



CASE REPORT

The Challenge in Diagnosis and Management of Secondary Conjunctival Cysts

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**Abstract**

Introduction: Conjunctival cysts can be categorized as primary or secondary. This report emphasizes difficulties in diagnosing secondary conjunctival cysts and distinguishing them from other conjunctival lesions like conjunctival benign reactive lymphoid hyperplasia (BRLH). **Case Presentation:** A 43-year-old male had a painless progressive conjunctival mass for four months. He took anti-aging and muscle-enhancing injections for a year and changed the product brand four months ago. Our examination revealed a conjunctival translucent mass with distinct margins and surface-feeding vessels without visual disturbance. We provisionally diagnosed it as a conjunctival cyst with a differential diagnosis of BRLH. We treated the patient with oral methylprednisolone and dexamethasone eye drops and discontinuation of anti-aging injections. The mass completely disappeared after one month of treatment. **Conclusions:** This case presented a diagnostic challenge due to the presence of a feeding vessel, which indicated inflammation. This made differentiating from inflamed conjunctival masses, such as BRLH, difficult. The patient had a history of suspected inflammation from changing the brand of injectable drug. Initially, we used steroids to reduce inflammation and prevent mass growth, but surprisingly, the lesion completely disappeared. If it recurs, a biopsy may be needed to identify the exact cause, as we have not ruled out BRLH. Secondary conjunctival cysts can result from toxins, trauma, or allergies. A thorough history taking, eye examination, and biopsy may be necessary to rule out other causes of inflamed conjunctival masses.

Keywords: conjunctival cyst; conjunctival mass; benign reactive lymphoid hyperplasia (BRLH); steroid

Introduction

Conjunctival cysts represent approximately 10% of all conjunctival lesions and 80% of conjunctival cystic lesions.^[1] A conjunctival cyst typically manifests as a fluid-filled mass with a transparent wall.^[2] It is usually asymptomatic, however, may lead to aesthetic concerns, limited eye movement, sensations of foreign body, dry eyes resulting from an unstable tear film as they enlarge, and it is commonly categorized as either primary or secondary. Primary conjunctival cysts develop congenitally during the embryonal period, resulting from separating a portion of conjunctival epithelial cells. On the other hand, secondary conjunctival cysts, more prevalent than primary cysts, can occur spontaneously or arise following inflammation, allergies, trauma, and ophthalmic surgeries such as strabismus surgery and scleral buckling, rarely after medication or penetrating trauma.^[3] Conjunctival cysts often persist and are stable, and they seldom disappear on their own. However, removing these lesions is considered when the cyst is large, causing symptoms, or aesthetically undesirable, though this approach is selective. Most conjunctival cysts can be readily diagnosed through clinical examination. However, several reports have demonstrated atypical manifestations of cysts masquerading as a conjunctival mass, which is similar to our case, where we find difficulties in distinguishing conjunctival cysts from other conjunctival masses such as benign reactive lymphoid hyperplasia (BRLH).^[1]

Case presentation

A 43-year-old male presented with a painless conjunctival mass located on the bulbar conjunctiva of his right eye, a condition that had persisted for four months. Upon delving into his medical history, the patient disclosed a prior regimen involving the self-administration of an injectable medication for the dual purposes of anti-aging and muscle-building, which spanned one year. Subsequently, he transitioned to a different product brand mentioned four months before his presentation to the clinic. Despite the conjunctival mass, the patient denied experiencing any visual disturbances, discharge, or discomfort associated with the affected eye. Furthermore, there was an absence of noteworthy past ophthalmologic or systemic medical issues reported by the patient. Initial examination findings revealed normal visual acuity and motility in both eyes, with no palpable masses or signs of eyelid edema, and exophthalmos was notably absent. Noteworthy observations from the slit lamp examination included the identification of a conjunctival translucent mass with a dimension of 0.8 cm x 0.5 cm, with distinct margins and surface feeding vessels, while the examination of the contralateral eye revealed no remarkable findings (Figure 1). A comprehensive systemic examination yielded results within normal limits, devoid of any evidence indicative of lymphadenopathy or other systemic abnormalities. In light of the clinical presentation, a provisional diagnosis of secondary conjunctival cyst, with a differential diagnosis incorporating BRLH, was established. Treatment commenced with 8 mg of methylprednisolone tablets, administered three times a day, in conjunction with dexamethasone 0.1% eye drops, to be applied four times daily.

Additionally, the patient was counseled to discontinue the use of the anti-aging and muscle-building medications mentioned above. Subsequent follow-up visits demonstrated a gradual reduction in the size of the conjunctival mass, culminating in its complete resolution approximately one month following the onset of treatment. The patient reported no adverse effects of the prescribed therapeutic regimen throughout treatment.

