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SAFETY OF A TOPICAL DELTAMETHRIN SOLUTION (DELTANIL®) IN HORSES

Introduction
Deltamethrin is commonly used as a treatment for lice in horses, with two applications at 2 week intervals, and as a convenient topical fly repellent when animals are at risk of fly-induced allergic skin disease, usually by monthly application. The most frequently used dose is 100 mg per horse, or 50mg for small ponies. However, it is widely believed that there is a risk of cutaneous reactions where deltamethrin products are applied to horses. A new topical deltamethrin-based product (Deltanil®, Virbac, France) was recently authorized for use in cattle and sheep as a 10 mg/ml pour-on and a 100 mg in 10 ml monodose spot-on. The objective of this study was to assess the safety of frequent application of the product to horses.

Materials and Methods
Eight young, adult, leisure horses, in good health and not destined for human consumption, were included in the study. Each animal received 10 ml (100 mg Deltamethrin) of product per day, applied to the area of the withers, for 7 days. Photographs of the area were taken just before each application and 24 hours after the last application. A veterinary examination was performed on each occasion and the photographs were further scored by another veterinarian in a blinded manner. One month after the last application, a further veterinary examination was performed to assess any delayed reactions.

Results
No adverse reactions were noted in any animals during the study. The only observable effect was a slight greasy appearance of the application site.

Conclusions
The product was well tolerated in all the animals despite a frequency of application that was significantly higher than commonly used in practice and the repeated application of the product to a relatively limited area. This confirms that application spread over a larger area at a lower frequency can be expected to be very well tolerated in horses.
Exophthalmus is a rare condition in the horse\(^1,2\). Occasionally the bulbus appears hard upon palpation and an increased intraocular pressure is noted\(^3\). An exophthalmus must be differentiated from cases with buphthalmus or hydrophthalmus were the bulbus itself is enlarged\(^3,4\). In this poster the diagnostic and therapeutic approaches in an older grey mare with unilateral exophthalmus are described.

A 19 year old Arabian mare developed unilateral exophthalmos over a period of 6 months (Fig. 1). On presentation in the clinic the mare was bright, alert and responsive and had an undisturbed vision. The bulbus showed no ophthalmoscopic or ultrasonographic abnormalities. A retrobulbar mass with a capsule and an inhomogenous structure that resulted in deformation of the bulbus was visualized ultrasonographically. Magnetic resonance imaging with a 3 Tesla scanner was performed to determine the exact location and extent of the mass (Fig. 2).

Afterwards, a dorsal orbitotomy was performed and the mass was removed. The surgical field was treated with 5-fluorouracile (5-FU Hexal\(^5\) 50 mg/ml injection fluid 5.000 mg, Hexal AG, Holzkirchen) before closure. Histopathological examination classified the mass as melanoma. Postoperative the surgical site healed without complications.

Seven days after surgery the mare was discharged from the hospital. Vision of the eye remained undisturbed and the bulbus returned to a normal position directly after surgery. Movements of the upper eyelid remained reduced 6 months after surgery. No signs of melanoma recurrence or metastasis could be observed.

PELVIC FLEXURE ENTEROTOMY CLOSURE WITH A TA-90 STAPLING DEVICE: A RETROSPECTIVE CLINICAL STUDY

Introduction

Enterotomies are frequently performed at the pelvic flexure of the large colon in order to evacuate ingesta and facilitate bowel manipulation. The Thoraco-abdominal stapling device (TA-90) stapling device has been described for equine gastrointestinal surgery as early as the 1980s and has been advocated for several various procedures. Closure of pelvic flexure enterotomies using the TA-90 in a clinical setting was recently described as technically simple and time saving (Ellis et al. 2007).

Objectives

Our objective was to report the short- and long-term survival and post-operative complication rates in horses undergoing pelvic flexure enterotomy closure with the TA-90 stapler and compare this data to horses undergoing traditional handsewn double layer closure for pelvic flexure enterotomy. Short term survival was defined as survival to discharge; long-term survival was survival at one year post-surgery. We hypothesized that TA-90 stapled closures would exhibit survival and complication rates similar to handsewn closures.

Materials and Methods

Medical records of horses undergoing pelvic flexure enterotomies between 2001 and 2008 at a private practice were reviewed. Variables recorded included signalment, physical examination, surgical findings, post-operative complications, and survival. Pelvic flexure enterotomy closures were performed as previously described for stapled closure (using 4.8mm staples) and for double layer handsewn closure (Nieto et al. 2006).

The Fisher’s Exact test was used to determine whether or not closure technique was associated with development of post-operative complications, short-term survival, and long-term survival. The Fisher’s Exact test was utilized because the cell numbers for

Results

Eighty-four horses met the inclusion criteria. Horses were aged 6 months to 25 years. There were 44 mares (52.3%), 15 stallions (17.9%) and 25 (29.8%) geldings. Forty-two horses were Thoroughbreds (50.0%). Other breeds included Quarter Horses (9), Warmbloods (10), Paint (6), Miniature Horse (3), Arabian (2), Paso Fino (2), Ponies (2), Appaloosa (1), Pinto (1), Lipizzaner (1), Drafts (1), Andalusian (1), and cross breeds (3). Large colon sand impaction was diagnosed intra-operatively in 50/84 (59.5%) cases. Other lesions included: fecal impaction in 13 horses (15.4%), large colon volvulus in 10 horses (11.9%), right dorsal displacement in 5 horses (6.0%), left dorsal displacement in 3 horses (3.6%), and entero lithiasis/fecalithiasis in 3 horses (3.6%). Seventy horses had stapled enterotomy closures and 14 had handsewn closures.

