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## HAM graft for augmenting healing of cornea in a three year old Shih Tzu with staphyloma: A case report

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### Abstract

A three year old male Shih tzu weighing 7.1 kg was presented to Department of Veterinary Surgery and Radiology, Veterinary College, Hebbal with a complaint of unilateral ocular discharge and photophobia since 1 month. Clinical examination revealed corneal ulceration, edema and staphyloma in the left eye. Surgical correction with Human Amniotic Membrane (HAM) graft was done after careful resection of the wound margins and repositioning the protruding iris in to anterior chamber under general anaesthesia. Post operatively topical anti-inflammatory and antibiotic eyedrops were given. The animal had an uneventful recovery.

**Keywords:** HAM, staphyloma, corneal ulcer

### Introduction

Staphyloma is protrusion of iris through a wound or ulcer on cornea and is frequently encountered in both dogs and cats (Venugopalan, 2009) [7]. Canine deep corneal ulceration can cause corneal perforation and possibly corneal staphyloma leading to impaired vision, if treatment is inappropriately chosen. Surgical treatment is strongly recommended to repair a perforated cornea (Severin, 1995) [5]. Corneal ulcers may occur following trauma to the cornea associated with lacerations or abrasions, exposed suture, and periocular surgery. Infected corneal ulcers can involve either Gram-negative or Gram-positive bacteria. Conjunctival flaps are used to treat deep corneal ulcers, descemetocoeles, and small sealed corneal perforations. Tarsorrhaphies are also indicated when the patient cannot blink, but should be avoided for deep corneal ulcers, deep corneal lacerations, or corneal perforations. Be sure to debride the corneal epithelium off the corneal ulcer bed and edges before placing the tissue flap so the flap can integrate into the cornea (Fossum, 2007) [1]. Corneal grafts using alternative grafting materials are more commonly used than autografts because autografts have a high rate of rejection. (Tuntivanich N. *et al.*, 2006) [6]. Amniotic membrane consists of a combination of tissue and cells, which when used as a biological dressing, helps wound healing by providing a foundation for soft tissue regrowth (Perepelkin *et al.*, 2016) [3]. This case study aimed to report surgical treatment of a complicated corneal ulcer with Staphyloma using HAM graft.

### Case History and Observation

A three year old male Shih tzu was presented with mucopurulent unilateral ocular discharge and photophobia. Animal had undergone treatment with topical antibiotic and anti-inflammatory drops for two weeks without any improvement.

On clinical examination edematous cornea with protrusion of iris through a full thickness wound in the centre of cornea of left eye was observed. (Fig 1) Menace reflex, corneal reflex and pupillary light reflex were absent in affected eye, but palpebral reflex was positive.

### Diagnosis and Treatment

Complicated corneal ulcer with Staphyloma was diagnosed from clinical examination. After routine preoperative tests were carried out (hematology, serum biochemistry), everything was found to be within normal limits. Pre operatively Ceftriaxone sodium was administered at 20 mg/kg b.wt. intravenously. The dog was premedicated with Atropine sulphate at 0.04 mg/kg and xylazine at 1 mg/kg.

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Induction and maintenance of anaesthesia was done with thiopental sodium 12.5 mg/kg. The periocular area was scrubbed with 0.5% Povidone iodine solution diluted in normal saline. The dog was positioned with affected eye up. The surgical site was prepared aseptically and eye was draped. The adhesions between the iris and cornea was separated gently. The iris was repositioned to the anterior chamber with the help of an iris spatula. The processed human amniotic membrane (HAM) graft was rehydrated by soaking in normal saline. The graft was sutured to bulbar conjunctiva at four sites in simple interrupted pattern (Fig 2). After giving sub conjunctival antibiotic injection temporary tarzorrhaphy was performed. Post operatively Tab Ceftriaxone at 20 mg/kg bid was advised orally. Moxifloxacin and Flurbiprofen eyedrops were given for eye instillation with one drop thrice daily up to healing. Atropine eye drops was advised for eye instillation for five days with one drop once daily. Sutures were removed on fourteenth post-operative day.



**Fig 1: Protruded iris**



**Fig 2: HAM grafting**

## Discussion

Amniotic membrane (AM), or amnion, is the innermost fetal layer of the placenta, composed by a columnar epithelium, basement membrane and stroma. (Herendael B J *et al.*, 1978) [2]. Clinical trials in human ophthalmology suggest that AM transplantation (AMT) promotes wound healing, reduces pain, minimizes inflammation, reduces infection, and has anti-scarring and anti-proteinase effects on the ocular surface (Seitz B *et al.*, 2007) [4]. Growth factors and cytokines with anti-inflammatory, anti-bacterial, anti-immunogenic, and anti-fibrotic qualities were delivered by biologically active cells in the epithelial and stromal layers of the amnion (Perepelkin *et al.*, 2016) [3]. Freeze dried human amniotic membrane graft used for management of corneal ulcer has epitheliotropic, anti-inflammatory, anti-angiogenic and anti-fibroblastic properties, provided rapid epithelization without neovascularization and scarring of the cornea which is

important for corneal healing and hence human amniotic membrane transplantation is proved to be an effective surgical technique for the management of corneal ulcer in dogs (Vidhyasree G A *et al.*, 2022).

## Conclusion

A three year old male Shih tzu was presented with unilateral mucopurulent ocular discharge and photophobia. Examination revealed complicated corneal ulcer with protrusion of iris. After carefully replacing the protruded mass in to the anterior chamber under general anaesthesia, HAM grafting was done to augment corneal healing.

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## Conflict of Interest

Not available.

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Not available.

## References

1. Fossum TW. Surgery of the Eye. In: Small Animal Surgery. 4<sup>th</sup> ed.; c2007. p. 289-324.
2. Herendael BJ, Oberti C, Brosens I. Microanatomy of the human amniotic membranes. A light microscopic, transmission, and scanning electron microscopic study. *Am J Obstet Gynecol.* 1978;131:872-880.
3. Perepelkin NMJ, Hayward K, Mokoena T, Bentley MJ, Ross-Rodriguez LU, Marquez-Curtis LM, *et al.* Cryopreserved amniotic membrane as transplant allograft: viability and post-transplant outcome. *Cell Tissue Bank.* 2016;17:39-50.
4. Seitz B. Amnion membrane transplantation. *Ophthalmologe.* 2007;104:1075-1079.
5. Severin GA. Cornea. In: Severin's Veterinary Ophthalmology Notes. 3<sup>rd</sup> ed. Colorado: Design Pointe Communication Inc.; c1995. p. 337.
6. Tuntivanich N, Soontornwipart K, Tuntivanich P. The use of porcine small intestinal submucosa in ten cases of canine corneal staphyloma. *Thai J Vet Med.*, 2006, 36(3).
7. Venugopalan A. Ophthalmology. In: Essentials of Veterinary Surgery. 8<sup>th</sup> ed. Oxford and IBH Publishing Co. Pvt. Ltd.; c2009. p. 380-412.
8. Vidhyashree, Suresh L, Nagaraja BN, Murthy SKM, Ramesh PT, Rajashailesha NM, *et al.* Corneal ulcer management using human amniotic membrane in dogs: A report of 6 cases. *Pharm Innov. J.* 2022;SP-11(9):2818-2822.

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