, Bullmastuf, Boxer and Bulldog was also reported (Huchkowsky 2002; Taylor et al. 1995, Hathcock 1982). Clinically the patient shows pain in mouth openning, salivation, discomfort, inappetence, inability to open the mouth fully and enlargement of bilateral mandibular rami (Watson et al. 1995). Differential diagnoses include osteoemilias, traumas, neoplasia and systemic disorders. The conclude diagnoses is based on age, breed, historical and phisical finds, radiographic exam and bone biopsy. Serum biochemistry is usually within normal references (Huchkowsky 2002). The treatment of CMO consists in pain and discomfort relief. Non steroids anti-inflammatory agents may help discomfort but will not change the disease development. The prognosis is reserved and depends on the affected region, the extension and the patient ability of adaptation (Wiggs & Lobprise 1997).

Case Report: The present paper presents a case of a West Highland White Terrier, male, 5 months old, reffered to the Petcare Veterinary Hospital, São paulo, Brazil, wich the owner reported inability in mastigation of dry food and inappetence. The physical evaluation presented bilateral enlargement of horizontal mandibular rami, pain and difficults to open the mouth. The patient was anesthetized (acepromazine and propofol) and radiograph exam of skull was proceeded besides blood counting and serum biochemistry. The radiographs revealed severe periosteal proliferation in mandibular rami and bone proliferation in the tympanic bullae and temporomandibular joints. Other exams were within normal reference range. Treatment involved dipirona (25mg/kg/twice a day) and meloxican (0.1mg/kg/once a day) at most painful moments. The patient showed good clinical evolution. On 8 months age the patient showed sign of pain or discomfort and the medications were suspended. A new radiography presented greater periosteal proliferation, besides cortical proliferation in frontal and parietal bones. New blood counting and serum biochemistry showed normal references. On 13 months age the patient was pain free and comfortable with no medication. The last radiograph evaluation presented signs of regression of periosteal proliferation. Till now, on 15 months old the patient presents good evolution.


INDEX TERMS: Craniomandibular osteophaty, dog, periosteal proliferation.

031. Rezende A. P.C., Rocha M.S.T. & Galera P.D. 2007. Making of intra-radicular nucleus and dental crown with acrylic resins reinforced by ribbond® tape on boxer bitch: case report. Pesquisa Veterinária Brasileira 27(Supl.1). Hospital Veterinário de Pequenos Animais da Universidade de Brasília, FAV-UnB, Brasília, DF 70910-900, Brazil. E-mail: protevet@hotmail.com

Introduction: Traditional root channel treatment is an alternative for teeth whose endodontic system is endangered due to pulpitis or fractures with or without pulp exposure (Gioso 2001, Leon-Roman et al. 2002). Extensive coronary destruction after endodontic treatment usually needs intra-radicular preparation prior to the setting of pins or cast nuclei which will serve as a support base for retention and fixation of coronary protheses (Gomes et al. 1999, Leon-Roman et al. 2002, Leirinio et al. 2003, Wanderley 2003). Both teeth that have undergone endodontical treatment and teeth prepared for nuclei formation may remain in the mouth cavity for varied periods until they are prosthetically restored, being their post-restoration durability long and effective (Gomes et al. 1999, Ribeiro et al. 2000). This report aims to assess the workability of dental crown with acrylic resins reinforced by ribbond® tape on boxer bitch: case report.

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of an intra radicular nucleus and dental crown built on a Boxer bitch, making use of acrylic resins reinforced by heavy-duty interwoven polyethylene fibers.

**Materials and Methods:** The experiment was made on an adult Boxer bitch that had suffered total fracture of the left lower canine tooth due to biting trauma. The fracture being located in the cervical region of the dental crown, with the presence of intense painless scarring reaction of clinical assessment and record, chronicity of a dental lesion was found.

**Results and Discussion:** In virtue of a worsening clinical situation, endodontic treatment was carried out. The animal was laid in right lateral decubitus and the region of the fracture was exposed through gengivectomy. The remaining root was endodontically treated. Twenty days after the treatment, the animal was sent back to surgery to get an intra radicular pin, a nucleus with autopolymerizable acrylic material, methylmethacrylate, chemically activated acrylic resin and a dental crown with photopolymerizable acrylic. Inlay material of the radicular canal was removed up to the depth necessary to the making of the intra radicular pin and removal of angles at the opening of the canal. Soon afterwards, a cut of the Ribbond® was made, longer than the depth of the canal and as high as the nucleus to be restored and acid conditioning of the canal walls with its rinsing and drying. After drying, autopolymerizable acrylic resin was injected into the canal. The Ribbond® tape was applied on it for compression to assure dense concentration. The animal was examined on a weekly basis for one month after 12 months from surgery. The prosthesis had been preserved with proper dental occlusion, to demonstrate the effectiveness of the technique. Among different alternatives to endodontic therapy and the choice for the most proper procedure, the peculiarities of the patient, duration of affection and clinical signs should be taken into consideration (Gomes et al. 1999, Leon-Roman et al. 2002, Ribeiro et al. 2000, Valle et al. 2003). In the above case a disinfectant penetration treatment or conventional canal treatment was used. This procedure is often employed to treat irreversible injury to the endodontic system in case of pulpar necrosis, usually together with endangerment of the periapical part of permanent teeth (Vasconcelos et al. 2001, Leon-Roman et al. 2002). The Ribbond® tape is produced from high molecular weight polyethylene and has as its main features inertia and biocompatibility (Simamoto et al. 2003, Ribbond® THM 2004). The combination of fiber and weave makes this tape ductile, no memory, and very useful in dental treatment on human beings (Gomes et al. 1999, Ribbond® THM 2004). The tips of the Ribbond® tape that were left out of the radicular canal on purpose were used with the help of the photopolymerizable acrylic resin for reconstruction of both the nucleus and a small dental crown to make better tape adherence to the resin after fixation in order to avoid its weakening. Aiming to reduce prosthesis fracture and prolong its maintenance a dental crown smaller than the original one was made.

**Conclusions:** Results from experimental conditions described above have led to the conclusion that the use of endodontic prosthesis through the technique of making intra radicular nuclei and dental crown is effective and feasible in veterinarian dental treatment.

**References:**


INDEX TERMS: Odontology, ribbond®, root canal therapy.

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**032. Rezende A.P.C., Rocha M.S.T. & Galera P.D. 2007. Direct technic of periodontal contention in mixed breed dog male: case report.** Pesquisa Veterinária Brasileira 27(Supl.), Hospital Veterinário de Pequenos Animais, FAV, Universidade de Brasília (UnB), Brasília, DF 70910-900, Brazil. E-mail: protevet@hotmail.com

**Introduction:** The technique of periodontal contention is the main procedure utilized as a treatment for dental mobility - a consequence for periodontal illness where occurs the loss of sustainability and bone height, being connected or not to an occlusal trauma (Soares et al. 2003). This technique has a temporary meaning when utilized before or during conventional periodontal treatment, thus providing stability and comfort to patients (Wanderley 2003). Nevertheless, the technique may represent definite and lasting functionality when performed at the final fase of the rehabilitating treatment, allowing - besides the already mentioned characteristics - adequate functionality of mastigatory process. In humans, periodontal contention is made on palatine or lingual tooth face due to patient’s esthetical preservation need. In pets it is possible to choose the vestibu

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lar face, once this presents greater areas for surgical access allowing better visualization of the several phase procedures (Soares et al. 2003). The objective of this work was to utilize the direct periodontal contention technique with the cross link-loss lock stitch in dog male mixed breed.

