Proceedings of the
World Small Animal Veterinary Association
Sydney, Australia – 2007

Hosted by:

Australian Small Animal Veterinary Association (ASAVA)
Australian Small Animal Veterinary Association (ASAVA)
Australian Small Animal Veterinary Association (ASAVA)

Next WSAVA Congress

33rd Annual World Small Animal Veterinary Association 14th FECAVA Congress
DUBLIN, IRELAND 20th - 24th August 2008
This lecture will summarize the steps of a complete dental cleaning and discuss home care options. Equipment may vary based on what you have available, but the principles are universal.

1) Visual oral exam
2) Examination under anesthesia
3) Radiographs
4) Scaling and Polishing
5) Probing
6) Therapy/treatment
7) Home care & rechecks

The teeth are not separate from the rest of the body, so the practitioner must look at the patient as a whole. A complete physical exam including an oral exam and pre-anesthetic laboratory tests should be done. Based on those findings, any additional diagnostic tests (i.e.; ECG, radiographs, etc.) that are warranted should be performed. Once your database is established, the patient’s anesthetic protocol can be tailored to meet their needs, including peri-operative pain management.

Upon inducing anesthesia, the patient should have the appropriate size endotracheal tube placed and the cuff inflated. It is at intubation that clear visualization of the palate, soft palate, pharynx, tonsils, caudal tongue, and larynx can be obtained. For the safety of your patient, dental cleanings should be done under general anesthesia with intubation and a pharyngeal pack placed to prevent debris from entering the pharyngeal area and possible aspiration of bacteria laden calculus. I prefer the use of soft foam cut 1 ½ times the diameter of the pharynx. Before putting it in the pharynx I poke a long piece dental floss through the center and tie it. The other end is tied to the tubes of the anesthesia machine. This serves as a visual reminder to pull the pack prior to turning off the anesthetic gas.

There is a wide variety of anesthetic monitoring equipment available. There are also numerous parameters that can be measured. The more parameters the practitioner monitors, the better overall analysis of your patient’s anesthetic period. It is equally important to evaluate the patient’s mucous membrane color, capillary refill time, jaw tone and eye position.

Once your patient has reached the desired anesthetic plane, your oral exam may continue. Just as with any physical exam, start with one structure and move systematically and deliberately through your oral exam. Be careful not focus on the obvious pathology, for fear of missing other problems. Evaluate the lips,
buccal mucosa, tongue, sublingual soft tissue, gingiva, and teeth. The use of a standardized grading system for gingivitis and calculus will help the doctors and technical staff to evaluate the level of pathology consistently.

Rinsing the oral cavity prior to scaling has been advocated in human dentistry for many years. The reduction of oral bacteria by irrigation with a 0.12% chlorhexidine antiseptic rinse has been shown to reduce the number of aerosolized bacteria in the environment. The safety of the practitioner and the staff is just as important as the safety of the patient.

Debriding may begin with removal of large, thick pieces of gross calculus using calculus forceps. This is only meant for bulk debridement and not all patients will require this procedure. It is in this author’s opinion that chipping large calculus deposits off of a cat’s tooth can result in a fracture of the crown. Under that calculus there may be a feline odontoclastic resorptive lesion compromising the structure of the crown.

Whole mouth radiography has been advocated for every patient. If you’re not taking intraoral radiographs as part of your oral examination, you’re missing a lot of pathology. This is because the bulk of the tooth is below the gingiva. A study by Vestaete et. al. concluded that 28% dogs had radiographic pathology while the teeth looked clinically normal. An astounding 42% of clinically normal cats had pathology demonstrated on radiographs. While dental radiography provides valuable information, it is not always practical (from a time stand) or financially accepted by the owner. At minimum, radiographs should be taken, where indicated, based on exam findings. If radiographs are taken early in the procedure, the practitioner will have time to interpret the films and exam findings and decide on a treatment plan. The veterinarian then can have time to discuss findings and options available without prolonging the anesthesia unnecessarily.

Supragingival scaling can be achieved with many different kinds of instruments. The practitioner may chose to use hand instruments to scale the crowns. The blade is triangular in shape with two cutting surfaces and comes to a point. In human dentistry, there are a variety of scalers possessing varying blade thickness and shank angulation for specific teeth. In veterinary dentistry some of the more common hand scalers used are the straight sickle scaler (Jaquette 2Y-3Y), the curved sickle scaler ( N135 scaler), and the short blade Morse 0-00 scaler for small dogs and cats. The practitioner should have several scalers available and the instrument should be sharpened after each patient. Hand scaling typically causes minimal damage to the teeth, but can be slow going even for the most experienced person. In veterinary dentistry, powered scalers are commonplace; employing ultra sonic, sonic or rotary devices for supragingival scaling. The ultrasonic scaler functions above 20 kHz and are divided into 2 categories: piezo-electric and magnetostrictive. Both allow the water spray to hit the vibrating metal tip, but the piezoelectric tip moves in a linear pattern while the magneto restrictive moves in an elliptical pattern. Both generate heat and
the equipment should be tested to ensure adequate water flow prior to placing it on the tooth. Holding the hand piece like a pencil between the thumb and forefinger.. Press down the foot pedal and place the side of the tip parallel to the tooth with feather light pressure. Aim the water spray subgingivally and rapidly "paint" the tooth with large up and down overlapping strokes. Systematically scale all the tooth surfaces. Sonic scalers function at much less than 20kHz with the tip moving in an oval pattern, less heat is generated. The water is for irrigation, not cooling. The same grip and technique should be used with sonic scalers as was used with the ultrasonic scaler. Rotary scaling is achieved with a 6-sided noncutting steel bur on a high-speed hand piece. At the hand pieces 30,000 rpm, the bur produces close to 30kHz. It is important to use minimal pressure and a new bur while irrigating with plenty of water. Rotary scaling is the most damaging method and is no longer considered quality medicine. When scaling the teeth, the operator should always pay attention to proper body posture and movements.

