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Instant Clinical Diagnosis in Ophthalmology

Oculoplasty & Reconstructive Surgery

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Foreword
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Congenital Eyelids Deformaties

Kirit Mody (India)

FORNIX RECONSTRUCTION

Introduction

Lower fornix reconstruction is difficult surgery for ophthalmologist, not familiar, with steps of surgery and it needs better postoperative care than other oculoplastic surgeries.

At time you may have to deal extensive reconstruction in cases of congenital anomaly and need amniotic membrane graft or if other eye is normal, the healthy conjunctiva.

In cases of small symblepharon, the surgery is simple and may need small graft from the same eye or other eye, while in socket surgery you need good buccal mucosa or amniotic membrane graft. The surgery is very gratifying and results are good for neat and precision surgeon.

Symptoms and Signs

The socket looks inflamed and congested associated with watering and discharge. The artificial eye looks slipping out from the socket or if retained it looks forward protruded artificial eye. Many times patient may not like to wear the eye and the purpose of cosmetic correction is wasted.

Patient who had anterior broad symblepharon may complain of inability to move the eye particularly in superior position. Inferior movement may be restricted but not absent. In cases of Stevenson Johnson syndrome and similar diseases, there is extensive adhesions between eyelids and bulbar conjunctiva with change in character of conjunctiva and main complain is of severe dry eye and related symptoms.

In few patients only symptom is cosmetic appearance dye to localized fleshy looking symblepharon. The lower tear meniscus is disturbed and watering is main symptom.

Etiology

A. Congenital cryptophthalmos and ankyloblepharon or absence of fornix formation
B. Chronic inflammatory conditions leading gradual loss of lower fornix, while in cases of socket constant irritation by poorly manufactured eye, resulting in total absence of lower fornix.

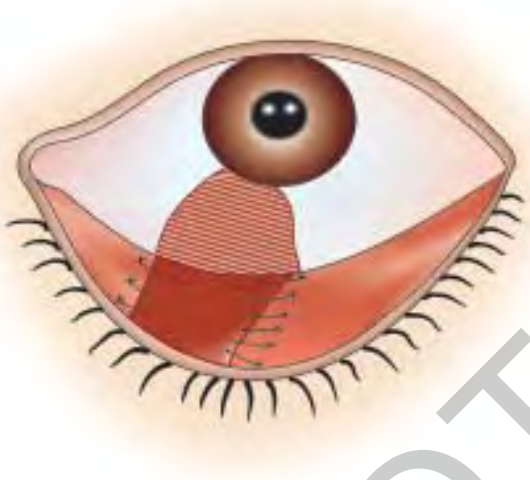

Fig. 1: Conjunctival dissection of symblepharon and graft placement

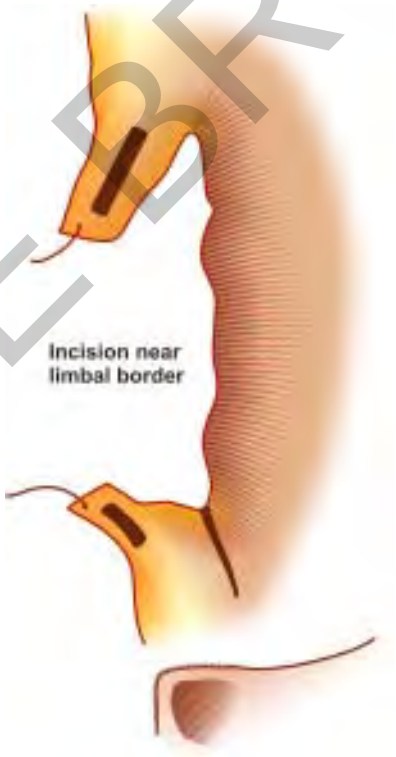

Fig. 2: Socket surgery incision near limbal border

C. Trauma is responsible in many cases whether it is due to mechanical, chemical agents like acid or alkali and radiation injury.
D. Stevenson Johnson syndrome, ocular pemphigus.

