CASE REPORT

CORNEAL PYOGENIC GRANULOMA: RARE COMPLICATION OF INFECTIOUS KERATITIS

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ABSTRACT

BACKGROUND: Pyogenic granuloma is an excessive proliferation of granulation tissue that usually develops after minor trauma or surgery. Ocular involvement usually happens on the external surface and cornea is rarely involved. The objective of our report is to describe the clinicopathological feature of this rare disease and give insight on clinical features that help in the diagnosis.
CASE REPORT: This report presents a case of a four year old child who had fleshy growth of one week duration on the right eye after seven weeks of pain and redness. Slit lamp examination showed vascularized central corneal mass with surrounding stromal infiltrates. The mass was excised, and histopathological examination confirmed pyogenic granuloma of the cornea.
CONCLUSION: Corneal pyogenic granuloma could be a rare complication of infectious keratitis. Therefore, it should be considered as a differential diagnosis in corneal mass especially after an infection or trauma.
KEYWORDS: Pyogenic Granuloma, Corneal pyogenic granuloma, Keratitis, Post-infectious granuloma

DOI: http://dx.doi.org/10.4314/ejhs.v24i1.11

INTRODUCTION

Pyogenic granuloma is an exuberant proliferation of granulation tissue that typically develops after minor trauma or surgery. It occurs most often on the skin of the face and extremities. Ocular pyogenic granulomas are usually found on the external surface of the eyelid or the palpebral conjunctiva. Corneal pyogenic granuloma is rare- only few cases have been reported, and the probable reason could be corneas' avascularity (1, 2). A constant clinical finding of these reported corneal lesions is either an epithelial defect in the presence of corneal neovascularization and ocular surface disease or mechanical irritation. It usually develops after trauma or following infections. It can rarely complicate corneal surgeries, and there is one report following penetrating Keratoplasty (3). Because of its rarity, it could be misdiagnosed as ocular malignant lesion and could end up in destructive surgeries like enucleation (2, 4).

We report an unusual case of pyogenic granuloma of the cornea in a 4 year old male child presented to Jimma University Specialized Hospital Ophthalmology Department in September 2012.

CASE REPORT

A four years old boy was admitted to Jimma University Specialized Hospital Department of Ophthalmology on September 14, 2012 with a complaint of fleshy growth on the right eye. Eight days before presentation, the family noticed a small, fleshy, pinkish growth at the center of the right eye. The lump increased in size within a short period and caused irritation and difficulty closing the lids. The child had ocular pain, redness of the eye, photophobia and swelling of the lids for six weeks before the development of the lump. Subsequently, the symptoms worsened and the child lost vision after a few weeks of the onset of pain and redness. He had eye discharge and difficulty opening the eye since the onset of the illness. There was no known history of trauma to the eye. He was not given herbal medication.

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On examination, the eye was full of mucopurulent discharge; the cilia were matted; the lid was swollen, and the conjunctiva was injected. On the cornea, there was a pink, fleshy, vascularized, sessile mass (7mm x5mm) at the center (figure 1). There was a corneal ulcer with dense stromal infiltrate around the mass. Further detail was obscured by the opacity. Ultrasound examination of the right eye showed no mass arising from intraocular structures.

Figure1: Injected eye with discharge and sessile mass on the cornea

With the impression of corneal pyogenic granuloma, we admitted the child. After admission, he was treated with topical ciprofloxacin every 1 hour for 2 days and then every 2 hours for three days. The eye was irrigated and cleaned daily with normal saline to wash off the discharge. Subsequently, the antibiotic was tapered till the infection was cleared (figure 2).

Figure 2: *A child with corneal mass after infection was controlled*

After the infection was controlled, the mass was excised from the cornea and sent for pathologic examination (figure 3). The histopathological examination showed extensive ulceration of the corneal epithelium with underlying granulation tissue formation and regeneration of the remaining epithelium and no atypia was seen within the limit of the biopsy.

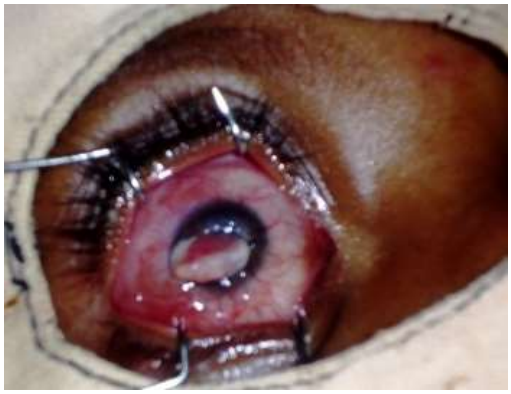

Figure 3: *A child with pyogenic cornea granuloma intra operatively*

After excision of the mass, central corneal stromal defect developed. The patient was followed up for more than a month with topical antibiotic and cycloplegic. Subsequently, the defect healed and leucoma corneal opacity (figure 4) developed with the final visual acuity of light perception.