**Materials and Methods:** The animal was sent to the Surgical Clinic Sector where enhanced on an adult male mixed breed dog, which presented severe gingival retraction exposing tooth roots and reduction of dental stability as a consequence of advanced periodontal illness on vestibular surface of all superior incisors, left and right (101, 102, 103, 201, 202, 203) associated to gingivitis and severe dental calculus not only on above described teeth but also in all remaining elements of the oral cavity.

**Results and Discussion:** The animal was sent to the Surgical Clinic Sector where - as a first proceeding - conventional periodontal treatment was performed (Frost et al. 1993, Gioso 1994). After that, periodontal contention was initialized with reinforcement enhanced bondability polyetilen interlaced fibers (Ribbond®) and adopting dental stabilization direct technique, since this exiges shorter surgical time and allows the proceedings to be made in a sole surgical operation. Ribbond® string is made of polyetilen fiber of very high molecular weight. The ribbon is biocompatible, inert, colorless and translucent. The combination of fiber and weft turns ribbon malleable and virtually with no shape memory (Soares et al. 2003). The ribbon has several odontological uses and it is utilized with success on human odontology (Soares 2003).
Initially, at incisors region, teeth were conditioned on phosphoric sour during 30 seconds, washed with filtrated water and dried (commonly utilized acid attack on odontological praxis). Further, a fine layer of photopolimerible resin was deposited and, on top of this, Ribbond® tape was adapted after being cut in adequate size in order to allow contention of the six affected teeth on a single stabilization block (Vasconcelos et al. 2001, Wanderley 2003). Later, a new layer of resin was applied on top of Ribbond® for modeling and photopolimerization of composed solution. This last layer provided better local finishing and enhanced thickness of stabilization material (Leirião et al. 2003).

It is remarkable that Ribbond® was infused on the same resin adopted during all surgical procedure before being adapted to contention site in order to avoid contamination by other substances that could have altered its functionality. The animal was reanalyzed during weekly post-surgical procedures.

Conclusions: After 14 months observation of periodontal contention stability efficacy of applied technique was confirmed.


INDEX TERMS: Dental stability, periodontal contention, ribbond®.
the injury filled with larvae, which concentrated abundantly in the oral mucosa close to the lower canine. With minimum behavioral conditioning taken by the handler, the constraint of the animal was taken in an improvised cage, allowing a brief examination of the oral injury. It was opted for a surgical debridement of necrotic tissues and removal by means of forces of the larvae (approx. 50), under continuous water flow, that was in part ingested for the animal, that remained calm with this procedure. The remaining live larvae were removed manually using ether directly under the lesioned area and later the wound was flushed with water in abundance. The wound was washed daily with approximately 60 ml of cloroexine 0.12% (Periogard®). As measure of support therapy and preventing systemic complications, Pantibiótico Retorçado® was used (Fort Dodge), in dose 12.000 UI/kg during 10 days, every 48 hours, injected in the lateral region to the anus, being this the only point in the animal where the thickness of the skin allows the entrance of a hypodermic needle, without the necessity of use of remote projectors of darts.

Results: The great volumes of medication applied in this point caused an abscess in the place (after the third application). It was opted then to make the application of the medicine through the mouth, throwing the antibiotic diluted deep into the mouth of the animal. Nine days after these procedures it was observed formation of granulation tissue around the oral lesion. During the period of treatment the animal was confined in a restricted caring space in order to tusk the surface of the body with use of water hose. It was not necessary to modify the diet of the animal.

Discussion and Conclusion: The animal did not show difficulty in the food apprehension. After the total recovery (20 days), the animal was released from the enclosure, however it was taken the care of separating it from fights for the dispute for the female. After two years after treatment, the animal was normal, without injuries in the place of the oral lesion.


INDEX TERMS: Gingival, tusk, myiasis, hippopotamus, captivity.

Introduction: With the development of veterinary dentistry, implantodontics and prosthesis became, esthetic and functional oral rehabilitation tools; justifying the need for a standardized protocol for the choice and placement of those implants, taking into consideration functional, anatomical and biological differences between dogs and humans, for which the different implant systems are developed. For choosing an implant system, factors such as site of implant, adjacent anatomy, the need for grafts, bone quality and the design of the implant component, should be considered (Lee et al. 2005). The purpose of this article is to establish a dental implant protocol for dogs, on a single stage surgery, based on the authors' experience.

Materials and Methods: The established protocol starts with gingival incision of the bone height, and soft tissue clearance. The drilling sequence is done, always with abundant water, and at max speed of 1500rpm (Lekholm 2005), with spherical bur, and proceeding with the sequential burs, 2mm cylindrical bur, that determines the height and width of the implant, pilot bur, that makes the transition from 2 to 3mm, and 3mm cylindrical bur always with caution regarding deepness reference of the burs in relation to the top of the bone height. Having determined the height and width of the drill the counter sink bur is used, that gives it the format of the top of the implant, followed by the making of the screw (for type 1 bone) and the placement of the implant, connected to the reduction contra angle, at the speed of 15-20rpm, with maximum initial stability. The implant should be locked with a force of 20-25 Newtons (N) for procedures where osseous integration is expected, and 45 N for implants submitted to immediate load (Lorenzoni et al. 2003).

Results: The animals operated with this technique are all without intercurrences.

Discussion and Conclusion: The techniques used to install dental implants in humans can be used in dogs, with some modifications. The choice of adequate implant is fundamental in the success of the procedure. The technique described is safe to execute with the proper instruments and equipment and has shown to be effective in implants submitted to immediate load in dogs, therefore being eligible for routine dentistry in dogs.


INDEX TERMS: Dental implant, immediate loading, single stage surgery.

Introduction: An important field of study has been initiated to identify the etiology of the cleft palate, which are relatively rare in dogs and cats, and generally are associated to other malformations (Smith 2004). The oral facial
deformations are characterized by the interruption of the tissue continuity in the upper lips, upper alveolar borders and palates in a partial or total form in each of these structures (Wiggs & Lobprise 1997a). The possible cause of these congenital palates opening in dogs are: inherited factors, nutritive deficiencies, excess of vitamins A and D, medicine ingestions, corticosteroids, teratogenic plants, mechanical interference within the embryo, teratogenic plants, medicine ingestion, hormonal factors, emotional stress factors and Toxoplasma gondii agent. Its diagnosis is done by a simple clinical examination. The main clinical signals are: difficulty of suction, cough, oral nasal regurgitation, serous or mucous-purulent nasal discharge, choke, sneezes, pneumonia due to aspiration, tonsillitis, rhinitis and insufficient gain of weight, which can conducted to its death (Warzee et al. 2001, Gioso 2003, Hette & Rahal 2004). A reconstructive surgery of the hard palate is postdated for more advanced ages, being recommended the use of palate plate to obstruct the corresponding area of the hard palate, thus making possible a better development of the animal (Robertson 1993, Hedlund 2002, Roza 2004). It was intended in this study to develop a similar technique used in human, to be applied in veterinary dentistry, aiming to test such treatment in palate cleft cases in newborn dogs. The present work has the objective to relate an alternative treatment proposal for newborn canine with congenital cleft in the hard palate.