These above conditions neither do nor require any differential diagnosis as they are no diagnostic problems and any special investigations. In cases of severe dry eye the success of surgery is limited.

Treatment

One should be familiar with anatomy and dimension of conjunctival sac.

Like deapth of superior fornix is 13 mm, inferior fornix 9 mm, lateral fornix 5 mm, and medial fornix nil. The distance from the bottom or apex of fornix to orbit is superiorly 5 mm, inferiorly 6 mm, laterally 4 mm and medially nil.

While limbus to fornix distance superiorly and inferiorly 8-10 mm, laterally 14 mm and medially 7 mm.

Preoperative Evaluation

1. One should examine the fornix and measure how much shallow is the fornix, as it may be useful to dissect the amount of buccal mucosa required in cases of socket surgery. It is always necessary to have 25% extra tissue to compensate for shrinkage.
2. Evaluate the status of conjunctiva for active inflammation and existing fibrosis.

   It is also necessary in cases of symblepharon to decide how much conjunctiva of symblepharon is available.

   Look for any active infective diseases of eyelids, conjunctiva and cornea and treat them.

   I have divided techniques in 2 parts, for small broad in width symblepharon and total reconstruction of lower fornix.

Partial Reconstruction

Technique

1. Local injection
2. Mark the area of diseased tissue
3. Inj. s/c local anesthetic with adrenaline to facilitate the incisions on conjunctiva.
4. Cut palpebral border of conjunctiva as it is to be used later on as tarsal conjunctiva.
5. Pass mattress sutures from free end of cut bulbar conjunctiva and through skin at desired level of fornix.

Fig. 3: Incision near lid margin

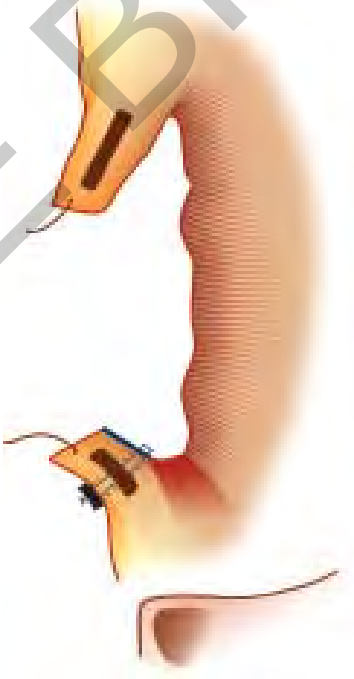

Fig. 4: Suturing the conjunctiva over tarsal area

6. Fix mattress sutures over the skin.
8. Conjunctival graft over the bulbar area of defect with 8 /0 vicryal
9. Ointment and pressure dressing.

Wet field cautery, sponge swabs and viscoelastic material must.

Figure 1 shows dissection of symblepharon and attaching with bulbar part, if it is less vascularized and small mucosal graft for tarsal conjunctiva.

One can use amniotic membrane or patient's conjunctiva for bulbar conjunctiva and vascularized part of symblepharon for tarsal conjunctiva.

DEO LOWER FORNIX RECONSTRUCTION

Following points will help surgeon in deciding how to perform better surgery.

Here I have discussed and outline the technique for lower fornix reconstruction in cases where artificial eye was not fitting properly due to absence of lower fornix.

- Degree of fornix shrinkage
- Amount of reconstruction
- Available tissue
- Amniotic membrane or mucosal graft
- Surgery may be done in stages
- Plastic or glass haptic confirmers with holes.

TECHNIQUE

1. Incision in fornix near limbal side, as it may be posssible to have some conjunctival tissue to cover part of tarsal area or alternatively one can take incision on posterior lower lid boarder. Prefer as much as patients' own tissue if it is not severely diseased. Dissect and free boarder can be fixed with mattress sutures.
2. Suture graft material with free boarder of conjunctiva or palpebral lid margin.
3. Place of silicone or silicon rod material at possible site of apex of fornix , and pass mattress sutures from silicon to graft to periostium of lower orbital rim to skin. Tie them with piece of rubber. Minimum 3 mattress sutures are required.
4. Bulbar part of graft fashioned and sutured. Always allow 20 to 25 % extra graft for shrinkage of tissue.
5. Larger graft may need additional mattress sutures passing from graft to superficial sclera.
6. Examine the fornix for additional sutures.
7. Dressings

Surgeon should dress every day and inspect for infection.

