Epithelial inclusion conjunctival cyst after strabismus surgery - a rare occurrence

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Background: Epithelial inclusion conjunctival cysts are a rare occurrence post strabismus surgery. These cysts if left untreated can enlarge and cause complications such as limitation of eye movements, strabismus, proptosis and compression of ocular structures. Here we present a case of epithelial inclusion cyst post routine medial rectus recession, which was successfully treated with surgical excision.
Methods: Case Report
Results: A 4-year old Malay girl with partially accommodative esotropia underwent uneventful bilateral medial rectus recession. Post-operatively 4 months later, she developed nasal conjunctival mass of her right eye. The conjunctival mass was unresponsive to topical steroids and surgical excision was performed. Histopathological examination confirmed the mass as epithelial inclusion cyst.
Conclusion: Prompt diagnosis and management of epithelial inclusion cyst is crucial to prevent subsequent ocular complications.
Conflicts of interest: The authors report no conflict of interest.
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Background

Epithelial inclusion cysts are membranous structures lined with epithelium. These cysts typically contain fluid, which may be serous, necrotic or haemorrhagic in nature. The development of epithelial inclusion cysts following ocular surgery is rare. Various factors contributing to cyst development include implantation of conjunctival epithelium in the surgical wound, infection or chronic immune reaction to sutures.[1] Ocular surgery where there is breech to the conjunctiva and sclera increase the risk of development epithelial inclusion cysts. These surgeries include strabismus surgery, retinal detachment surgery, orbital surgery and ptosis repair.[2-4] Epithelial inclusion cysts can range from small conjunctival cysts to large orbital masses. Aside from cosmetic appearance, these cysts may infiltrate the layers of the conjunctiva,

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muscle and sclera to cause limitation of eye movements, strabismus, astigmatism, amblyopia, proptosis or compression of ocular structures from mass effect.[5,6] In view optimal treatment is necessary to prevent cyst progression and recurrence, we aim to present a case of epithelial inclusion cyst post strabismus surgery, which was successfully treated with surgical excision.

Case history

A 4-year old Malay female with partially accomodative alternating esotropia of 30 prism diopters underwent uneventful bilateral medial rectus recession of 4.5mm through limbal conjunctival incision. Vicryl 6/0 was used to secure the medial rectus and the conjunctiva. Post-operatively patient was doing well. Four months later, the patient's parents noticed a lump in patient's right eye, which progressively increased in size.

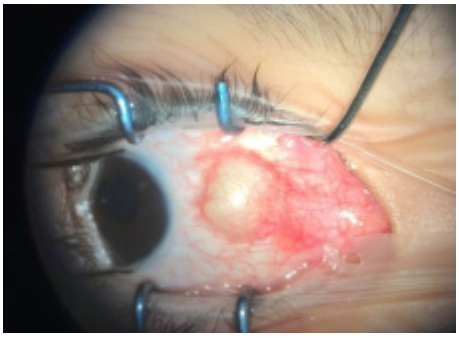

Figure 1: Pre-excision of cyst (Right eye)

On examination, best-corrected visual acuity was 6/6 in both eyes and patient was orthophoric. Ocular motility was normal and no proptosis was noted. Inspection of the right eye revealed a nasal conjunctival mass measuring 3 mm in diameter, which did not transilluminate. No inflammation of the conjunctiva was noted and examination of other areas of the eye was normal. Examination of the left eye was unremarkable. The patient was started on topical Maxitrol (Neomycin, polymycin B sulphate, dexamethasone 0.1%) eyedrops four times a day for one month.