**Materials and Methods:** In a particular clinic a newborn Cocker Spaniel of consanguineous parents was attended presenting an absence of the auricular pavilions, and symptom of corporal respiratory and hypothermic depression. Its received cardiac massage (the puppy arrived with cardiac arrest), aspiration of nasal secretion, ventilation with AMBU (mask) and after that it was laid in a thermal mattress, showing the puppy a positive reaction to the treatment, being later placed to suck. During breast-feeding it was observed difficulty of suction, oral nasal regurgitation and choke with aggravation of the clinical signal leading to death, six hours after the emergency attendance. When examining the oral cavity it was observed the presence of a cleft in the hard palate. After the death of the newborn it was choose to build a palate plate to obstruct the palate cleft, as a proposal of an alternative treatment for patients with fissures, to make breast-feeding possible, and enable a better development of the animal, because the reconstructive surgery of the hard palate must be postdated for more advanced ages.

**Results:** An intra oral radiography was done for visualization the extension of palate cleft. To obtain the palate plate it was followed this sequence (Hirayama 1996): 1. Construction of individual molding: taking as reference the impression of the palate of the patient in paper filter, using a wax plate number seven to obtain an individual molding; 2. Construction of the mold: the molding material (alginite) was placed in the individual molding and was placed in the patient mouth, with a light pressure till complete solidification of the material, when it was removed from the patient mouth; 3. Construction of the work model: after obtaining the mold, it was filled with gypsum to get the work model; 4. Construction of the palate plate: from the work model, previously covered with cel-lac liquid resin and dry with air jets, it was proceeded the construction of the plate with acrylic resin. Completed the polymerization, the palate plate received a finishing and a polishing; 5. Test of the palate plate: after finished and polished the palate plate, was tested, being observed a good adaptation and a perfect obstruction of the palate cleft what would enable a breast-feeding. It is suggested that the palate plate could be placed before each breast-feeding; being removed afterwards. From the moment it is observed an inability of the palate plate as a result of the animal development the plate must be substituted by new palate plate, until the patient offers conditions for submitting to the reconstructive surgical procedure.

**Discussion and Conclusions:** The historical description for crossing of consanguineous parents suggests that the hereditary factors can be involved in the pathogenesis of associated oral facial malformations in agreement to Jones et al.(2000); Wiggs and Lobprise (1997b) and Robertson (1993). They corroborate with other authors in the sense of not using animals with oral facial malformations for reproductive means. The characteristic clinical signs of patients with defective palate can be identified as soon as it was observed in the Cocker Spaniel puppy first feed by either, difficulty of suction, oral nasal regurgitation and choke revalidating the affirmations of (Griffiths & Sullivan 2001). The initial alternative use of the palate plate, until the patient can be submitted to a reconstructive surgery, favors a better disposition for the correction of tissue manipulation, and also it diminishes the surgical risks accordingly to Gioso (2003) and Hedlund (2002). The palate plate is a promising temporary alternative treatment for newborn canine up to them has a full condition to face reconstructive surgery.


**INDEX TERMS:** Palatine cleft, oral facial malformation, dogs.
Introduction: Only recently studies in dental veterinary has been gaining a certain importance in Brazil and important procedures were made in the areas of periodontia, endodontia, ortodontia, restorations, prosthesis, oral surgery and odontological radiographies in small animals, equines and occasionally in wild animals being the studies in small ruminants in an early stage of development in the Northeastern Region. There are very few works in multiple dental abnormalities in small ruminants. In early studies in relation to clinic epidemiological aspects of buccal-dental alterations in goats raised in different regions of Pernambuco State, it was demonstrated that the dental wear was the most important odontological alteration occurring (Saldanha et al. 2005, Saldanha 2006). Based in the fundamental knowledge of the medical clinic of ruminants, and in the search to introduce an epidemiological clinic vision in an animal environment, for the welfare of the individual in connection with its reproductive function and consequently preservation of original healthy of the entire herd, this study was made with the objective to establish the incidence of buccal dental alterations in goats in Pernambuco State.

Materials and Methods: For this study 211 female goats were selected from five herds located in the Recife Metropolitan Region, Pernambuco Forest Region and Pernambuco Sertão Region. The animals had a nutritional state that vary from regular to bad and were under a semi extensive general management, being located in the field during day light and maintained indoor at night. In accordance with the location and management submitted the 211 female goats were distributed as following: Recife Metropolitan Region (R1): integrated by 79 female goats being mainly from the Saanen, Toggenburg and Alpine races and were fed with native pasture (algarroba, native grass, white malva) and cultivated pasture (Brachariya, Cameron, Buffalo grass) in the bay in the morning before going to the field and received a supplementation of 2kg/animal/day in the evening of manioc peel with barley mixed in a forage machine, together with a mixture of cotton meal, algarroba with corn meal, biscuit, corn flour and nuts, besides elephant grass and mineral salt. Water was freely given in the field by utilizing ponds and tanks while indoor, well water was available. Pernambuco Forest Region (R2): integrated by 21 female Saanen goats fed with native pasture (composed by guava, cashew and banana leaves and cashew, caja, macaiba and mango fruits). They received in the evening in the bay after coming from the field, a supply (1kg/animal/day) of barley, manioc peel and mineral. Water was supplied in tanks in the field and with water well indoor. Pernambuco Sertão Region (R3, R4, R5) integrated by 111 female goats from SDR, Moxotó and Saanen races being fed with native vegetation (caatinga vegetation) and mineral supplementation. Water was supplied by pond in the rain season and by tanks with water well, spread in the field in the dry season. The intra-oral examination was made by using an adjustable mouth opener (specially designed for goats) and head focus light to better visualize the backside teeth. The exam was made tooth by tooth inspecting in a tactile and visually manner to detect an alteration or discomfort by pressing. It was utilized lateral movement to evaluate the degree of dental mobility (Baker & Easley 1999). The odontoclinical data was noted in specific developed sheet (odontogram).

Results: The female goats from the different regions presented a high frequency of oral dental disturb such as: wear of dental crown (99.5%, 210/211) periodontal disease (9.5%, 20/211), dental losses (6.2%, 13/211), abscesses (6.2%, 13/211) and dental extrusion (8.5%, 18/211).

Discussion and Conclusions: Among buccal dental abnormalities identified the most frequent were dental wear (99.5%, 210/211) and periodontal disease (9.5%, 20/211) independent from the region studied. The elevated frequency of dental wear in the animals studied was already expected and is in agreement with several researchers (Cutress & Ludwing 1969, Richardson et al. 1979, Bruère et al. 1979). These clinical odontological find are important because the excessive dental wear observed in some female goats may predispose them to a low productive performance because this wear compromise the apprehension and mastication of solid food as well as the ingestion of water (Andrews 1981, Spence & Aitchison 1986, Baber & Waterhouse 1988). The genesis of dental wear is related to many factors such as teeth grind against food, dental hypomineralization or hypoplasia of dental smallt (Pugh 2004), the type of food and how it is ingested with sand (Andrighetto et al. 1984, Pugh 2004) and dental occlusion (Dukes 1986, Greene 2001). Probably the mainly factor that has influenced these finds, in accordance with Andrighetto et al. (1984) and Pugh (2004), was the nutritional management which in Recife Metropolitan Region and in Pernambuco Forest Region include good pasture formation and food supplementation with concentrated differently from the Sertao Region where the animals were feed only by native pasture of great hardiness. The periodontal disease (9.5%, 20/211) that predominated over dental loss (6.2%, 6/211), abscess (6.2%, 6/211), and dental extrusion (8.5%, 18/211), was greater in Recife Metropolitan Region (13.9%) in comparison to Sertao Region (8.1%) and mainly to Pernambuco Forest Region. There are a close correlation between periodontal disease, dental loss and dental extrusion mentioned in the literature, due mainly to the commitment of the periodontal that promotes the abnormal mobility that precedes dental loss (Shanks & Donald 1955, Benzie & Cresswell 1962, Cutress & Ludwing 1969, Nisbet et al. 1970, Lascala & Moussalli 1999). In this study it is to point out that the majority of the animals examined had a regular or bad nutritional stage what can interfere in the animal immunity state, conferring a predisposition to infectious disease including periodontopathies as stated by Cutress & Ludwing (1969). Among the female goats examined in this study it was detected 6.2% of oral abscesses in the buccal vestibule in the mandible anteri- or region. These supplicative lesions may be related to important clinic epidemiological diseases such as Goat Caseous Lymphadenitis and Goat Tuberculosis (Melo et al. 2005). The high frequency of buco-dental abnormalities in the female goats examined mainly the dental wear may suggest that the nutritional management plays a relevant role in the
oral health of goats. The clinical odontological knowledge is very strategic for the implementation of an adequate nutritional management because the productive performance being multifunctional depends also on the goat oral health.