Figure 4: *A child with corneal scaring after corneal granuloma excision*

DISCUSSION

Pyogenic granulomas were originally described by Poncet and Dor in 1897 (5). The term is a misnomer since it contains neither the inflammatory (purulent) exudate nor the typical epitheloid giant cell reaction characteristic of granulomatous inflammation. They are lesions composed of granulation tissue similar to that seen in wound healing. Granulation tissue consists of

proliferating connective tissue (fibroblasts and fibrocytes) and newly formed capillary channels. Acute and chronic inflammatory cells are often interspersed between the fibrovascular elements.

The common sites of its occurrence are the skin of the face and extremities. It may also occur in the mucosal regions such as gingiva, hard palate, cheek, tongue, and the nasal fossa. In the eye, it has been reported to arise at many sites, including the eyelid skin, conjunctiva, limbs, lacrimal puncta, acquired ophthalmic orbits and veins of the ocular adnexa. The occurrence of pyogenic granuloma on the cornea is relatively rare (1, 2). Its occurrence on the cornea was first reported by Minckler (4) who reported a case which was misdiagnosed as conjunctival Squamous cell carcinoma and after enucleation confirmed to be pyogenic granuloma of the cornea.

The commonest clinical presentation of the corneal pyogenic granuloma is a rapidly growing lump which, on slit lamp examination, appears as well circumscribed, smooth surfaced, pink, sessile, and highly vascularized mass (2, 6, 7). Our patient had a similar clinical presentation. There is also a case report with the appearance of smooth hemorrhagic surface due to bleeding into the mass (8). The size of the mass in our patient was within the range of the reported cases which is 3x3mm to 8x9mm. Most of the patients with pyogenic granuloma of the cornea had a rapid course with presentation within one month of the onset of the growth (6-8) which was also the case in our patient.

Cornea pyogenic granuloma commonly grows at the sites of pre-existing corneal trauma or corneal ulcer due to infectious keratitis which are the two commonly identified risk factors (1, 2, 6, 7, 9). Our patient also had infectious keratitis as a risk factor. The commonest type of trauma associated with corneal pyogenic granuloma is mechanical injury, and there is also a case report of corneal pyogenic granuloma following "snake oil" drop in the eye (9). The other risk factors are ocular surgeries like penetrating Keratoplasty (3) and surgery for ocular surface neoplasia (8). There is also a case report of spontaneous development of corneal pyogenic granuloma (10).

The histopathological finding of our case was consistent with the common histopathological findings of corneal pyogenic granuloma. The typical histopathological finding of pyogenic granuloma is an excessive proliferation of granulation tissue with mononuclear cell infiltration (2, 6, 7).

Corneal pyogenic granuloma can be a challenging case to diagnose especially if it involves the limbus. There were cases misdiagnosed as conjunctival squamous cell carcinoma and ended with enucleation (5, 11). Other differential diagnoses include anterior segment choristoma, a vascular hamartoma or a viral papilloma (6). The age of onset, history of prior trauma or infection, rapid growth and the clinical appearance will often point to the correct diagnosis. Histopathologic examination of the tumor will confirm the diagnosis. In our patient, we suspected that the lesion was a pyogenic granuloma because it was acquired with underlying keratitis, grew rapidly and it was confirmed by histopathological examination.

The treatment of corneal pyogenic granuloma is mainly surgical, which is excision. There is one case report which showed recurrence of the problem after excision (12). There was also a case with spontaneous remission (12). After surgical excision of the mass, the cornea may heal with scarring, especially if there is an underlying inflammatory process like our case. In such a condition, patients may benefit from optical Keratoplasty. Our patient did not get such service due to lack of well established service in our center and because the other centers were inaccessible for the patient.

Despite its rarity, pyogenic granuloma should be considered in any patient with a fleshy, vascularized, elevated, rapidly growing corneal mass, especially in the setting of corneal infection. An excisional biopsy should be performed to make a definite diagnosis.

ACKNOWLEDGEMENTS

We would like to thank ophthalmologists at the Department of Ophthalmology, Jimma University, for their expert management of the patient.

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