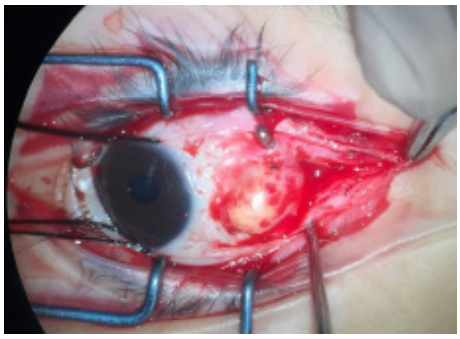

Figure 2: Excision of conjunctiva revealing the cyst intraoperatively

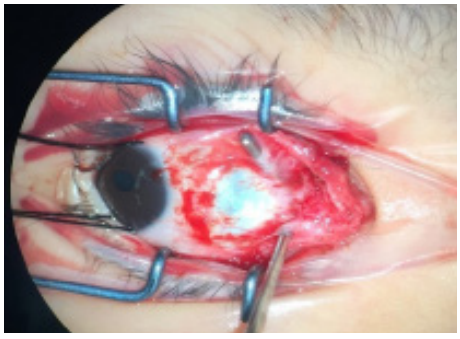

Figure 3: Post cyst excision, removed in-toto

Figure 4: Wound closed completely the cyst intraoperatively

The conjunctival mass however did not resolve and surgical excision was carried out. Intra-operatively, the mass was densely adherent to surrounding conjunctiva and sclera and located at the insertion of the medial rectus. The mass was excised in toto and measured 5.0mm x 5.0mm x 3.0mm. Post-operative review showed complete resolution of the lesion with no complications. Patient remained orthophoric and has been well at 6-months post cyst excision.

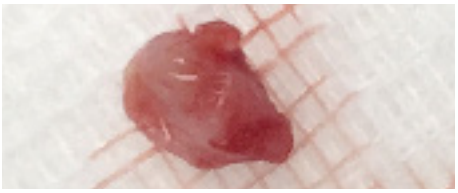

Figure 5: Macroscopic appearance of excised cyst with cyst wall intact the cyst intraoperatively

Figure 6: Right eye appearance post operatively 1 month

Histopathological Analysis

Histopathological examination reported dense fibrotic tissue surrounding a cystic structure which was lined by conjunctival epithelium. Findings were consistent with conjunctival epithelial inclusion cyst.

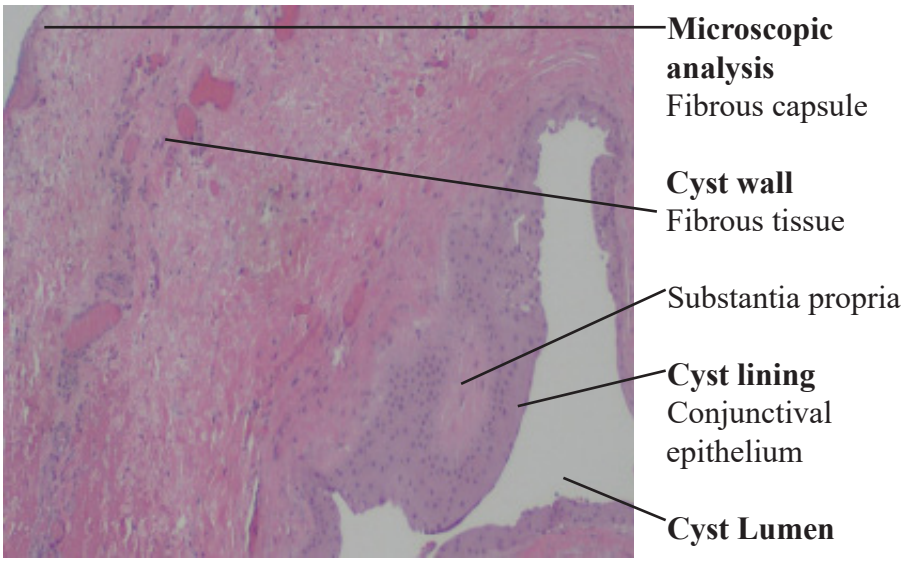

Image Details

Stain: Hematoxylin & Eosin (H&E), Magnification: X 40, Microscope: Olympus CX33

Discussion

The incidence of epithelial inclusion cysts is reported to range from 0.25% to 0.4% of strabismus surgery.[1,7] The duration to development of the cysts can range from a few days to 70 years post-operatively.[8,9] Our patient shared a similar time-frame with a previous case report series of three patients by Anjali et al who reported the appearance of cyst at 2 - 4 months.[10] Our case corresponded to reported literature where it was reported rectus recessions were associated with an increased incidence of cyst formation.[7] Treatment of

conjunctival epithelial inclusion cysts can be divided into non-surgical and surgical options. A trial of steroids is the first-line treatment as some cysts may resolve spontaneously.[8,11] Persistent large cysts however would require surgical intervention.