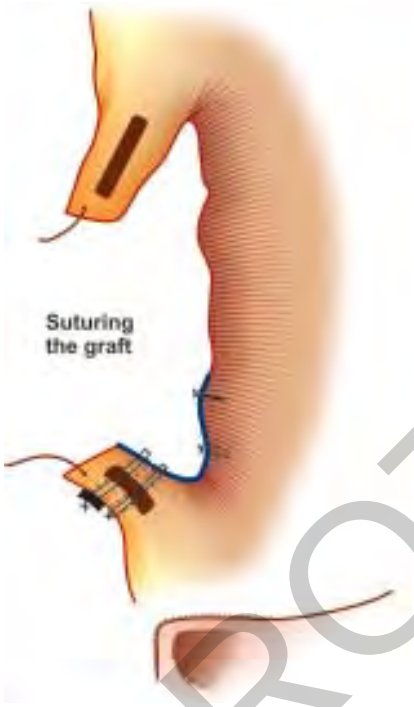

Fig. 5: Suturing the mucosal graft

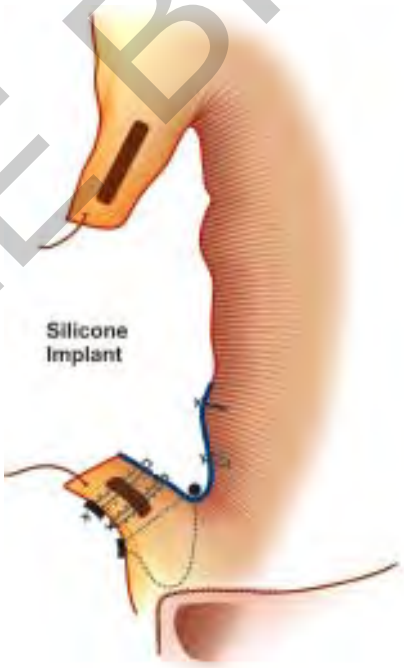

Fig. 6: Placement of silicone rod in lower fornix

Glass rod
Gentle Irrigation
Prosthesis

This case is rare congenital anomaly – a variant of Cryptophthalmos – Anklyoblepharon by Anklyosois.

Eyelids were partially formed and fused with the eyeball. The visible bulbar conjunctiva was hypermic, chemosed, edematous and dry, the eye appeared on first impression as buphthalmic or exophthalmic eye. The patient was operated jointly by ophthalmologist and plastic surgeon for reformation of fornix with amniotic member graft.

The results of fornix reconstruction is very rewarding surgery and one must prepare for good postoperative care.

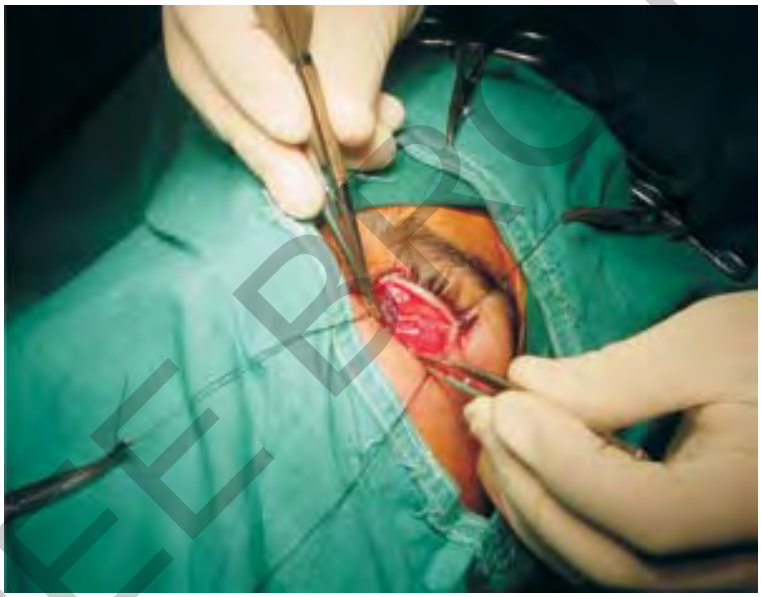

Fig. 7: Conjunctiva incision

Fig. 8: Conjunctival and mucosal graft suturing

Fig. 9: Fixing silicon rod in lower fornix with mattress sutures fix over the skin with rubber pieces

