

Pyogenic granuloma masquerading as subconjunctival abscess in post strabismus surgery.

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I. Introduction

Pyogenic granuloma is a relatively rare complication of strabismus surgery with its etiology being unclear. They tend to occur due to iatrogenic stimulus to the conjunctiva such as, after trauma or transconjunctival incisions in procedures such as pterygium, incision and curettage of chalazion, squint surgery and transconjunctival lower lid blepharoplasty. We report a case of pyogenic granuloma with superadded staphylococcus infection. Only two such similar cases, after our extensive literature search, have been documented. This raises strong possibility that a chronic underlying infection can lead to formation of pyogenic granuloma in post squint correction surgeries.

II. Case

A five year old female child presented to us with squinting in both eyes since 3 months of age. A thorough squint evaluation revealed the child to have 45 prism diopters of congenital esotropia with right eye dominance and inferior oblique overaction (+3) in both eyes. Left eye medial rectus muscle was recessed 5 mm and lateral rectus muscle was resected 7 mm via a limbal conjunctival incision. Muscles were secured to the sclera with 6-0 vicryl (polyglactin 910) suture and conjunctiva closed with 8-0 vicryl sutures. The surgery was performed under general anesthesia with strict aseptic precautions. She was orthophoric post operatively and was started on combination of moxifloxacin (0.5%) and dexamethasone (0.1%) eyedrops four times per day for one week and then in tapering doses for another three weeks. The post operative course was uneventful with a healthy wound and minimum congestion at the end of one week.

After three weeks, the patient presented to us with a yellowish mass at the area overlying the lateral rectus muscle in the operated eye. It was a 10 x 11 mm non tender swelling with a soft to firm consistency (figure 1). There was mild conjunctival hyperemia with no associated signs of inflammation or infection like periorbital edema, erythema, pain, discharge or systemic manifestations like fever. Provisional diagnosis of post operative subconjunctival abscess was made based on the yellow color and consistency of the swelling. Systemic amoxicillin and clavulanic acid along with topical moxifloxacin (0.5%) hourly was initiated, followed by incision and curettage of the swelling under general anaesthesia. There was no evidence of any foreign material, suture or pus found. The specimen was sent for histopathology and microbiological analysis that showed presence of inflammatory cells, histiocytes and staphylococcus aureus (Methicillin Resistant Staphylococcus Aureus). Histopathology indicated towards a pyogenic granuloma with staphylococcus infection. Patient was thus continued on systemic and topical antibiotics and swelling started reducing in size only to recur on day four with presence of localized congestion.

We started the patient on injectable vancomycin for ten days followed by linezolid (600 mg) tablet for five days with topical fortified vancomycin (500 mg) 5% eyedrops four times a day and dexamethasone 0.1% eyedrops four times a day for 2 weeks, based on the culture and antibiotic sensitivity reports. The patient showed improvement by one week. Fortified vancomycin eyedrops were continued and dexamethasone eyedrops was tapered with the swelling showing complete resolution by the end of one month (figure 2).

Discussion

A pyogenic granuloma is a mass of high vascularity and inflamed granulation tissue that is neither pyogenic nor a granuloma. Pyogenic granulomas probably represent an exuberant healing response, with the term “reactive tissue hyperplasia”, suggested by some authors. ⁽¹⁾ Pyogenic granulomas are a recognized complication of many ocular surgeries. They occur after procedures that involve transconjunctival incisions, such as blepharoplasty, pterygium excision, chalazion excision, placement of silicon plugs and eye muscle surgery. ⁽²⁾ These lesions appear as pink fleshy mass that on histopathology show acute and chronic inflammatory cells and capillary proliferation. They are usually treated with topical steroids and if fail to resolve, are amenable to resection. ⁽³⁾

The exact pathogenesis is not understood but some authors suggest an increase of basic fibroblast growth factor, vascular endothelial growth factor and connective tissue growth factor leading to the rapid

growth of lesion and expression of Bax/Bcl-2 proteins causing lower rate of apoptosis than granulation tissue, as the possible theories of formation of pyogenic granuloma.^(4,5)

A similar case was reported by Dora et al that clinically appeared like a conjunctival abscess but histology proved presence of inflammatory cells and histiocytes with conjunctival swab showing staphylococcus aureus. It too appeared after three weeks of a quiescent post operative course similar to our case. This case suggested formation of granuloma due to infectious organism, very similar to our case scenario.⁽⁶⁾ Hatton et al reported a case of pyogenic granuloma due to chronic staphylococcus infection that was treated with debridement and aggressive antibiotic therapy.⁽⁷⁾

In our case, the possibility of subconjunctival abscess, subtenon or scleral abscess cannot be ruled out but these usually present within one week of surgery with definite symptoms of severe pain and discharge, lid edema, limitation of movement and signs of inflammation like tenderness, erythema, swelling, and fever.⁽⁸⁾ Also, one retrospective study found the incidence of post operative infection to be only 0.14% and only 5 confirmed cases of paediatric subconjunctival and subtenons abscess are reported in literature.⁽⁹⁻¹⁴⁾ This is probably because of strict aseptic precautions taken during surgery with use of povidone iodine into the conjunctival fornix and use of proper post op topical antibiotic coverage.

Other differentials also include infected sutural abscess or granuloma but they usually occur as painful swellings with granulation tissue and presence of underlying loose non absorbable sutures. An infected epithelial inclusion cyst could also be a possibility but they show nonkeratinizing stratified epithelium lining the cyst.⁽¹⁵⁾ No such findings were seen in our case.

The typically late onset of lesion in our patient, with minimal signs of inflammation and presence of inflammatory cells and its resolution with systemic antibiotics (according to culture sensitivity report) and topical fortified antibiotics and steroid eyedrops, points to the possibility of a pyogenic granuloma. We believe, in our case, probably a chronic infection with staphylococcus aureus resulted in the formation of conjunctival pyogenic granuloma that was only responsive to aggressive treatment with fortified antibiotic and steroid application along with systemic antibiotics. This stresses the importance of culture sensitivity and histopathology which helps us clinch the diagnosis and start appropriate treatment at the earliest.

III. Conclusion

Conjunctival pyogenic granuloma is a rare complication of squint surgery and the exact cause is often difficult to ascertain. It can be infected and mimic an abscess so it is important for clinicians to consider this entity especially in recurrent non resolving swellings post squint surgeries. Although relentless and tricky to treat, it responds well and resolves completely with aggressive antibiotic and steroid regimes.

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Figure 1



Figure 2



Legends

Figure 1- yellowish swelling at the site of lateral rectus muscle in the operated eye.

Figure 2- a complete resolution of swelling seen over one month with use of fortified antibiotic and steroid eyedrops and systemic antibiotic treatment.