Surgery for epithelial inclusion cysts include injection of isopropyl alcohol, thermal cautery, marsupilization and excision in toto.[8,12,13] Though complete excision is preferred, surgery for epithelial inclusion cysts can range from straight-forward surgical excision to partial cyst excision with possible spillage of cyst contents into neighboring structures. In addition, extraocular muscles may inadvertently be cut and globe perforation may occur during cyst excision as the cyst may be deeply embedded in the muscle or sclera. This is due to the aggressive invasion of nearby ocular structures such as extraocular muscles and sclera by the cysts, which makes it difficult to visualize and define the cyst borders. In this case, we took precautions to isolate the medial rectus before cyst excision and the cyst could be excised in toto as it had not invaded the medial rectus. No data exists regarding the recurrence rate post cyst excision however it is recommended that these patients be followed up yearly.[6]

Conclusion

Epithelial inclusion cysts can occur due to various causes and the duration of development varies between cases. Successful diagnosis and treatment is crucial to prevent subsequent ocular complications. To our knowledge, this is the first case report of its nature from Malaysia and we hope that the findings of this case will contribute to better understanding of this condition.

References

1.Min X, Jiang H, Shi L. Descriptive study of conjunctival cysts: A rare complication after strabismus surgery. J Ophthalmol. 2018 Jun;2018:1076818. [cited 2018 Dec 16]

2.Sameshima SS, Beyer-Machule CK. Acquired ptosis associated with a conjunctival cyst. Ophthal Plast Reconstr Surg. 1988;4(3):159–62.

3.Mamalis N, Teske MP, Kreisler KR, Zimmerman PL, Crandall AS, Olson RJ. Phacoemulsification combined with pars plana vitrectomy. Ophthalmic Surg. 1991;22(4):194–8.

4.Miyagi A, Maeda K, Sugawara T. [Intraorbital conjunctival cyst after a penetrating orbital injury: a case report] [in Japanese]. No Shinkei Geka. 1996;24(7):649–53.

5.Curtis TH, Stout AU, Drack AV, Durairaj VD. Giant orbital cysts after strabismus surgery. Am J Ophthalmol. 2006;142(4):697–9.

6.Song JJ, Finger PT, Kurli M, Wisnicki HJ, Iacob CE. Giant secondary conjunctival inclusion cysts: a late complication of strabismus surgery. Ophthalmology. 2006;113(6):1049.e1–2.

7.Guadilla AM, de Liaño PG, Merino P, Franco G. Conjunctival cysts as a complication after strabismus surgery. J Pediatr Ophthalmol Strabismus. 2011;48(5):298–300.

8.Simon JW. Complications of strabismus surgery. Curr Opin Ophthalmol. 2010;21(5):361–6.

9.Lally DR, Eagle RC, BN Wasseerman. Occult intraorbital conjunctival inclusion cyst discovered almost 70 years after strabismus surgery. J Pediatr Ophthalmol Strabismus 2013 Apr 2;50 Online :e15-17. Doi: https://doi.org/10.3928/01913913-20130326-02.

10.Hawkins AS, Hamming NA. Thermal cautery as a treatment for conjunctival inclusion cyst after strabismus surgery [AAPOS]. J AAPOS. 2001;5(1):48–9.

11.Al-Shehah A, Khan AO. Subconjunctival

epithelial inclusion cyst complicating strabismus surgery: early excision is better. Saudi J Ophthalmol. 2010;24(1):27–30.
12.Kothari M. A novel method for management of conjunctival inclusion cysts following strabismus surgery using isopropyl alcohol with paired injection technique. J AAPOS. 2009;13(5):521–2.
13.Hawkins AS, Hamming NA. Thermal cautery as a treatment for conjunctival inclusion cyst after strabismus surgery. J AAPOS. 2001;5(1):48–9.