

Dept. Fac. Vet. Med., Moshtohor

Surgery Department, Zagazig Univ. (Benha branch)

Head Dept. G.M. Othman

STROMAL CORNEAL ABSCESSES IN SOME DOMESTIC ANIMALS

(With 12 Fig.)

By

S.F. ISMAIL, I.H. AHMED and H.M. EL-MAGHRABY

(Received at 2/9/ 1993)

خراجات القرنية فى بعض الحيوانات المستأنسة

سامى فرغلى ، ابراهيم أحمد ، حسين المغربى

فى هذه الدراسة تم تشخيص وعلاج عدد ٢٤ حالة كانت مصابة بخراجات القرنية وكانت تمثل نسبة ٣,٦٨ ٪ بين اصابات القرنية المختلفة فى الحيوانات . وقد وجد ان اكثر الحيوانات اصابة بخراجات القرنية هى عجول الفريزيان والاعنام (١٢ حالة ، ٦ حالات على التوالي) . وكانت معظم الحالات التى سجلت حالات فردية . هذا وقد تم تشخيص عدد ثلاث حالات كانت تعاني من الاصابة بخراجات القرنية وكانت هذه الحالات فردية ضمن قطيع من الماعز مصاب بمرض التهاب القرنية والملتحمة السارى (المعدى) .

واثبتت النتائج ان قشط القرنية السطحى اعلى منطقة الخراج هو افضل الطرق لعلاج خراجات القرنية حيث يتم ازالة طبقة الخلايا الظهارية المغلفة للخراج مما يسهل من عملية التصريف وازالة الاجسام الغريبة المسببة لتكوين الخراجات فى بعض الحالات .

SUMMARY

Stromal corneal abscesses were recorded in 24-cases. Most of these cases were recorded sporadically. Other cases were recorded in association with infectious caprine keratoconjunctivitis (3-cases). The treatment of the condition must be performed as quickly as possible to prevent or counter act extension of infection into the intraocular contents. The course of the treatment of the uncomplicated cases was minimally 2-4 weeks and scaring at the abscess site was the end results.

INTRODUCTION

Stromal corneal abscesses are not usually associated with large area of epithelial loss or extensive ulceration (SLATTER, 1990). In superficial and focal stromal corneal abscesses, the overlying epithelium was mainly intact (GELATT, 1981).

REBHUN, 1982; LAVACH, 1990 and SLATTER, 1990 stated that the usual cause of a corneal stromal abscess is an injury to the cornea that allowed the deposition of opportunist bacteria in the corneal stroma. After a short incubation, the signs of painful keratitis appeared with an obvious yellow opacity which varied from 3-8 m.m in diameter (LAVACH, 1990).

In the present study, a trial was carried out to throw a light on corneal stromal abscesses in some domestic animals. In the meantime, a concise practical and systemic discussion of their symptoms, treatment and possible complications is presented.

MATERIAL and METHODS

In the present study, 651 animals were seen to be affected with various congenital and acquired corneal affections. From these affected cases, 24 cases were diagnosed and identified as stromal corneal abscesses.

An adequate restraint was provided by tranquilization of the examined animals. Forcible closure of the eyelids (blepharospasm) during the ophthalmic examination occurs frequently in animals with a highly painful eye. The auriculopalpebral nerve block was performed to produce excellent akinesia of the eyelids and to facilitate ophthalmic examination and photography.

STROMAL CORNEAL ABSCESES & ANIMALS

The clinical symptoms of stromal corneal abscesses as well as their most probable complications were recorded.

Many selected cases were corrected both medicinally and/or surgically.

Cases of mature fluctuating abscesses (with an intact corneal epithelium) were corrected by one of the two following techniques:-

In the 1st technique, the abscess contents was aspirated with suction into a syringe. This was followed by flushing of the abscess cavity using 2% boric acid solution for several times until the aspirated solution becomes clear. Then the abscess cavity was injected by Garamycin solution.

In the 2nd technique: superficial keratectomy was performed. The corneal epithelial layer over the abscess cavity was surgically excised (Fig. 5, 6). The abscess area was irrigated by 2% boric acid solution. The superficial layer of the corneal stroma was gently curetted and then swabbed with a dilute tincture iodine. This was repeated until the granulation tissue begins to fill the abscess cavity.

Post-operative care:

- Subconjunctival Garamycin injection, one ampoule was repeated daily until the cornea begins to improve.
- Topical application of atropine and polyspectrane eye drops 3 times daily for 2-4 weeks.
- In severe and advanced cases, systemic Garamycin ampoules was administrated.
- Cases in which the corneal epithelium was extensively damaged, Regepithel eye ointment was applied 3-times daily for at least two weeks.

Cases of immature stromal corneal abscesses were controlled with an intensive course of antibiotics (Garamycin ampoules) by different routes, locally, subconjunctivally and systemically.

In cases of stromal corneal abscesses in goats (3-cases), *Mycoplasma mycoides* was isolated and considered the main cause of the condition. These cases were recorded among an outbreak of infectious caprine kerato conjunctivitis. For treatment of such a condition, Tylosin Tartarate was administrated orally in a dose of 0.5 gm/liter of drinking water twice daily. This was followed by the symptomatic treatment (Fig. 10, 11, 12).

RESULTS

In the present study, stromal corneal abscesses were recorded in 24-cases. These cases were diagnosed from 651 case of different corneal affections with an incidence of 3.68%.