**References:**

J. Comp. Pathol. 80:533-542. 

**Introduction:** The periodontal disease is an inflammatory condition of the periodontal tissues and it is often observed in small domestic animals, such as dogs (Hennet & Harvey 1991, Allaker et al. 1997). These processes are caused by accumulation of the subgingival biofilm and the severity is mediated by the presence of specific microorganisms and the host immunity status (Genco 1998). Polymerase chain reaction (PCR) has been used in the direct identification of periodontal pathogens from subgingival specimens and also to elucidate the role of specific bacteria in the periodontal disease because of the ability to accurately detect species in mixed populations (Ashimoto et al. 1996, Avila-Campos et al. 1999). The goal of this study was to detect the presence of Porphyromonas gingivalis, Prevotella intermedia, Tannerella forsythensis, Fusobacterium nucleatum, Dialister pneumosintes, Actinobacillus actinomycetemcomitans, Campylobacter rectus, Eikenella corrodens and Treponema denticola by using a PCR assay.

**Material and Methods:** Twenty-five dogs with periodontitis and 15 healthy dogs were selected and subgingival samples were collected and DNA was obtained. Animals from different breeds were used. The DNA amplifications were performed by using 16S rRNA specific primers for bacterial detection.

**Results:** Dogs with periodontitis harbored P. gingivalis (64%), C. rectus (36%), A. actinomycetemcomitans (24%), P. intermedia and T. forsythensis (20%), F. nucleatum (16%) and E. corrodens (12%). Moreover, only a dog German Shepherd with periodontitis did not harbor any organism. In addition, of the two Crossbred dogs without periodontitis, one (6.6%) harbored P. gingivalis. The other 13 healthy dogs: 1 Poodle, 2 Yorkshire, 2 Lhasa Apso, 1 Golden, 2 Maltese, 2 Rottweiler, 1 West Highland and 2 Dachshund did not harbor any periodontopathogen. Interestingly, none of the periodontal or healthy dogs harbored T. denticola or D. pneumosintes.

**Discussion and Conclusions:** Periodontal bacteria such as E. corrodens, A. actinomycetemcomitans, P. gingivalis, P. intermedia and F. nucleatum are recognized as important opportunistic pathogens in the development of periodontal and non-oral diseases of humans and dogs (Harvey et al. 1995, Genco 1998). In our study, we detected putative periodontal organisms from dogs with naturally occurring periodontitis. P. gingivalis was detected in 64% of the evaluated periodontal dogs in accordance with Allaker et al. (1997) who identified this organism in 68% of the dogs. In conclusion, our results show the need to determine the role of these putative periodontal organisms in the periodontal disease in household pets, particularly dogs in ecological and therapeutic terms, since these animals can acquire these periodontal pathogens from their respective owners.

**References:**

Introduction: With the human urbanization (along with their pets) new necessities arose. Years ago dogs and cats lived outside the house in the backyard. Now it’s common seeing pets living inside the houses with the approval of their owners. With this new reality, and with the new levels of services demanded by dog and cat owners, Veterinary Dentistry does a lot more than dental cleaning and extraction, using different techniques and discovering new specialties (Roman 1999). Trying to enhance the development of Veterinary Dentistry, the present work aimed to study the incidence of odontological procedures in dogs and cats and evaluate the prevalence of them at Odontocão - Veterinary Dentistry Center, Curitiba, PR, Brazil.

Materials and Methods: 1,291 dental cases that attended at Odontocão, from September, 1996 to February, 2004, were analyzed. All the cases were analyzed individually and a spreadsheet was filled with the kind of intervention was realized in which one. The total number of procedures were 1,852 (more than one procedure in the same pet in some cases). The classification is as follow:

- Preventive Orientation (good health pet; did not need any intervention, just physical exam and orientation about prevention and oral health).
- Profilatic procedure (oral cavity exam with the patient on monitored inhalatory anesthesia) ultra-sonic scaling, periodontal probing, polishing and application of a fluoride treatment.
- Exodontia (related to the periodontal treatment, deciduous persistent teeth or previously trauma).
- Periodontal treatment
- Endodontic treatment
- Dental restoration
- Caries
- Neck lesion in cats
- Feline Gingivitis stomatitis
- Cancer
- Orthodontia
- Acrylic resin - osteosynthesis

After estimating the prevalence of the less usual procedures they were arranged in a group named “other procedures”. The data recovered with the studied material were analyzed according with the annual prevalence in the whole period (seven years and a half). It was extracted the average and the percentiles of incidence of each one of the treatments in the studied periods.

Results: It was found that periodonty had the greater prevalence (31.26%), followed by prophylaxis treatment (26.99%), exodontias (22.72%), preventive XXX (8.37%), endodontic therapy (2.21%), restoration (3.99%). Caries, neck lesion in cats, feline gingivitis stomatitis, cancer, orthodontia, acrylic resin-osteosynthesis, all together having 5.5% of the total.

Discussion and Conclusions: The study showed that the greater prevalence was in the periodontal cases. This result follows other studies of national (Gioso 1993, Valduga 1996, Valduga 1997, Apollo 2002) and international authors (Bojhab & Tholen 1989, Emily & Penman 1990, Harvey & Emily 1993, Tholen, Court et al. 1993, Thompson 1998, Debowes 1998, Román 1999). They all say that periodontal disease has the greater prevalence in adult dogs and cats. It is noted that after preventive orientation became to occur more frequently (after 2001), the prophylactic cases rose also. From 2002 on, prophylactic cases were greater than periodontal treatments. After 2002 periodontal treatments starts to slow down. It is supposed that could occurs an inter-relationship between these data. A possibility is that clients that receive preventive instructions became aware of the situation and look for help in earlier phases of the diseases. Following this supposition could occur a rise in prophylactic cases and a reduction in periodontal ones. From 2001 on, preventive orientation rose significantly and stayed in that trend in the following years. It is supposed that the search for preventive orientation by clients were connected with some factors: better reasoning and pet life quality rising. In that context, Odontocão developed since its inception an oral health campaign with its clients connecting it with pets life quality. The vets from Odontocão give orientation and diagnosis, demonstrating preventives treatments. Through quality products related to the pet problem, the client can take care of their pet at home, maximizing the treatment. A focused and specialized appointment and regular visits to the clinic allows better and helpful the ones that could only be controlled (as the periodontal disease). All these is reinforced with speeches, talks to vets, pet shop owners and their staff and marketing materials. All the above actions follow Niemiec and Fiorito’s direction on marketing in the 2002 Savannah Dental Veterinary Forum. Related to exodontia, the study shows that the majority of cases was due to periodontal disease progression, as other Brazilian studies also show (Valduga 1996, Valduga 1997, Appollo 2002). Caries, neck lesion in cats, feline gingivitis stomatitis, cancer, orthodontia and acrylic resin-osteosynthesis had lower prevalence in the study. It is supposed that they could occur at a higher level if the diagnosis had intense clinic signals by arbitrarily primed polymerase chain reaction. Oral Microbiol Immunol. 11:395-401. - Moore W.E.C. & Moore L.V.H. 1994. The bacteria of periodontal diseases. Periodontol. 5:66-77. - Valdez M., Haines R., Riviere K.H., Riviere, G.R. & Thomas D. 2000. Isolation of oral spirochetes from dogs and cats and provisional identification using a polymerase chain reaction (PCR) analysis specific for human plaque Treponema spp. J. Vet. Dent. 17:23-26.

