# Acquired Ankyloblepharon Post Purulent Membranous Conjunctivitis and its Novel Surgical Management: A Case Report

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## ABSTRACT

**Introduction:** Ankyloblepharon is a partial or complete fusion of eyelids by webs of skin. It may be congenital or acquired. Herein we report a rare case of acquired bilateral ankyloblepharon that developed after purulent membranous conjunctivitis. We will also discuss its unique surgical management which has not been reported previously in the literature.

**Case:** A 21 year old male presented with complaints of narrowing of eyes for the last six months following an attack of acute purulent membranous conjunctivitis. Surgical excision of the adhesions was done. We used conjunctival autograft to cover the raw area left after excision as a new modality of treatment. The graft was successfully taken up and no recurrence of adhesions was found at 1 year follow up.

**Observations:** Various modalities of treatment for ankyloblepharon have been reported which includes excision of tissue and suturing and amniotic graft. Here we have used conjunctival autograft on the raw area after excision of adhesions and the result obtained was good.

**Conclusion:** To the best of our knowledge this is the first and a rare case of acquired ankyloblepharon in a young male following a single episode of purulent membranous conjunctivitis. Conjunctival autograft can be successfully used to cover the raw areas left after excision of adhesions.

**Key words:** Ankyloblepharon, Conjunctival autograft, Conjunctivitis, Membranous purulent conjunctivitis.

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## INTRODUCTION

Ankyloblepharon is defined as a partial or complete fusion of eyelids by webs of skin (Helena et al., 2003). It may be congenital or acquired. Common etiologies of acquired ankyloblepharon are autoimmune diseases like Steven Johnson syndrome (Norlund et al., 2004), infections (Campanella et al., 1997) and chemical burns (Kumar et al., 2005).

Herein we report a rare case of acquired bilateral ankyloblepharon that developed after purulent membranous conjunctivitis. Only one such case has been reported previously but that was in paediatric age groups (Saxena et al., 1969). To the best of our knowledge and after thorough literature search, this is the first such case to be reported in an adult male. We will also discuss its unique surgical management which has not been reported previously in the literature.

## CASE REPORT

A 21 year old man presented to the out-patient department of our hospital with chief complaints of narrowing of eyes for the past 6 months and sticking of upper and lower eyelids of both eyes temporarily. He suffered an attack of conjunctivitis with profuse purulent discharge in both the eyes 6 months before presentation for which he took treatment in the form of antibiotic-steroid eye drops (moxifloxacin 0.5% w/v, loteprednol etabonate 0.5% w/v in both eyes 6 times per day for 7 days), eye ointment containing chloramphenicol and polymyxin B three times per day and tablet doxycycline 100 mg two times per day orally for 5 days. He got relief in 10 days. The conjunctivitis was membranous type according to his previous records but there was no documentation about the possible infective agent. The patient was not sure if any intervention was done in the form of membrane removal. There was no history of trauma, chemical injury, blepharitis, allergy or any autoimmune disorders like Steven-Johnson's disease, ocular pemphigoid etc.

His general physical examination was within normal limits.

On ocular examination, visual acuity was 6/6 (Snellen's vision chart) both eyes. On anterior segment examination, palpebral aperture of the right eye was narrower (7mm) as compared to the left eye (9mm). Both eyelids were fused temporally with triangular adhesions. Adhesions in the right eye were larger (6mm horizontally and 6mm vertically) as compared to those in the left (3mm horizontally and 3 mm vertically). There was also a component of symblepharon in both the eyes were lower eyelid palpebral conjunctiva is attached to bulbar conjunctiva. On upper eyelid eversion, thickened tarsus and scarred palpebral conjunctiva was noted bilaterally (Figure 1A-D).

Following discussion with the patient and after written informed consent, surgical excision of the adhesions from both the eyes was performed. Eyes were cleaned and draped. Local anaesthesia with lignocaine 2% was given in upper and lower eyelids and subconjunctivally in both the eyes. Retracting eyelid sutures were applied with 6-0 silk. Lid adhesions were cut with