Periodontal probing is the gentle exploration of the gingival sulcus. The procedure requires a steady hand as you careful insert the probe into the sulcus between the crown and the gingiva down to the level of epithelial attachment. Force should never be used or unnecessary damage may occur. The teeth should be evaluated in several areas around the circumference of the tooth. There are several types of periodontal probes available with different millimeter marking intervals. Become familiar with the millimeter scale of your probe to facilitate an efficient periodontal depth reading. The depth is read as the measurement from the epithelial attachment to the gingival margin. If the gingiva is recessed, the measurement should be made from the epithelial attachment to the level of the cementoenamel junction (CEJ). Any abnormal periodontal depths measured will be recorded on the patient’s dental chart. All other pathology should be identified and recorded. If additional treatment(s) are needed, a treatment plan can be devised, and estimate made and the owner contacted for approval. By the time your technician is done polishing, you will have spoken to the owner and received permission to address oral pathologies.

Polishing will retard plaque recolonization of the teeth. It is done with a prophy angle on a slow speed hand piece. Prophy paste and a soft cup are used with minimal pressure to splay the cup, smoothing the micro etchings in the enamel. The oscillating disposable prophy angles generate less heat and won’t catch the dog’s beard. The air/water syringe is used to flush prophy paste and debris from the mouth. A disclosing agent painted on the teeth will reveal areas of plaque that have been missed. Sulcus irrigation with water or dilute chlorhexidine can be followed by a visual examination of the sulcus. The air syringe is used; the blast gently lifts the gingival away from the tooth. A barrier sealant can then be applied to the dry teeth.

Once the patient is recovered, postoperative surgical instructions and home care instructions can be written. Anesthetic effects, the type of food the owner is to
feed and for how long as well as post operative medications should be discussed.

Oral home care is a key element in the management and prevention of dental disease but it’s often overlooked. Owners should be encouraged to brush the teeth daily, as this is referred to as the gold standard for oral care. In order to make this comfortable for the patient, all treatment sites should be healed before beginning a daily tooth-brushing regimen. A soft bristle brush with enzymatic toothpaste allows the owner to use both mechanical and enzymatic actions to disrupt plaque. There is a variety of brushes available: fingertip, two brush, dual ended, minibrush, etc. taking into consideration the owners comfort and the size of the patient’s teeth. The owners should have the tooth brushing technique demonstrated to them, then allow them to try it their selves.

Chlorhexadine has bactericidal and virocidal effects against most oral organisms. The chemical binds to the pellicle thereby reducing the number of organisms and weakening them. Chlorhexadine can stain the teeth, however, this is a temporary issue easily remedied by polishing. Formulations other than chlorhexidine rinses are now available, such as impregnated treats and gels. Chlorhexidine and fluoride should not be used at the same time since it’s thought that they inactive each other. Fluoride decreases plaque accumulation, desensitizes dentin, and strengthens enamel. Fluoride should not be used in periodontal pockets as it may delay healing of gingival reattachment nor as a home care product since toxicity due to ingestion is possible.

Zinc disrupts the bacterial enzyme system thereby decreasing the production and release of volatile sulfur compounds and in turn decreasing halitosis. Zinc ascorbate stimulates collagen production helping repair diseased tissue.

Barrier sealant applied weekly will make the enamel surface slick and harder for bacteria to get a “foothold.” It is a wax polymer that is colorless, tasteless, and nontoxic.

Chewing helps remove some plaque accumulation. Dental diets offer the owner an easy option for complying with your dental home care request, but it should not replace tooth brushing. Certain dental diets reduce plaque and gingivitis by mechanical and/or chemical means. Some foods squeegee the tooth and/or have a unique texture that mechanically cleans the tooth as the pet bites into the kibble. Other foods contain the chemical hexametaphosphate (HMP) which chelates calcium thereby reducing the mineralization of plaque into calculus. The number of treats available today is astounding! All toys and treats should be given while the pet is supervised. Few foods or treats have had their dental health claims scrutinized. The United States has an independent body, the Veterinary Oral Health Council (VOHC), who review research on the effectiveness of these products. If the product meets certain standards, it will be awarded the VOHC seal of approval.
Please remember the universal principles of a complete dental cleaning and review your hospital's current procedures.

References