INDEX TERMS: Periodontal pathogens, periodontitis, dogs.
Introduction: The oral neoplasms represent about 6% of all tumors in dogs, being the oral cavity the fourth local of biggest incidence (Oakes et al. 1993). The biological behavior of the oral tumor depends on the species where it occurs, the localization in the oral cavity, the clinical period of training and the histopathologic nature of the tumor. The knowledge about the biological behavior of the tumor enables the physician selecting the best method of treatment and informing the owner correctly (Withrow 2001). The choice of the treatment is established being based on the clinical period of training and histopathologic nature of the tumor (Verstraet 2005). The surgical excision is the method most frequently indicated and more practical even for benign neoplasms as for the malignant ones (Oakes et al. 1993). The tumors of the oral cavity initially were treated by means of the surgical resection of the compromised soft tissue, remaining the bone unbroken. The fact that many tumors of the gengival or palatine surface are locally invasive, causing bone injury, resulted in many returns of the local treatment. Because of these results some tumors, as fibrosarcoma and the epulis that present invasive behavior but low incidence of metastasis, are ideal candidates for aggressive local therapy. Other tumors as the squamous cells carcinoma and the malignant melanoma, that present high incidence of metastasis, besides the aggressive local therapy must also be submitted to the local or systemic therapy for the control of metastasis (Harvey 1986). The surgical excision is the most effective and common treatment for the benign and malignant oral neoplasms in dogs (Salisbury et al. 1985, Penwick et al. 1986). In many cases the surgical aim is the cure of the patient, by means of the adjusted excision, free edges of tumor and absence of metastasis disease. If the extension of the disease makes this impossible, the palliative surgery can be carried through. The aim of the palliative surgery is not the cure of the patient but improve the quality of life by making local control. The third aim of the surgery is the removal of the tumor before other therapeutical modalities, as the radiotherapy therapy (Verstraet 2005). So, the aims of this study was to evaluate, retrospectively, the cases of oral neoplasms presented in Santo Amaro University (UNISA) Veterinary Hospital, determining the most frequent histopathological types of oral neoplasms, correlating the type of treatment used and the survival time in this population.

Materials and Methods: Fifty-four (54) animals with main diagnosis of neoplasia in the oral cavity had been presented during the period of January 2003 to January 2006. All animals were carried through general and specific anamnese. The aim of this anamnese was to obtain the clinical description, mainly the time of evolution and the main symptoms. The animals were also submitted to a complete clinical examination, being necessary in some cases the accomplishment of anaesthetics procedures for better evaluation of the oral cavity as well as for the accomplishment of complementary examinations as intra-oral, thoracic x-rays and incisional or excisional biopsy. The localization, size and aspect of the tumor in the oral cavity and the implication of regional lymph nodes as well as the results of the exams were registered in odontograms. The choice of the treatment was based on the evaluation of the radiographic images of the skull and lung, being a way to research the degree of the bone invasion as osteolysis or proliferation and the presence of metastasis, and in the histopathologic result. All the owners were contacted by telephone and were informed about their animals survival time (submitted or not under surgery).

Results: Fifty-four (54) animals had been taken care presenting oral neoplasms, but the accomplishment of the biopsy was only possible in 29 of the taken care patients, being 15 dogs submitted to the incisional biopsy and 14 dogs submitted to excisional biopsy. In the lasting animal (25 dogs) this procedure was not carried through because of the disagreement of the owners or in order to the evolution of the disease to pulmonary metastasis observed in the radiographic exam, and the option for euthanasia. The tumors of higher incidence were melanoma (26%), epulis (20%), fibrosarcoma (17%), papilloma (17%), squamous cell carcinoma (3%) and others (11%). From the 54 patients taken care only 11 were submitted under surgical procedure. The main reasons for not treating the animals by surgery were: evolution of the neoplasm for
non-operative (n=6), pulmonary occurrence of metastasis (n=3) and not agreement of the owner for the surgery because of financial reasons or his/her concern about the postoperative condition of the dogs (n=31). Referring to the adopted surgical procedure, the bilateral rostral mandibulectomy was chosen in two cases, total unilateral mandibulectomy in four cases, unilateral maxillectomy in one case, gingivectomy in two cases, glossectomy in one case and criosurgery in one case. The survival time of the animals (submitted or not under surgery) was of 1-12 months for the melanoma, of 8-22 months for fibrosarcoma and of 3-9 months for carcinoma. The improvement of quality of life and the increase of survival time for the animals, that had not operated malignant oral neoplasm and had been submitted to the surgical procedure, when compared to the not operated ones, was up to 2 months for melanoma, up to 12 months for fibrosarcoma and up to 6 months for carcinoma. All animals with the diagnosis of benign neoplasm presented complete resolution of the affection, without the story of returns when surgically treated.

Discussion and Conclusions: The prognostic determines the survival time of the animal and is an important factor for the decision of the owner in realizing or not the treatment. The incidence of return for the malignant tumors after the surgical excision is frequent being, in these cases, indicated the euthanasia in 90% of the dogs with melanoma, 80% of the dogs with fibrosarcoma and 68% of the dogs with squamous cell carcinoma (Todoroff et al. 1979). The prognostic for the resolution of the epulis acaenthomatous with surgery and/or radiotherapy is excellent. The incidence of return of this tumor after aggressive resection is 5% (Withrow 2001). In the same way, in the present study all the animals compromised by the excessively neoplasm epulis and benign ones had presented good prognostic after surgical resection, with no reincidence. On the other hand, the prognostic for the squamous cell carcinoma depends on the compromised area. Rostral tumors in dogs are curable through surgery or radiotherapy, while the carcinomas of tonsils or of the base of the tongue are highly metastasis and it has a local or regionally return (MacMillan et al., 1982). Melanoma is the tumor that presents the poorest prognostic (Todoroff et al. 1979), Bostock (1979), when analyzing the factors that potentially affect the prognostic of surgically treated dogs for the melanoma in several areas, including the mouth, demonstrated that the survival time can not have a correlation to the microscopical appearance or to the volume of the oral formation or the time of surgery. Harvey et al. (1981), in a retrospective study with surgically treated dogs for the melanoma, had concluded that the survival average time of the treated dogs was of 65 days, while the dogs submitted to the surgical resection survived in average 245 days. Those data are compatible to this study, which demonstrated that the survival time of the dogs with melanoma varied from 1 to 12 months, having the surgically treated dogs presented an increase of up to 2 months of life in relation to the not treated ones. Fibrosarcoma is locally invasive, so it must be treated with the combination of surgical excision with the radiotherapy for the increase of the animals’ surviving time because the recurrence after the surgery is common and the tumor answers very little to the radiotherapy or even to the chemotherapy. The survival is inferior to one year, being some animals able to survive up to 2 years (Dhalilaw et al. 1998). The isolated surgical procedure of the other therapeutical modalities used in this study provided to the dogs with fibrosarcoma an excellent-time of survival, up to 22 months, a similar result to the one described in literature. The surgical excision is still considered the therapeutical modality of choice even for benign neoplasms as for malignant ones, offering satisfactory results for the local and distant control of the tumor, besides improving the quality of life and increasing the survival time of the patient (Oakes 1993). In the present study, the dogs submitted to the surgical treatment for the malignant neoplasm cases presented increase of survival time and an acceptable quality life for their owners.

