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Ulcerative keratitis in paca (*Agouti paca*)

Ceratitis ulcerativa em paca (*Agouti paca*)

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ABSTRACT

Ulcerative keratitis is a disorder mainly caused by fights and scratches in rodents. This disorder was described in a 7-year-old female paca with ocular secretion, blepharospasm, chemosis, conjunctival hyperemia, edema and corneal neovascularization. After anesthesia using azaperone (1mg/kg, i.m.), ketamine (20mg/kg, i.m.) and xylazine (0.2mg/kg, i.m.), plus anesthetic collyrium (hydrochloride of tetracaine 0.5% and phenylephrine 10%), conjunctival covering of 360° was performed. Subconjunctival injection of gentamicine was done and the animal was kept using an Elizabethan collar in an individual pen, receiving analgesic (0.02mg/kg of buprenorphine, i.m.) three times a day for 2 days and pentabiotic every 48 hours during 10 days (30,000IU/kg of three penicillins and 12.5mg/kg of two streptomycines, i.m.). After 30 days, important adhesion of the conjunctival bulb to the scarred cornea was noted and *phthisis bulbi* observed. The surgical technique performed preserved the eye bulb although vision was lost.

Keywords: ulcerative keratitis, *Agouti paca*, paca.

RESUMO

A ceratite ulcerativa é uma doença causada principalmente por brigas e traumas em roedores. Essa afecção foi descrita em uma paca fêmea de sete anos de idade com secreção ocular, blefarospasmo, quemose, hiperemia conjuntival, edema e neovascularização corneal. Após anestesia com azaperone (1mg/kg, IM), cetamina (20mg/kg, IM) e xilazina (0,2mg/kg, IM), além de colírio anestésico (cloridrato de tetracaina 0,5% e fenilefrina 10%), foi realizado recobrimento conjuntival de 360°. Injeção subconjuntival de gentamicina (24mg) foi aplicada e o animal mantido com colar elizabetano em baia individual, recebendo analgésico (0,02mg/kg de buprenorfina, IM) por 2 dias e pentabiótico a cada 48 horas por 10 dias (30.000UI/kg de três penicilinas e 12,5mg/kg de duas estreptomicinas, IM). Após 30 dias, uma importante aderência da conjuntiva bulbar junto à córnea cicatrizada e *phthisis bulbi* foram observadas. A técnica cirúrgica executada proporcionou a preservação do bulbo do olho, embora tenha ocorrido perda da visão.

Descritores: ceratite ulcerativa, *Agouti paca*, paca.

INTRODUCTION

The cornea is the transparent prior portion of the fibrose tunic of the eyeball, protecting vital intra-ocular structures, light refraction and contributing to the spherical uniformity of the bulb of the eye [1,5]. In normal conditions, the corneal transparency is maintained by a furfuraceous epithelium which is not keratinized, by the pre-corneal lachrymal film, by the absence of vascularization and pigmentation, by the even disposition and by the small diameter of the fibers of collagen which compose the corneal stroma, besides the relative corneal dehydration [6,9].

Corneal ulceration is an ophthalmic disorder which is very common in veterinary medicine. Corneal ulcers are classified in accordance with the depth (surface, deep, descemetocoele) and the ease with which they form a scar (complicated, simple, refractory and progressive). The surface ulcers involve the epithelium and the basal membrane with minimum involvement of the stroma. The deep ulcers extend to the corneal stroma and attain the descemetocoeles reach the membrane of Descemet. The ulcerative keratitis can progress rapidly, being able to threaten one's vision [5].

In rodents, keratitis can be caused by fights and scratches. In most cases, local therapy with antibiotics and the removal of the possible cause are indicated. However, local treatment in wild rodents is not feasible, owing to the aggressive behavior of these animals. Ulcerative keratitis is very common in rodents and can also be confirmed by using fluorescein. The involvement of foreign bodies in ulcers of the cornea is very common, but the ulceration can also occur owing to fights between males kept together [3].

The objective of this report is to describe a case of ulcerative keratitis in a paca (*Agouti paca*), the second biggest Brazilian rodent [4]. This species has been studied as a potential experimental model due its gestational time and reduced number of newborns on each delivery [7], besides size and weight of the newborns [8]. The animal reported was bred in captivity and went through surgical procedure as treatment, aiming to preserve the eye bulb and to improve the animal's visual perception.

CASE REPORT

A 7-year-old female paca, with ulcerative keratitis and belonging to the Sector of Wild Animals of FCAV/UNESP, Jaboticabal, SP, presented hyporexia,

ocular secretion and blepharospasm together in the right eye. The ophthalmic examination showed chemosis, conjunctival hyperemia, edema and corneal neovascularization, ciliar injection and deep corneal ulceration identified by the fluorescein test.

Surgical procedure was opted as treatment. Tranquilization was achieved with azaperone¹ (1mg/kg, i.m.) and after 15 minutes ketamine² (20mg/kg, i.m.) and xylazine³ (0.2mg/kg, i.m.) were injected together. Anesthetic collyrium of hydrochloride of tetracaine 0.5% and phenylephrine 10%⁴ was also used. Conjunctival covering of 360° was taken using mononylon 5-0⁵ in separate single knots. Subconjunctival injection of gentamicine⁶ (24mg) was done and the animal was kept with an Elizabethan collar (Figure 1) in an individual pen, receiving analgesic (0.02mg/kg of buprenorphine⁷, i.m.) three times a day for 2 days and pentabiotic⁸ every 48 hours during 10 consecutive days (30,000IU/kg of three penicillins and 12.5mg/kg of two estreptomicines, i.m.).

Therapy with antibiotic collyrium was not used due the necessity of daily tranquilization or anesthesia for such procedure. Ocular hygienization had to be done with diluted povidin iodine (1:50), by using a pipette.

Thirty days after surgery, the animal was anesthetized to remove the eye knots, and important adhesion of the conjunctival bulb to the scarred cornea was noted. The hygienization of the cornea continued to be done daily and, after ten more days, corneal atrophy and *phthisis bulbi* were observed.

DISCUSSION

The technique of conjunctival covering of 360° preserved the eye bulb although vision was lost. The ulcerative keratitis described was caused by fights, as occurred in other rodents [3]. The difficulty of handling the animal owing to its aggressiveness did not allow the local antibiotic therapy [2], due the injured stroma and exposure to being potentially infected by bacteria. There was no involvement of foreign bodies in the corneal ulcer, different from that noticed previously [3].

Opacity, corneal edema and neovascularization were observed [6], and the local application of fluorescein proved to be extremely useful in diagnosing ulcerative keratitis [2].

Owing to the risk of corneal perforation, executing surgery was crucial for the treatment [2].



Figure 1. Adult female paca after eye surgery due ulcerative keratitis.

The conjunctival covering was performed, causing good corneal cicatrization [5,9], as well as using therapy with systemic antibiotics and local hygienization [3].

SOURCES AND MANUFACTURERS

¹Suicalm®, Fort Dodge Saúde Animal Ltda, Campinas, SP, Brasil

²Ketamina 50® – Holliday-Scott S.A., Buenos Aires, Argentina

³Coopazine®, Coopers, São Paulo, SP, Brasil

⁴Colírio Anestésico®, Allergan, São Paulo, SP, Brasil

⁵Vicryl® – Ethicon, Johnson & Johnson, Cincinnati, OH, USA

⁶Gentamicina Colírio®, Allergan, São Paulo, SP, Brasil

⁷Temgesic®, Schering-Plough Ltda, São Paulo, SP, Brasil

⁸Pentabiotico Veterinário®, Fort Dodge Saúde Animal Ltda, Campinas, SP, Brasil

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