Case Report

Subconjunctival Bevacizumab for Recurrent Conjunctival Pyogenic Granuloma

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Abstract

A 45-year-old male presented with a pyogenic granuloma of the bulbar conjunctiva of the left eye following a stick injury. It was a benign friable, hyperplastic, vascular lesion comprised of inflammatory cells and lobular capillary proliferation. The differential diagnosis includes squamous papillomas, hemangiomas, suture granulomas, and ocular surface tumors, such as squamous cell carcinoma and amelanotic melanoma. Conventional treatment includes topical corticosteroids and surgical excision. Treatment of recurrent lesions with cryotherapy, electrocautery, topical antimetabolites, and plaque irradiation has been described. We present a case of recurrent pyogenic granuloma successfully treated with two subconjunctival bevacizumab injections. The patient developed three recurrences after excision at a peripheral hospital after which he was successfully treated with excision and adjuvant subconjunctival bevacizumab 2.5 mg/0.1 ml injection. This case highlights the novel use of bevacizumab for recurrent pyogenic granuloma.

Keywords: Bevacizumab, conjunctival mass, pyogenic granuloma

Introduction

Conjunctival pyogenic granulomas develop after conjunctival injury from trauma or surgery for squint, chalazion or a pterygium. It is a benign friable, vascular lesion comprised of inflammatory cells and lobular capillary proliferation. Conventional treatment includes topical corticosteroids and surgical excision. Treatment of recurrent lesions with cryotherapy, electrocautery, topical antimetabolites and plaque irradiation had been described. We present a case of recurrent pyogenic granuloma successfully treated with subconjunctival Bevacizumab injection.

Case Report

A 45-year-old male presented with a nodular mass in the lateral aspect of the left eye for 6 months. He had an injury to the left eye with a stick following which he developed redness and gradually increasing mass in the left eye. The patient underwent excision of the mass at a peripheral hospital, thrice before presenting to us. On examination, his visual acuity was 6/6 in both eyes. Right eye examination was within normal limits. Left eye showed a 4 mm × 3 mm pedunculated mass in the temporal bulbar conjunctiva [Figure 1].

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The patient underwent surgical excision, and a histopathological assessment was reported as pyogenic granuloma [Figure 2].

A differential diagnosis of squamous papilloma, hemangioma, and ocular surface neoplasia was considered. On follow-up 1 month after the excision, a small 1.5 mm recurrence was noted for which subconjunctival injection of bevacizumab (2.5 mg/0.1 ml) was given twice at an interval of 2 weeks. On review 1 year after the injection, the granuloma showed resolution, with a small pseudopterygium temporally [Figure 3].

Discussion

Conjunctival pyogenic granulomas develop after conjunctival injury from trauma or surgery for squint, chalazion, or a pterygium. Lesions can occur on the bulbar or palpebral conjunctiva, both of which can cause foreign body sensation,

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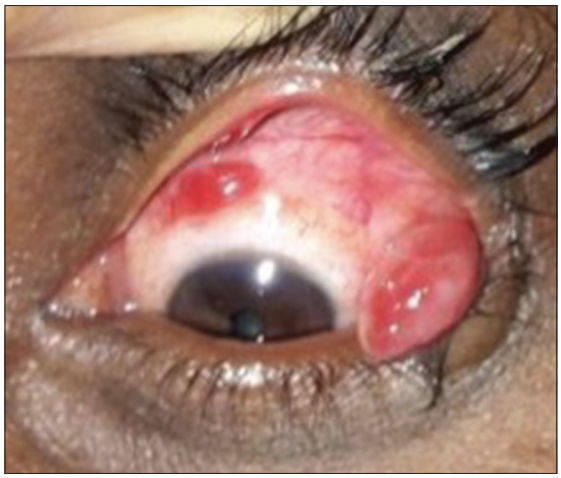

Figure 1: Clinical photograph of the left eye showing a pedunculated vascular lesion in the bulbar conjunctiva

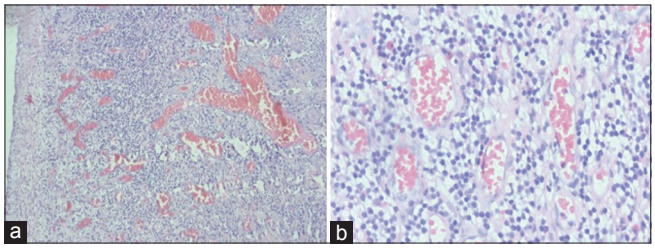

Figure 2: Histopathological examination (a) showing conjunctival tissue with underlying proliferating vascular channels and inflammatory cells (H and E, ×100) and (b) showing vessels lined by benign endothelial cells admixed with lymphocytes (H and E, ×400) in keeping with a pyogenic granuloma