On the other hand, the reluctance of the therapy of resection of the tumoral formation resulted on a low life expectancy, a fact that can be explained by the low degree of awareness of the owners of the taken care animals by UNISA Veterinary Hospital in relation to the importance of affections of the oral cavity and, therefore, not having awareness regarding oral neoplasms. The majority of the cases already demonstrated advanced signs of the disease presenting, many times, non-operative conditions (n = 6), pulmonary metastasis (n = 3), or the owners were opposed to the surgical treatment because of financial reasons or aversion against the deformity caused by the aggressive treatment (n = 31). So, the cure prognostic can be modified in agreement to the option for the surgical treatment. It can be concluded that the surgical excision is the praised and elected procedure for cases in which is not observed metastasis disease, because it provides the definitive resolution for the patients with benign neoplasms and greater survival time and better quality of life for patients with malignant neoplasms. It becomes more important that the owner must be known about the need of periodic evaluation of the oral cavity, so that oral neoplasm affections can be previously detected and, thus, provide the therapeutical success and preserve the buccal and general health of the dogs.


INDEX TERMS: Neoplasm, oral, surgery.

Pesq. Vet. Bras. 27(Supl.), April 2007
Introduction: The oral neoplasms represent about 6% of all tumors in dogs, being the oral cavity the 4th most common local of incidence (Oakes et al., 1993). A variety of neoplasms can occur in the oral cavity, such as odontogenics and non-odontogenics types of tumor (Verstraet 2005). The malignant melanoma, squamous cells carcinoma and fibrooscarcoma are the most common malignant tumors of the oral cavity (Brodey 1970), which approximately represent 50% of the oral neoplasms in dogs (Richardson et al. 1983). Epulis is the most common benign oral neoplasm and represent about 25% of the oral neoplasms in dogs (Oakes et al., 1993). Those tumors arise in the oral mucosa, tongue, periodontium, jaw, odontogenetic tissue, maxila and lip (Oakes et al. 1993). The caudal tumors are rarely noticed, however the patient will present signs and symptoms like weight loss, halitosis, salivaorhea (with or without blood), dysphasia and occasionally cervical lymphadenoapaty (Withrow 2001). The diagnosis can be made by a minucious clinical examination of the oral cavity in a way that the tumor characteristics can be observed, such as: size, color, consistency, localization and extension of the injury (Dhaliwal 1998). But other diagnostic modalities are important to choose the best treatment and determine the patient’s neoplasm prognostic. The radiographic exam is made to evaluate the extension of the neoplastic lesion and to search for metastatic disease. Aspiratory fine needle cytological exam can determine possible malignancy but only histopathological examination carried through incisional or excisional biopsy can confirm the diagnosis (Griffinths et al. 1984, Morrison et al. 1998, Verstraet 2005). The surgical treatment by techniques as mandibulectomy or maxilectomy is most commonly indicated to treat malign or benign oral tumors with local invasive injuries (Verstraet 2005). Although oral tumors represent a small portion of the many types of masses found in dogs, it is frequently observed that they present a fast clinical evolution, which limits the treatment plan of the veterinarian. When it is possible, surgical intervention is sometimes aggressive. Therefore, the aim of this study was evaluate, retrospectively, cases of oral neoplasms presented at Santo Amaro Veterinary University Hospital during the period of 2003-2006. A epidemiological profile of the patients was made including the most frequent histopathological types of oral neoplasms.

Materials and Methods: Fifty-four (54) animals with oral cavity neoplasm were studied from January 2003 to January 2006. These animals were from different sex, ages and breeds. All animals had been carried through general and specific anamneses, which included clinical description, highlighting the time of evolution and the main symptoms. The animals had been submitted to a complete clinical exam, which, in some cases, was performed under anesthesia to better evaluate the oral cavity, as well as accomplish complementary exams like intra-oral and thoracic radiographic studies and incisional or excisional biopsy. The location, size, aspect of oral tumor and regional lymph nodes, as well as the results of exams, were registered in odontograms. The treatment was based on histopathological results and on evaluation of radiographic images of the skull and lungs, which search for osteolysis or proliferative lesion of the compromised bone and presence of metastasis.

Results: Fifty-four (54) animals presented oral neoplasms being 35% of females and 65% of males. The dogs’ age varied from 6 to 12 years old (51%), 13 to 20 years old (33%), 1 to 5 years old (9%) and dogs inferior to 1 year old (7%). The dogs of this study were mix breed dogs (n=21), Poodle breed dogs (n=6) and Cocker Spaniel breed dogs (n=5). The main owner’s complain were: salivaorhea with or without blood, respiratory distress, halitosis, increase in jaw volume, anorexia and apathy, sneezing, nasal discharge, masticatory difficulty and weight loss. Only thirteen (13) animals did not present any of the symptoms cited above. Regarding topographical location of oral neoplasm, the mandible tumors had high incidence (41%), followed by maxillary tumors (22%), palate (15%), lip’s mucosa (15%) and tongue (7%). Only twenty-nine (29) of the total patients had biopsy of lesion, being fifteen (15) dogs submitted to incisional biopsy and fourteen (14) dogs submitted to excisional biopsy, the remaining animals (25 dogs) did not have biopsy exams due to the owners’ disagreement, option for euthanasia or because of pulmonary evolution to metastatic disease certified on radiographic exam. The higher incident tumors were melanoma (26%), epulis (20%), fibrosarcoma (17%), papiloma (17%), squamous cell carcinoma (3%) and others (11%). From the 54 presented patients only 11 were submitted to surgical procedure. The main reasons for not making surgery in some cases were: evolution of the neoplasia to inoperative stages (n=6), occurrence of pulmonary metastasis (n=3) and not agreement of the owner for the accomplishment of the surgery because of financial reasons or concern about the postoperative condition of the dogs (n=31). Prior to the surgical procedure, the animal was submitted to pre-operative laboratory exams and the owner was oriented to maintain the animal on food and water fasting before surgery. After pre-anesthetic medication, the animal was induced and intubated to propitiate inhalant maintenance during the procedure. The adopted surgical procedure was the accomplishment of bilateral rostral mandibuclectomy in 2 cases, total unilateral mandibuclectomy in 4 cases, unilateral maxillectomy in 1 case, gengivectomy in 2 cases, glosectomy in 1 case and criosurgery in 1 case. On postoperative care a broad range of antibiotic and analgesic medication (chloridrate of tramadol in the dose of 2mg/kg) were prescribed. Comissurorrhaphy was performed in the animals submitted to total unilateral mandibuclectomy, being recommended the use of muzzle to prevent dehiscence of surgical wound. The use of anti-septic was also recommended in all animals, to perform oral hygiene on the first day after surgery. The first post-operative appointment was requested in 24 hours after the surgical procedure. All animals’ appetite was normalized after the procedure and canned food was
offered. Complications as intense sialorrhea and tongue protrusion had been observed in animals submitted to mandibulectomy, however these alterations were normalized in a period of up to 8 days. Only one animal presented dehiscence at the surgical wound.