Twenty-eight horses experienced short term complications (33.3%). Major complications included: gastric reflux in 7/84 (8.3%), colic episodes in 6/84 (7.1%), colitis in 4/84 (4.8%), laminitis in 4/84 (4.8%), peritonitis in 2/84 (2.4%), and neuropathy in 1 horse (1.2%). Method of closure did not have an effect on the major complications rate, either gastrointestinal related (p=0.55) or non-gastrointestinal related (p=0.66). Minor complications included: thrombophlebitis 4/84 (4.8%), incisional infection 5/84 (6.0%), and fevers 3/84 (3.6%). No significant differences were appreciated between stapled and handsewn closures and development of minor complications (p=0.55).

Seventy-seven horses (89.5%) survived to discharge; mean hospitalization was 10.5 days. Seven horses recovered from anesthesia but were euthanized due to complications. Six of these horses were euthanized due to reasons unrelated to the enterotomy closure; one horse was euthanized due to peritonitis. Six of these horses had stapled closures (6/70=8.3%) and one horse had a handsewn closure (1/14=7.1%). No significant associations were identified between short-term survival and closure technique (p=0.69).
Of the surviving animals, 54 had follow-up information available. Fifty of these horses were alive 1 year after discharge (94.3%). No significant associations were found between long-term survival and enterotomy closure technique (p=0.39). Of the long-term survivors available for follow up, 40 horses returned to their intended function (80.0%).

Conclusion
Our results illustrate that stapled pelvic flexure enterotomy closure had similar survival and complication rates as compared to traditional handsewn closure, which therefore supports our hypothesis. However, the current retrospective study has several limitations. The number of hand-sewn enterotomy closures used for control was small. However, using hand-sewn enterotomy closures from another location would confound the study design by introducing a subset of horses from a different demographic. The low number of hand-sewn enterotomy closures could influence the integrity of the statistical analysis. In particular, no randomization for technique could be accommodated as this was a retrospective study. However, comparing the technique to the standard closure provides useful information to augment the description of the procedure, despite the smaller sample sizes.

In conclusion, TA-90 stapled closure of pelvic flexure enterotomies is a safe procedure resulting in survival and complication rates equivalent to hand-sewn closure. This technique could decrease the morbidity associated with prolonged surgical and anesthesia times.

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References
THE USE OF A ROUTINE RADIOLOGICAL DATABASE OF AN EQUINE PRACTICE TO DETERMINE THE PREVALENCE OF OSTEochondrosis AND ITS CAUSATIVE ENVIRONMENTAL FACTORS IN A WARMBLOOD HORSE POPULATION.

Introduction
The prevalence of osteochondrosis (OC) in warmblood horse populations is estimated to vary between 25% and 70% under the influence of genetic and environmental factors. Despite genetic improvement within some breeds, environmental factors still cause large variation between farms. The aim of this study was to evaluate whether the radiological database of a specialized equine practice could be used to estimate OC prevalence and different feeding and housing conditions which are likely to correlate to OC incidence on herd level.

Material and Methods
From the practice database 45 warmblood breeding herds which provided ≥ 5 horses/herd selected for the study. Records of horses between 12 – 60 months of age were included and scored for OC. Additionally written questionnaires on feeding and housing conditions were sent to the 45 herd managers.

Results
In total 27% of the 626 horses showed OC in one or more joints. At farm level, 51% of the farms showed more than 25% OC affected horses, while 7% was free of OC in their examined horses. The results of the questionnaires showed much variation in the feeding and housing conditions of mares and young foals between the farms.

Discussion
Given the retrospective observational design of this study it would have been of added value to have all radiographs scored separately by a board-certified radiologist to verify inter-observer agreement.

Conclusions
The prevalence of osteochondrosis in a Dutch warmblood population was confirmed to be around 25% at horse level. The variation in management factors will be further studied in relation to herd level prevalence.

References
ANALYSES OF THE EQUINE SINONASAL COMMUNICATION BY USE OF THREE-DIMENSIONAL VISUALIZATION OF COMPUTED TOMOGRAPHY DATASETS IN NONE-DISEASED AND DISEASED HORSES

Introduction

The equine paranasal sinuses are bilaterally existing air-filled cavities which communicate with the nasal cavity. For diagnosis and successful surgical therapy, detailed knowledge of these structures is essential.

Material and Methods

In a current study CT-datasets of 19 healthy horses and horses with paranasal sinus disease were analysed by use of semi-automated segmentation of the paranasal sinuses and the sinonasal communication ways.

Results

3D analyses of the none-diseased horses showed the bilateral existence of seven sinus compartments which were parted into two totally separated sinus systems. The generated 3D models of the sinonasal communication showed a typically ramification into the paranasal sinuses: Starting in the middle nasal meatus at the nasomaxillary aperture, a common sinonasal channel (Canalis sinunasalis communis) developed and in the following ramified into a rostral sinonasal channel (Canalis sinunasalis rostralis) and a caudo-lateral oriented sinonasal channel (Canalis sinunasalis caudalis). The rostral sinonasal channel ventilated the rostral paranasal sinuses and showed some variation in its communication with the two compartments of this system. Whereas, the caudal sinonasal channel ventilated the caudal paranasal sinus system and was in all cases directly connected with the caudal maxillary sinus.

In horses with paranasal sinus cyst, the channel system of the diseased side was partly or totally blocked. None-ventilated sinus-compartments were completely filled with fluids. Whereas, on the none-diseased side no abnormalities of the sinonasal communication or paranasal sinus compartments were found. Moreover in horses suffering on a chronic sinusitis, the diameter of the channel system on the diseased side was noticeable enlarged compared to the channel system of the contralateral side.

Conclusion

3D analyses of the equine sinonasal communication give an excellent spatial impression of this complex anatomical structure. The described method contributes to a new understanding of equine paranasal sinus disease.