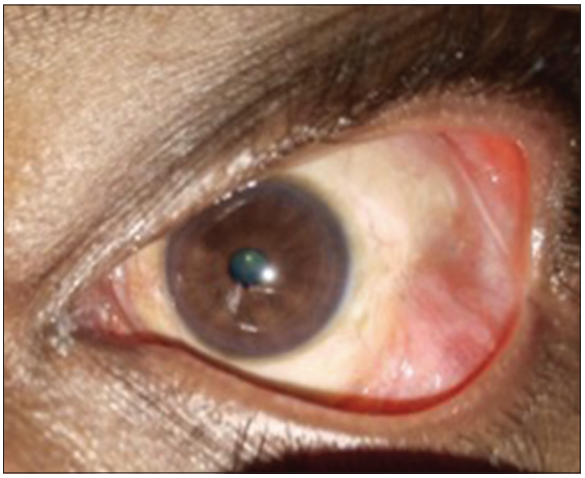

Figure 3: Follow-up picture at 6 months showing complete resolution of the granuloma with a small pseudopterygium temporally

hemolacria, and poor cosmesis. Clinically, lesion is usually painless but may be tender and appears as a polypoid, friable, purple-red, smooth-surfaced mass that bleeds easily.

The term "pyogenic granuloma" is a misnomer as it neither is infective nor demonstrates epithelioid or giant cells on histopathology. It is better termed as lobular capillary hemangioma. The exact etiology of conjunctival pyogenic granulomas remains unknown. The proliferation of capillaries and inflammatory cell infiltration occurs due to the release of cytokines, including vascular endothelial growth factor (VEGF), fibroblast growth factor, and proinflammatory factors. It is plausible that conjunctival pyogenic granuloma formation results from an angiogenic imbalance during wound healing.

On histopathology, the basic lesion is a lobulated cellular hemangioma with a fibromyxoid matrix, and each lobule of the hemangioma consists of a larger vessel, often with a muscular wall, surrounded by congeries of small capillaries and stromal edema. Mitotic activity in the endothelial cells and fibroblasts may be conspicuous. Most pyogenic granulomas are altered by secondary inflammatory changes. Both acute and chronic inflammatory cells (predominantly neutrophils, lymphocytes, and plasma cells) are scattered throughout the lesion, particularly in its superficial layers.[1]

Treatment is individualized ranging from topical medications such as corticosteroids or beta-blockers such as timolol to surgical excision. Majority of the lesions demonstrate a rapid growth followed by stabilization or spontaneous involution and heal with a small focal scar. Recurrence rate is reported to be 3%.[1] Recurrent pyogenic granulomas of the conjunctiva can be challenging to treat. Various techniques such as cryotherapy, electrocautery, topical antimetabolites, intralesional steroids, and plaque irradiation have been described.[1,2] However, despite cryotherapy or cautery, the lesion may recur. Topical antimetabolites such as mitomycin C or thiotepa can cause severe side effects, such as dry eye, corneal melt, and punctual stenosis, and plaque irradiation can cause cataract or scleral necrosis.[3] Intravitreal bevacizumab (Avastin), a humanized anti-VEGF monoclonal antibody, is proven to be useful in the treatment of retinal and choroidal neovascularization. Subconjunctival bevacizumab has been investigated and used successfully in the treatment of corneal neovascularization, conjunctival papilloma, pterygium, and glaucoma filtration surgeries.[4-7] Notably, no significant local or systemic complications were detected in these studies.

Currently, there are no reports on the use of bevacizumab as adjuvant therapy for recurrent pyogenic granuloma. Here, we report a case of a middle-aged patient who was treated successfully by excision with a subsequent subconjunctival injection of bevacizumab; this patient showed no recurrence for 1 year. We adopted bevacizumab as an adjuvant treatment of recurrent pyogenic granuloma because the pathogenesis of pyogenic granuloma indicates a hyperplastic, neovascular response to an angiogenic stimulus with an imbalance of promoters (VEGF, decorin, and transcription factors) and inhibitors.[8] Although complications, such as gastrointestinal perforation, arterial thromboembolic events, proteinuria, and hypertension, are observed among patients treated with systemic doses of bevacizumab, our patient was a healthy young male and did not develop any side effects with significantly lower subconjunctival dosage.

Conclusion

Pyogenic granuloma of the conjunctiva recurs in 3% of the cases after simple excision. Subconjunctival bevacizumab is useful in the treatment of recurrent pyogenic granuloma of the conjunctiva without any local or systemic adverse effects.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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