**Discussion and Conclusions:** Retrospective studies in oncology field allow the identification of some tumors characteristics as well as its biological behavior and factors that could potentially affect several treatments response, consisting in therapeutic challenge. The present study reports a variety of informations related to age, sex and breed predisposition of dogs with distinct neoplasms of the oral cavity associated to the histopathological type, which information was similar to other authors’ data. The oral cavity is a complex structure, formed by different tissues; each one of them is able to originate various types of neoplasms, for this reason oral neoplasm presents different incidence and prognostics, according to its origin (HEAD, 1990). Among all malignant tumors the melanoma is the one of higher occurrence (30-40%), followed by squamous cell carcinoma (20-30%) and fibrosarcoma (10-20%) (Withrow 2001). On this study, the melanoma also was the malignant neoplasm of higher incidence (26%), however fibrosarcoma was the second most common malignant tumor (17%), followed by the squamous cells carcinoma (9%), in opposition to the data reported by other authors. This particular result can be explained because the aim of this study was the occurrence of oral neoplasm in dogs, and the squamous cells carcinoma has its highest occurrence in the feline specie. The males with age up to 6 years old are most affected than the females and some breeds like Poodle, Cocker, Boxer and Weimaraner seems to be predisposed (Cohen 1964), however some reports include other breeds such as the German Dogue, Pinscher and Rotweiler, besides the high incidence in mix breed dogs. The few incidence of pure breed dogs presented on this study can be explained by the location of the Veterinarian Hospital where this study was developed, a low income neighborhood, in which the mix breed dogs predominate. The neoplasms of the oral cavity depend on location, when they are located in a not viewable place they are rarely observed by owners on the initial stages of the disease. The patient presents signs and symptoms such as sialorrhea, pain or masticatory difficult, nasal discharge, weight loss, halitosis, oral bleed and lymphadenopathy of unknown cause (Oakes et al. 1993, Withrow 2001). It is important to mention that when the clinical signs become clear to the owners the mass has already have important physician-surgical evolution. For this reason, besides the signs and symptoms already cited on this study, some patients had been presented with metastatic disease, especially pulmonary (n = 3). The diagnostic suspicion depends on the general clinical examination of the patient and minucious exam of the oral formation (Dhaliwal et al. 1998). The intra-oral and extra-oral radiographic studies are important to determine the grade of bone invasion caused by invasive neoplasms (Verstraet 2005). The diagnostic confirmation is mainly carried through incisional or excisional biopsies, which offer subsidies for the histopathology exam (Morrison 1998). All animals on this study had been submitted to minucious clinical exam, however only 42 performed radiographic evaluation, and 29 allowed collection of samples to determine a definitive diagnosis. However, the importance of biopsy and methods of diagnostic image are standing out, so that it is possible to establish and adjust the treatment plan to each type of neoplasm in particular. So, the establishment of clinical behavior must include the accomplishment of the cited procedures of diagnosis. The treatment plan must be based on the alterations observed during the clinical evaluation of the oral cavity, joined with the results obtained after intra-oral and thoracic radiographic exams of metastasis research and on the histopathologic, determinative examination for the type of tumor and its prognostic. It has described in literature distinct therapeutical procedures, which can be carried through in association, depending on the histopathologic type of the tumor. The surgical excision is still chosen as a therapeutical modality even for benign neoplasms or for malignant neoplasma, offering satisfactory results for the local and distant control of the tumor, besides improving the quality of life and increasing the survival time of the patient (Oakes 1993). From the 54 animals taken care, only 11 had been submitted to the surgical treatment. This particularity can be attributed to the fact that most owners of the UNISA taken care animals present low degree of awareness in relation to the importance of the afections of oral cavity, therefore, not having concernment in relation to the oral neoplasms. In most cases dogs already demonstrated signs of advanced stages of the disease, not presenting conditions of being under a surgery (n = 6), metastasis pulmonary (n = 3), or the owners were opposed to the surgical treatment, for financial reasons or aversion to the deformity caused for the aggressive treatment (n = 31). Only three animals affected by oral papillomatosis had not been submitted to surgery, however they presented spontaneous resolution. The results of this study demonstrate that the most common oral neoplasms in dogs are the melanoma, epulis, fibrosarcoma and the squamous cell carcinoma. The mean age of the affected animals varies from 6 to 12 years old, being male dogs more predisposed and mix breed dogs the most compromised.


**INDEX TERMS:** Neoplasm, oral, surgery.
Introduction: The squamous cell carcinoma of the tongue (SCC) is the second most common malignant tumor in dogs, like the melanoma and the fibrosarcoma, the prognostic is regarded to poor when it comes to survival time or lesion control (Todoroff et al. 1979). Sexual pre-disposition is not reported, however old age dogs of large breeds are most commonly affected. Many SCC arise from the gum, especially on the rostral mandible bone (Vestraet 2005). The SCC can be classified according to its origin as lingual, non-tonsil, and tonsil. The non-tonsil type is locally invasive, but has low rates of metastasis. The tonsil types are locally invasive, with fast progression and frequently metastasize to regional lymph nodes and lungs. Despite of being rare the lingual carcinoma is much more aggressive than the non-tonsil type having higher risk of metastases (Dhaliwal et al. 1998). The SCC may appear as a broad based, ulcerated mass, with slow growing rate and local bone invasion (Gioso 2003). The lesion could be found around apparently healthy teeth, causing dental mobility or pathologic fractures on the affected bone by direct contact, or it develops after dental loss or extraction (Dhaliwal et al. 1998). The aiming of the present study is to report 1 case of SCC of the tongue in one dog, because it is an oral tumor of rare incidence in small animals.

Case report: One 6 years old female cocker spaniel dog, was presented to the small animal surgery department of Santo Amaro Veterinary University Hospital (UNISA) with clinical history of weight loss, masticatory and deglutitition difficulty, fetid oral cavity odor and siaetorrhea with blood stripes. The physical exam showed an ulcerated, broad based formation on the rostral and middle portions of tongue, with no evident alterations on palpation of regional lymphnodes. A radiographic study of the thorax didn’t show signs of metastatic lesions. The diagnostic of SCC was made by histophatological exam of the fragment collected by incisional biopsy of the lesion. After diagnostic, surgical procedure was suggested. Prior to surgery, the animal was submitted to pre-operative laboratory exams and the owner was oriented to maintain the animal on food and water fasting. After pre-anesthetic medication, the animal was induced and intubated to propitiate inhalant maintenance during the procedure.

Results: A partial glossectomy was made including the rostral and middle portion of the compromised tongue. The defect correction was made with absorbptive suture wire by separated suture pattern. At the post-operative care antibiotics (cefalexin 30mg/kg/7days) and analgesics (sodic dipiron 25mg/kg/5 days and tramadol chloride 2mg/kg/5days) were prescribed besides oral cleaning with anti-septic product (chlorexidine gluconate). The next day after surgery the animal received liquid diet with the owner’s help. The recovery of masticatory and food prehension movements occurred in a progressive way. On the 5th day after surgery the patient was eating by himself. After 5 months of survival the patient presented recidivation of the lesion at the excision site associated to lung metastatic disease. Therefore euthanasia was indicated.