Friesian calves and sheep were the mostly affected animals (12-cases and 6-cases respectively). The other cases were recorded in goats (3 cases), one donkey, one buffaloe and one dog.

The condition begins with a yellowish corneal opacity (Fig. 1, 3, 4, 7) together with ocular discomfort manifested by photophobia, lacrimation and blepharospasm. Limbal and Circumcorneal vascularization and associated Uveitis begins to develop (Fig. 3, 4, 7). The abscesses were rounded or oval in shape, mainly localized at the center of the cornea (Fig. 1, 3). At first the abscess was localized and small in size with an intact corneal epithelium (Fig. 1, 3, 4). Some cases of stromal corneal abscesses pointed to exterior and the corneal epithelium began to slough. In such cases evacuation of the abscess content occurred spontaneously. In certain cases foreign bodies were still lodged in the corneal stroma and epilation was performed using fine tissue forceps (Fig. 5)

Stromal corneal abscesses that were recorded among the outbreak of infectious caprine keratoconjunctivitis (3-cases) were distributed all over the circumcorneal zone nearer to the limbus. The abscesses were focal, multiple and small in size (Fig. 10). Tylosin administration improved the condition and shortened greatly the course of the disease (Fig. 11, 12).

In advanced and worst cases, the corneal edema and severe ciliary vascularization prevented clear visualization of the intraocular structures (Fig. 5, 6, 7).

In aggravated cases, the abscesses pointed into the anterior chamber of the eyeball and hypopyon was present (Fig. 8). The neglected cases were transformed into panophthalmia and exenteration of the orbital cavity was performed in such a condition (Fig. 9).

The course of the treatment of the uncomplicated cases of stromal corneal abscesses was minimally 2-4 weeks. The granulation tissue begins to fill the abscess cavity (Fig. 2) and scarring at the abscess site was the end result.

DISCUSSION

The usual cause of corneal stromal abscesses is an injury to the cornea that allows opportunistic organisms (Fig. 1, 3) and foreign bodies (Fig. 4, 5) to gain entrance beneath the epithelium and/or corneal stroma (GELATT, 1981; REBHUN, 1982; LAVACH, 1990 and SLATTER, 1990). In such instance, the abscess was usually single (Fig. 1, 3) and may appear bilobulated

STROMAL CORNEAL ABSCESSES & ANIMALS

having two cavities connected with each other (Fig. 4). These abscesses usually begins with a yellowish opacity at the most excentric portion of the cornea (Fig. 1, 3, 4, 7). On the other hand SWEENEY and IRBY (1984) suggested that stromal corneal abscesses may be a sequella to recurrent uveitis. In such conditions the abscesses were mainly attributed to a systemic infection, as those recorded in the present study among the outbreak of infectious caprine keratoconjunctivitis. The abscesses were multiple, focal, small in size and distributed all over the circumcorneal zone nearer to the limbus (Fig. 10, 11, 12).

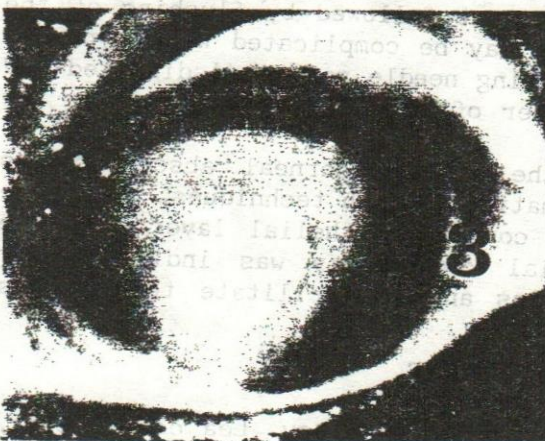
The treatment of stromal corneal abscesses must be intensive and as quickly as possible to prevent or counteract the chance of extension of corneal infection into the intraocular contents (REBHUN, 1973).

The statement of GELATT (1981) that superficial keratectomy provides satisfactory results in cases of stromal corneal abscesses coincide with the present results. While the aspiration of the abscess content followed by flushing of the abscess cavity several times may be complicated with hypopyon. In such technique the aspirating needle may be misdirected and penetrate the anterior chamber of the eyeball introducing the infection into it.

As the recovery of the stromal corneal abscesses was achieved by scar tissue formation in both techniques, so, there is no need for leaving the corneal epithelial layer over the abscess in situ. Superficial keratectomy was indicated for removal of the foreign bodies and to facilitate the abscess drainage (Fig. 5).

REFERENCES

- Gelatt, K.N. (1981): Veterinary ophthalmology. Lea & Febiger, Philadelphia.
- Lavach, J.D. (1990): Large animal ophthalmology. The C.V. Mosby Company ST. Louis Baltimore Philadelphia. Toronto.
- Rebhun, W.C. (1973): Conjunctival and corneal foreign bodies. V.M./S.A.C (8): 874.
- Rebhun, W. (1982): Corneal stromal abscesses in the horse. J.A.V.M.A., 181 (7) 677.
- Slatter, D. (1990): Fundamentals of Veterinary Ophthalmology. Second Ed. W.B. Saunders Company Philadelphia London, Toronto Montreal Sydney Tokyo.
- Sweeney, C.R. and Irby, N. (1984): Corneal stromal abscess in two horses. Compend contin Educ. 6: 5595-5599.



STROMAL CORNEAL ABSCESSES & ANIMALS

