Granular Cell Tumor Located in the Bulbar Subconjunctival Space

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Established Facts

- Granular cell tumor is a rare tumor that can occur in the tarsal conjunctiva.

Novel Insights

- Granular cell tumors *do* occur in the bulbar conjunctiva.

Keywords

Granular cell tumor · Conjunctiva · Conjunctival tumor ·
Abrikossoff tumor

Abstract

Aim: To report an unusual case of granular cell tumor. **Methods:** Case report. **Results:** A 14-year-old male presented with a bulbar conjunctival yellowish nonmovable mass, in the left eye. The tumor was removed and histopathologic evaluation revealed a granular cell tumor. **Conclusion:** Granular cell tumor can occur at the bulbar subconjunctival space.

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Introduction

Granular cell tumor (GCT) was first described in the tongue and, at that moment, supposed to originate from mature striated muscle cells [1]. Immunohistochemistry and ultrastructural studies have identified GCT to originate from Schwann cells [2, 3]. A review by Ordóñez and Mackay [4] concluded that GCT is most frequently located in the head and neck area. About one-fourth of the lesions occurred in the tongue. Other reported sites are the orbit, larynx, parotids, breast, esophagus, respiratory, gastrointestinal, and genitourinary tracts [4].

In ocular adnexa, GCT has been reported to occur in the orbit, extraocular muscles, caruncle, eyelid skin, palpebral conjunctiva, and lacrimal drainage apparatus [5–12]. In our literature search, no clear report of GCT isolated in the bulbar subconjunctival space was found.

Fig. 1. **a** Clinical aspect. A yellowish mass in the temporal area from the bulbar conjunctiva (arrow). **b** Microphotography. At lower magnification, tumor cells can be identified under a normal conjunctival epithelium (asterisk) (H&E, $\times 200$). **Inset** Strong S-100 positivity. **c** Microphotography. At higher magnification, the cells exhibit small round nuclei and granular eosinophilic cytoplasm (H&E, $\times 400$). **d** Microphotography. PAS-positive cytoplasmic granules (PAS, $\times 400$).

Case Report

A 14-year-old male was referred for ocular oncology evaluation. He reported a progressively growing mass in the left eye for the last 5 months. There were no other ocular or systemic complaints. His past medical history was unremarkable.

Ocular examination revealed a 10×6 mm lobulated yellowish mass occupying the inferior and lateral portion of the left subconjunctival space (Fig. 1). Although the conjunctiva over the mass was brilliant and apparently undisturbed, it could not be moved over the tumor, which in turn seemed to be firmly attached to the episclera. Surgical excision was performed with superficial lamellar sclerectomy and primary wound closure with interrupted 8-0 polyglactin suture. The patient was prescribed with tobramycin eye drops for 7 days and 0.1% dexamethasone eye drops tapered over a 30-day period. Visual acuity remained normal and there was no other visual limitation. At the 12-month follow-up visit, there was no evidence of local recurrence.

Histopathological evaluation revealed a preserved conjunctival epithelium and a tumor in the subconjunctival space, composed of benign cells exhibiting small round nuclei and granular eosinophilic cytoplasm. The cytoplasmic granules were periodic acid-Schiff (PAS) positive and exhibited positive immunostaining for S-100 and CD-68 (Fig. 1).

Comments

GCT is a rare tumor that usually presents in the 4th to 6th decade with no gender predilection [5, 7]. Although it has been reported to affect many structures of the ocular adnexa, including the palpebral conjunctiva, we found no single case located at the subconjunctival bulbar space [5–12].

The tumor is usually benign, but complete excision is advised since local invasion after incomplete excision has been reported to result in orbital exenteration [12]. Complete excision can be challenging since this tumor is known to be usually firmly adherent to deeper planes [5–7]. In our case, the tumor was adherent to the superficial episcleral tissue, but complete excision was performed with superficial lamellar sclerectomy.

The diagnosis of GCT is usually made on the basis of its typical features on light microscopy hematoxylin and eosin-stained and PAS sections (small round nuclei and granular cytoplasm that are PAS positive) [4, 8]. Due to its neural origin, the tumor frequently stains positive for S-100 protein and neuron-specific enolase [2–4, 8]. Another marker that frequently stains positive in GCT is

CD-68. This was once interpreted as a possible histiocytic origin for GCT, but lately, CD-68 positivity was proved to be a common finding in a variety of lesions rich in lysosomes, thus making this immunomarker not a specific one to GCT [2–4, 8].

In this unusual location, GCT can mimic many other rare stromal conjunctival lesions and a correct clinical diagnosis is virtually impossible, making surgical excision with histopathological study mandatory. Another aspect reported in GCT that could induce clinical and even histopathological confusion is the presence of pseudoepitheliomatous hyperplasia. This finding was already reported in cases of palpebral conjunctival GCT, but was not identified in the present case [10].

In summary, we present a rare case of GCT located in the bulbar subconjunctival space. We highlight the tu-

mor's clinical, surgical, and histopathological aspects and comment on the challenges to diagnose and surgically manage such a lesion.

Statement of Ethics

The subject has given prior informed consent for the treatment and for publication of this paper.

Disclosure Statement

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