Fig. 10: Placement of plastic shell or confirmer placed in socket

Fig. 11: Patient looking up and looking down with artificial eye

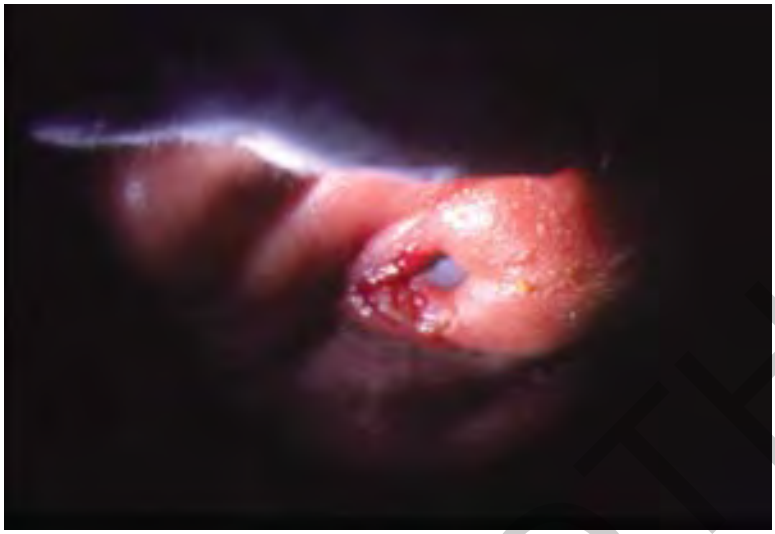

Fig. 12: Cryptophthalmos—Ankyloblepharon by ankylosis before surgery

Fig. 13: Cryptophthalmos—Anklyoblepharon by ankylosis before surgery

Fig. 14: Cryptophthalmos—Ankyloblepharon by ankylosis after surgery

Fig. 15: Cryptophthalmos—Ankyloblepharon by ankylosis after surgery

Instant Clinical Diagnosis in Ophthalmology

Oculoplasty & Reconstructive Surgery

Ashok Garg MS PhD is an excellent Anterior Segment Eye Surgeon & Research Ophthalmologist of International repute doing a pioneer work in the field of Ocular Therapeutics, SICS, Microphaco & Refractive Surgery. He has created a World Record for writing maximum number of International Ophthalmology Books in a Calender year (2006). For this achievement his name has been included in prestigious Limca Book of World Records and Guinness Book of World Records. Reputed International IBC has selected him for Leading Health Professional of Year in the World in 2005. He has been awarded 15 Prestigious International Awards specially Mother Teresa International Award for Excellence, IIRSI Literary achievement award, IAAO Medical Excellence Award, etc. for his pioneer research work & academic achievements in ophthalmology. He has written 38 International Books in the field of Ophthalmology & has contributed more than 82 chapters in various International Ophthalmology books. His eight International Books have been described as Best International Books on the subject in recent review in EUROTIMES Journal. He is Editorial Board Member of EUROTIMES, Highlights of Ophthalmology, Executive Committee Member of IIRSI (India), on Editorial Board of IIRSI Journal, Indexed Current Medical Trends Journal, BOA, DOS & MSICS Journals. He has contributed more than 250 scientific presentations in various ophthalmic conferences and journals. He practices at Garg Eye Institute & Research Centre, 235 - Model Town, Dabra Chowk, Hisar (India) & can be reached by E-mail : drashok_garg@yahoo.com or Tel. 09896025180.

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