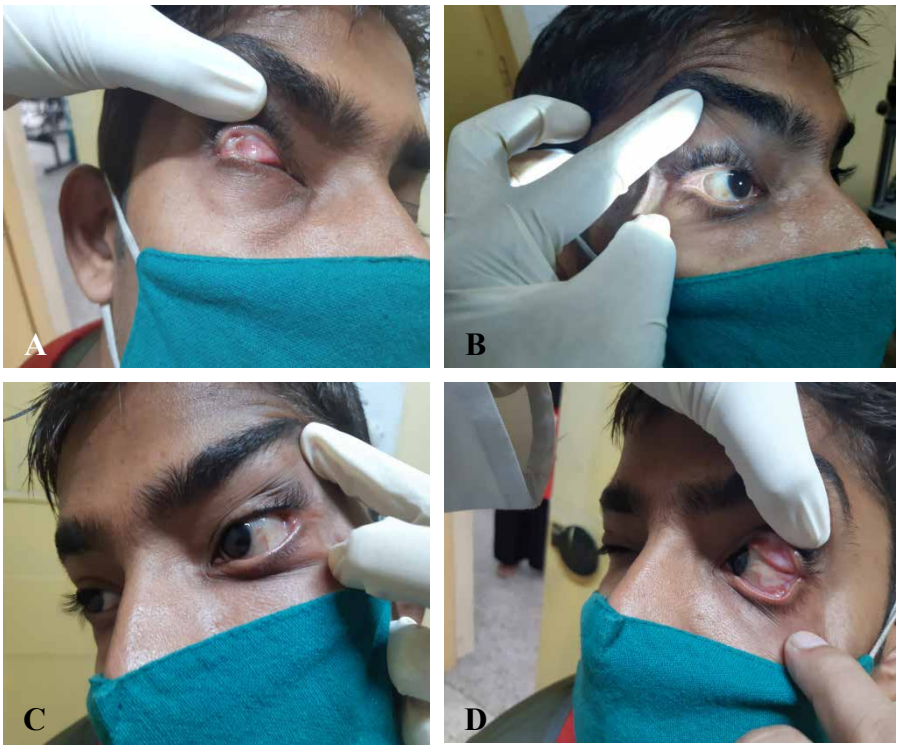


**Figure 1: Pre-operative photographs of patient showing (A) triangular temporal adhesions in the right eye (R/E), (B) R/E lid eversion showing unhealthy palpebral conjunctiva, (C) triangular temporal adhesions in the left eye (L/E), (D) L/E lid eversion showing unhealthy palpebral conjunctiva.**

cutting scissors and the raw area on the right eyelid was sutured with 6-0 silk. Symblepharon was released and scarred tissue was removed which led to a raw area (1.5mm X 1.5mm) that was covered with conjunctival autograft of size 2mm X 2mm. Excised specimen was sent for histopathology. Since adhesions in the left eye were small, conjunctival autograft was not required and the raw area was sutured with 10-0 monofilament nylon (Figure 2A, B).

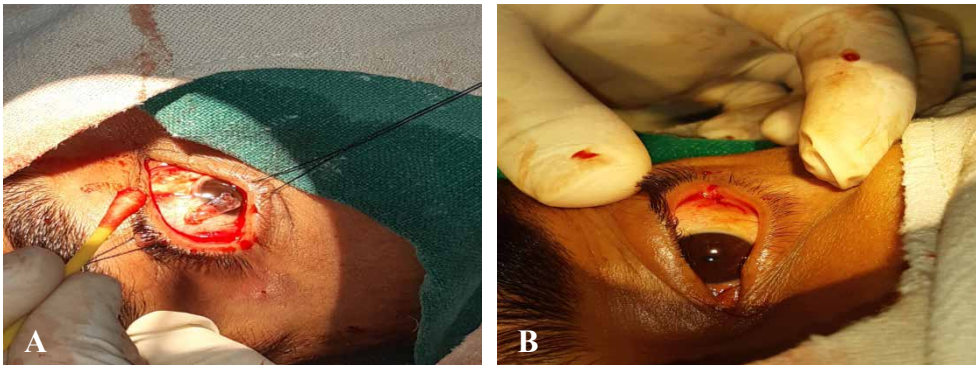


**Figure 2: Intraoperative pictures showing (A) conjunctival autograft to be applied on raw area in right eye, (B) excision of adhesions and suturing in the left eye.**


**Figure 3: (A) Preoperative picture showing narrow palpebral aperture, (B) postoperative picture showing increase in palpebral aperture and well defined lateral canthus.**

Both eyes were patched with steroid-antibiotic ointment for one hour. Post-operatively weekly tapering doses of steroid eye drops were started with four times per day initially. Antibiotic eye drops were given four times per day for seven days. Frequent lubricating eye drops four times per day and lubricating gel at bedtime was advised for one month. Follow up was done biweekly for the first three months postoperatively and then monthly for the next six months. At every follow up visit, vision, ocular inflammation, palpebral aperture, and status of graft was noted. Graft uptake was good as noted in follow up visits. Patient had improved palpebral aperture and well defined lateral canthus (Figure 3A, B).

Histopathology report showed fibroconnective tissue with hyalinization covering squamous epithelium. The stroma showed chronic mononuclear cell infiltrate and plasma cells suggestive of inflammatory tissue (Figure 4A, B). No new adhesions were seen at 1 year follow up. A written consent was taken from the patient to publish this case report.