Discussion and Conclusion: The surgical excision is the most common and more effective treatment for benign and malign oral neoplasia in dogs (Salisbury et al. 1985, Penwick et al. 1986). Tumors like squamous cell carcinoma and malign melanoma, that present high rate of metastasis, must be submitted to regional or systemic therapy besides local aggressive treatment, aiming to control metastatic disease (Harvey 1986). The study reported by Carpenter et al. (1993) including 10 dogs which presented squamous cell carcinoma of the tongue, demonstrates that surgical resection of 40 to 60% of tongue extension is well tolerated by the animals. The surgical procedure propititates a survival time of 16 months, and when associated to radiotherapy or chemotherapy the survival time increases to 27 to months. In the present study the surgical resection improved the quality of life from patients, propititating masticatory, deglutition and life improvement. Other therapeutic modalities were not instituted due to the owner’s aversion of procedures like chemotherapy for example. In conclusion surgical excision is the gold standard treatment to cases with no metastatic disease, because increases life quality and survival time for patients with malign neoplasia.


INDEX TERMS: Carcinoma, tongue, oral.

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042. Veiga G.A.L., D’Oliveira K.S., Barbosa A. & Sanchez C. 2007. Primary cleft palate. Pesquisa Veterinária Brasileira 27(Supl.):00-00. Departamento de Cirurgia de Pequenos Animais, UNISA, São Paulo, SP 04829-320, Brazil. E-mail: gigveiga@ig.com.br

Introduction: The cleft palate is a congenital or aquired affection that attacks dogs and cats. The acquired cleft palate occurs mainly by traumatic lesions like bites laceration, fire guns, eletrict wire, severe chronic infections, surgery therapy, radiation, as like neoplasm process (Harvey 1987, Withrow 1996). The congenital cleft palate can be hereditary or can occur by alterations of embryonal development like hormonal and nutrition factor, toxic agents and viral infeccions intra-uterine (Nelson 1998). Different kinds of palate defsects was described as soft palate hypoplasia, the secondary cleft palate which is most common occurs in hard and/or soft palate, and the primary palate cleft which occurs on the lips and pre-
maxillary has a rare incidence (Harvey 1987, Sager 1998). The primary brachicephalics breeds are the most predisposed. The cleft diagnosis can be realized as birth through lips fissure evident, however, the secondary cleft palate could be missed until the neonate starts to show growing deficiency signs. During the breast feeding, the milk drenage by neonate nostrils could be saw, cough, sneeze, choke and respiratory affections which could be observed in primary cleft palate (Nelson 1998). The surgery correction is the indicate treatment and a different technique has been described for this affection. The purpose of the present study is to describe the case of primary complete cleft palate for treating rare affection in small animals.

**Case Report:** A three years old male dog, Lhasa Apso, was presented to the small animal surgery department of Santo Amaro University Veterinary Hospital (UNISA) with a clinical history including anorexy and mastigatory difficulty, oral bleeding and nasal secretion. The physical exam showed an evidence of primary cleft palate associated with mucosa lip ulcer, a decorrent trauma caused by malocclusion inferior canine tooth in the cleft region. The surgery treatment correction and inferior canine dental section followed endodontic treatment was proposed, however due to financial problems the owner option was cleft correction and inferior canine exodontic. The animal was submitted to pre-operative laboratory exams and the owner was oriented to maintain the animal on food and water fasting before surgical procedure. After pre-anaesthetic medication the animal was induced and intubated to propriate inhalant maintenance during the procedure.

**Results:** First, it was realized in nasal floor mucoperiosteal flap elevation for the pre-maxillary cleft correction. It was made nostril and lip incisions for flap obtations and lips cleft occlusion. The skin suture was realized with absorbable material. An intraoral methyl methacrylate was used to stabilize or alignment may lead to severe malocclusion and temporomandibular joint problems (Pence 2002). The type of restraint required to repair these fractures depends on the temperament of the horse (Hague & Honnas 1998).

**Discussion and Conclusions:** Cleft palate surgery has been reported previously to be associated with a high rate of surgical failure, occurs mainly tension suture line (Griffiths 2001). The choice of the adjusted surgical technique, associate the factors as the type of wire of suture used in the procedure, the postoperative handling and the age of the animal at the moment of the defect correction are of extreme importance in the attainment of the therapeutic success (Harvey 1997). The use of lips remnants of relaxation had been essential to prevent the tension in the line suture and the perfect occlusion of cleft palate in the present report. The prognostic is good in the case of animals with primary palate cleft, however the accomplishment of some surgeries can be necessary, so that the defect is completely obliterated preventing the permanence of the symptoms (Kirby 1990). It is concluded that primary palate cleft presents favorable prognostic when treated exactly delayed, since the surgical correction is made in appropriate way.


**INDEX TERMS:** Palate, cleft, surgery.

**043.** Witz M.I., Maia J.Z., Gonzáles R.R., Malschitzky E. & Alves L.C. 2007. **Maxillary fracture with avulsion of incisors.** Pesquisa Veterinária Brasileira 27(Supl.). Departamento de Clínica e Cirurgia, ULBRA, Canoas, RS 92425-900, Brazil. E-mail: witzmii@gmail.com

**Introduction:** Fractures of maxillary incise bone or avulsion of incisors may not be visible without opening the mouth unless the teeth are drastically displaced (Pence 2002). The most obvious sign of maxillary fracture is malalignment of the incisors (Turner 1984).

Other signs of maxilla fracture are painful mouth behavior, difficulty in prehending and masticating food, excessive salivation and halitosis (Hague & Honnas 1998). These fractures can be difficult to stabilize because of limited space on the rostral fragment for placement of pins, or screws to lag fragments, or apply plates (Colahan & Pascoe 1983). After careful cleansing and debridement of food material and other debris, primary closure may be carried out if the surrounding tissue can be closed easily and has suitable strength for suture holding (Greet 1999). Inadequate fracture stabilization or alignment may lead to severe malocclusion and temporomandibular joint problems (Pence 2002). The type of restraint required to repair these fractures depends on the temperament of the horse (Hague & Honnas 1998).

**Materials and Methods:** An 8-month-old thoroughbred foal, weighing 330 kg arrived at the hospital with a history of oral trauma. A dental exam was performed and a maxillary fracture with avulsion of incisors was observed. Xylazine (0.5 mg/kg) was used for sedation and after a mental nerve block was done with lidocaine 2%. The oral speculum for anterior teeth and dental heather were used for the procedure. The fracture area was rinsed with chlorhexidine (0.12%) before reduction. The main objective was to achieve normal occlusion. Orthopedic wire of 1.0mm was utilized on the avulsion area. The same wire was passed below the contact point, brought to the buccal face and twisted. The buccal mucosa was sutured with simple interrupted suture with synthetic absorbablematerial. An intraoral methyl methacrylate was used to stabilize maxillary fracture and this material contured the cervical area. Fluoxen meglumine was used and soft food was recommended. Patient was to return after 60 days. After that the acrylic splint was removed. The animal had a normal occlusion and was able to eat.
Results: As a result of the maxillary reduction and acrylic splint the animal was able to eat and had a normal occlusion.

Discussion and Conclusions: It is important to detect this kind of fracture to enable the animal to feed normally therefore to improve his score condition and have a normal occlusion. Klug (2004) report the subsequent soft tissue injury that can result in a significant complications for the patient related to infections agents gaining access to the periodontium. The treatment employed in this case was relatively simple and non invasive.


INDEX TERMS: Equine dentistry, maxillary fracture, acrylic splint.