Discussion and conclusions

Conjunctival cysts are benign, movable cystic formations covered with non-keratinizing epithelium and filled with serous fluid, constituting 80% of all cystic lesions in the conjunctiva.^[4] These cysts can originate congenitally during the embryonic period by separating conjunctival epithelial cells, commonly known as primary conjunctival cysts. However, they can also develop secondary to factors such as trauma, chronic inflammation, allergies, or subtenon anesthesia, leading to the implantation of conjunctival epithelial cells and the formation of secondary conjunctival cysts.^{[5],[6],[7]}

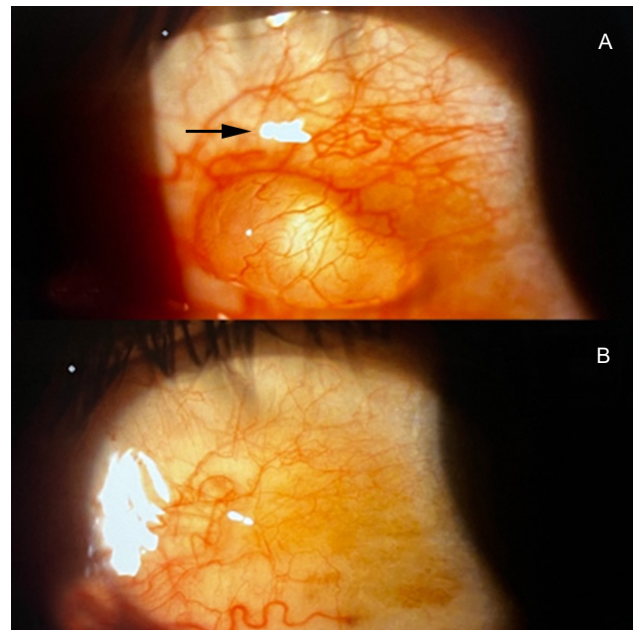


Figure 1. Patient's slit lamp examination; (A) Slit lamp photograph of the patient's right eye on initial presentation; and (B) Mass wholly resolved after one month following topical and oral steroids.

The mechanism of primary conjunctival cyst started during the embryonic period, when an excessive invagination of the fornix or caruncular epithelium developed, resulting in primary cyst formation. A secondary conjunctival cyst is caused by multiple factors, depending on the etiology; for example, an inflammatory condition of conjunctiva may produce a secondary conjunctival cyst.^[6] Our immune response may escalate conjunctival inflammatory reaction, thus developing a lesion. Traumatic conditions can detach portions of the conjunctiva epithelium, and the lesion can develop into a secondary conjunctival cyst.^[6]

The diagnosis of a conjunctival cyst typically relies on identifying the characteristic translucent cystic appearance of the lesion.^{[4],[8]} Secondary conjunctival inclusion cysts may resolve spontaneously, however, if they cause significant pain or impair vision, they are typically excised.^[5] In cases where inflammation is prominent, a prescription of steroid eye drops may be recommended to prevent further advancement of the lesion and reduce inflammation. In the case presented, our patient exhibited an atypical translucent mass with well-defined margins, surrounded by prominent feeding vessels, suggesting an ongoing inflammatory process in the conjunctiva. This observation led us to consider the potential contribution of allergic mechanisms, possibly triggered by the patient's use of self-injectable medications containing various substances for anti-aging and muscle-building purposes.^[9] Using self-injectables for anti-aging and muscle-building containing various substances may contribute to allergic mechanisms. The initial phase of immune response to inflammation involves mast cells through Immunoglobulin E (IgE) and their subsequent degranulation, followed by an

intermediate phase characterized by neovascularization.^[10] These features do not align with the typical findings of conjunctival cysts. Several differential diagnoses should be considered while examining an inflamed conjunctival mass. The mass in our case represents similarity to BRLH.

BRLH is an uncommon lymphoproliferative disorder, usually characterized by a salmon-colored subepithelial lesion on the conjunctiva, which is also present with prominent feeder vessels overlaying the lesion.^[11] The current treatment protocol for BRLH is not well defined, and historically, these lesions were observed.^[12] The management of BRLH can be approached in various ways, depending on patient symptoms, comorbidities, and the distribution of the disease.^[13] Most patients are offered oral or topical corticosteroids, considered the primary treatment for an extended period.^[14] Studies indicate that topical corticosteroid eye drops lead to positive outcomes without side effects or recurrence. It is believed that corticosteroids effectively suppress the proliferation of lymphocytes.^[15] Depending on the size of the cyst and the patient's symptoms, other treatment options exist, such as surgical excision. Surgical excision is the definitive treatment for conjunctival cysts; also another procedure called Thermal cautery under slit lamp visualization can be done to remove the cyst. The conjunctival cyst is a thin-walled lesion; a surgical procedure is in danger of rupturing the cyst, and recurrent cyst development is also higher after surgical treatment.^{[3],[16],[17]}

In our patient, we suspected the cause of the cyst was inflammation; thus, we prescribed a combination of methylprednisolone 8 mg tablets three times a day and dexamethasone 0.1% eye drops four times a day. The results surpassed expectations, as all symptoms were suppressed without any subsequent side effects. We were planning to do a biopsy on the patient, however, the lesion shrunk before we scheduled an operation.

In conclusion, a thorough history taking and physical examination are crucial in diagnosing conjunctival cysts. In our case, a thorough examination revealed the cyst's primary cause (anti-aging drug). A definitive diagnosis may be complicated by clinical examination alone; further testing, such as a biopsy, is required to determine the precise diagnosis.

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