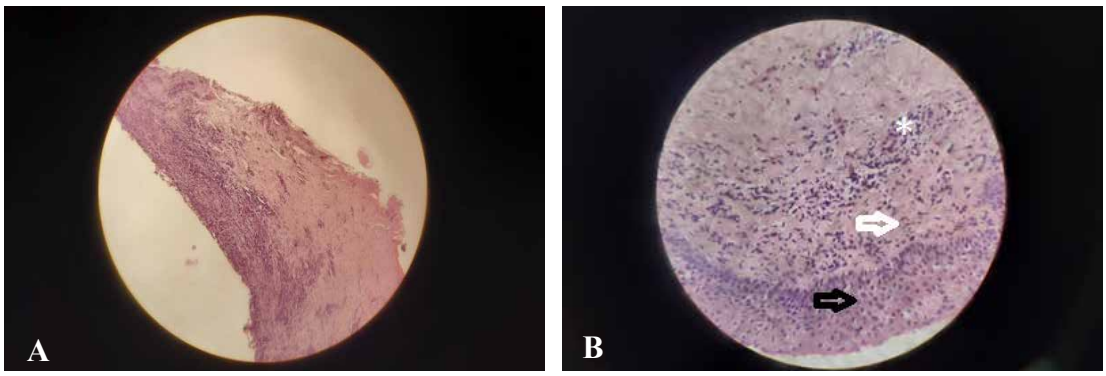


**Figure 4: Histopathology slides photographs of the excised tissue showing (A) fibro-connective tissue with hyalinization and inflammatory infiltrate at a low magnification, (B) inflammatory mononuclear cells infiltrate (asterisk) in plasma cell stroma (white arrow) with overlying squamous epithelium (black arrow) in higher magnification.**

## DISCUSSION

Membranous conjunctivitis is characterised by formation of a greyish-white layer of tissue consisting of fibroblasts, blood vessels, fibrin and inflammatory cells on the conjunctiva. Membrane formation in purulent conjunctivitis can occur anytime if there is a significant damage to the conjunctival surface. A long standing membrane may result in adhesions causing ankyloblepharon, symblepharon and ocular surface diseases like dryness, corneal ulcers etc. and hence it alters the mobility of eyelids. The treatment of membranous purulent conjunctivitis requires an appropriate microbiological diagnosis with swab and culture and initiation of culture-specific antibiotics for an appropriate period of time with frequent follow-up till the disease is resolved. Removal of the true membrane from the conjunctival surface is controversial (Kirkwood et al., 2011). Its removal can lead to a raw bleeding surface which may result in adhesions thereafter. So proper lubrication, anti inflammatory eye drops and follow up is very essential in the immediate period to prevent adhesions.

The etiological agent was not found in the case we report and the follow-up was improper which led to an incomplete treatment and chronic smouldering inflammation which might have led to the development of ankylo-symblepharon in both eyes. The patient presented once there was a significant reduction in the palpebral aperture causing difficulty in his daily activities.

In the only such previously reported case, Saxena et al. (1969) reported ankyloblepharon following an attack of conjunctivitis in a four year old boy whose eyes were closed for nearly eight days. There was a history of use of some indigenous medicine for local use and fusion of eyelids was noticed at 6 months thereafter by his mother. The adhesions were excised and anterior and posterior margins were sutured with interrupted silk sutures.

Ankyloblepharon requires surgical release of eyelids by excision of the adhesions. However the removal of symblepharon may result in a raw area which requires to be addressed by either direct suturing of the conjunctival margins over the raw surface if it is small or covering it with a graft tissue if the defect is large to be approximated. Human amniotic membrane graft has been used for this purpose (Fasciani et al., 2014).

Here we have introduced a new modality of treatment using conjunctival autograft for covering the raw area after excision of ankylo-symblepharon to prevent recurrence.

Conjunctival autograft has been successfully used in treatment of primary and recurrent pterygium (Salagar et al., 2013) and also in corneal diseases like herpetic keratitis, neuroparalytic keratopathy, bullous keratopathy etc (Zemba et al., 2020) to restore the integrity of corneal surface. However, it has not been used previously in the management of ankylo-symblepharon. It is an uncomplicated surgery with reduced recurrence rate. As compared to the human amniotic graft, conjunctival

autograft is an economical, easily available, quick and safe option where raw area is small. Since there is no risk of graft rejection, uptake is also good. The graft showed complete uptake in our case but a close watch is required as there is a tendency of scarring and recurrence following reconstructive surgery which may delay healing.

## CONCLUSION

Acquired ankyloblepharon can occur after membranous purulent conjunctivitis. Early identification of etiological agents and complete course of treatment with culture-specific antibiotics may prevent its subsequent development. Excision of adhesions is required in an established case. Conjunctival autograft can be successfully used to cover small raw areas left after excision of these adhesions precluding the need for amniotic graft. Further studies with more cases are required to establish this as a treatment option.

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