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Case Report

Melanocytic Nevus of the Superior Conjunctival Fornix: A Case Report

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Keywords

Melanocytic nevus · Ocular surface · Conjunctival lesion · Ocular oncology

Abstract

Introduction: Conjunctival nevi are benign tumors that are commonly located at the nasal or temporal limbus and rarely in the fornix or tarsus. We report a case of a patient presenting with a solitary compound cystic nevus of the conjunctival fornix in the background of bilateral complexion-associated melanosis. ***Case Presentation:*** A 71-year-old African-American female was referred for evaluation of an incidentally noted melanocytic lesion of the right conjunctival fornix. The patient underwent an excisional biopsy, revealing histological features consistent with a compound cystic nevus. ***Conclusion:*** This finding is noteworthy due to the rarity of conjunctival nevi originating in the fornix. The case underscores the importance of excisional biopsy in evaluating conjunctival forniceal melanocytic lesions to exclude malignant melanoma, a critical consideration for prognosis.

Introduction

Conjunctival nevi involve the bulbar conjunctiva most commonly (72%) followed by caruncle (15%), plica (11%), and least commonly in the fornix (1%), tarsus (1%), and cornea (<1%) [1]. Clinically distinguishing these lesions from melanoma can be challenging, especially when they occur in "rarer" locations such as fornix or tarsus. Any thickened conjunctival pigmented lesion in such locations is deemed concerning unless proven otherwise [1–3]. Herein, we report a case of a 71-year-old woman presenting with a solitary compound cystic nevus of the conjunctival fornix in the background of bilateral complexion-associated melanosis.

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A healthy 71-year-old African-American female was referred for evaluation of an incidentally noted right conjunctival lesion suspicious for melanoma. It had been discovered incidentally during a routine optometry assessment 3 months prior and had since shown no change in size or morphology. The patient denied any visual complaints, eye pain, redness, itching, tearing, or ocular discomfort. There was no history of discharge or bleeding from the lesion. Her past ocular history was notable for bilateral cataract surgeries 7 years ago, with no history of trauma, eye disease, chemotherapy use, occupational exposures, or use of industrial chemicals. Her past medical history was notable for endometrial cancer treated with hysterectomy 13 years ago, currently in remission. Her medical conditions included type 2 diabetes mellitus, hypertension, and hyperlipidemia, that were medically controlled, and her family history was unremarkable. Her social history was notable for tobacco use, active smoking of 1/4 packs per day for 20 years.

Best-corrected visual acuity was 20/20 in both the eyes. Intraocular pressures were 16 mm Hg and 13 mm Hg in the right and left eyes, respectively. Anterior segment examination of the right eye showed a superior palpebral and forniceal darkly pigmented thick conjunctival melanocytic lesion measuring 8 mm × 6 mm without feeder vessels, intrinsic cysts, or vessels. The lesion appeared to move freely over the underlying tarsus. An adjacent 2 mm × 1 mm caruncular pigmented elevated lesion with surrounding melanosis was also noted. In addition, there was additional pigmentation temporal to the main lesion over the palpebral conjunctiva (Fig. 1a, b). Additionally, both eyes showed diffuse pigmentation at the limbus and bulbar conjunctiva consistent with complexion-associated melanosis. Dilated fundus examination of both eyes was unremarkable.

Given the tumor's unusual anatomical location and suspicious clinical features, an excisional biopsy was planned. The patient underwent excision of the lesion along with 3–4 mm margins and double freeze thaw cryotherapy to the margins along with amniotic membrane graft, as well as excision of the nasal bulbar conjunctival lesion with double freeze cryotherapy and direct closure. Histopathology of the lesion revealed proliferation of heavily pigmented melanocytes, mature nevus cells, and abundant melanin-laden macrophages in the underlying stroma with multiple cysts, consistent with a compound cystic nevus. No evidence of pagetoid spread or dysplasia was detected (Fig. 1c). Excisional biopsy of the nasal bulbar conjunctiva showed a normal density of unremarkable melanocytes confined to the basal layer of the epithelium, consistent with complexion-associated melanosis, or racial melanosis. The patient has had an uncomplicated postoperative course and will be continued to be monitored for recurrence (Fig. 1d).

Discussion

A typical pigmented nevus can often be diagnosed clinically and managed with serial monitoring with clinical photography. The presence of characteristic clinical features, such as younger patient age, intralesional cysts, and stability over time, suggests a nevus [1, 4]. Distinguishing them from other pigmented lesions such as blue nevi, primary acquired melanosis, and malignant melanoma is crucial. Features concerning for malignancy include the occurrence in middle-aged or older patients, history of cutaneous melanoma or dysplastic nevus syndrome, increase in pigmentation, lack of intrinsic cysts, rich feeder vessels, and demonstrated growth [1, 2]. While benign lesions with typical features in the bulbar conjunctiva are easily diagnosed and monitored, those in the fornix and tarsus can pose challenges, especially with atypical characteristics and unknown onset. Our patient

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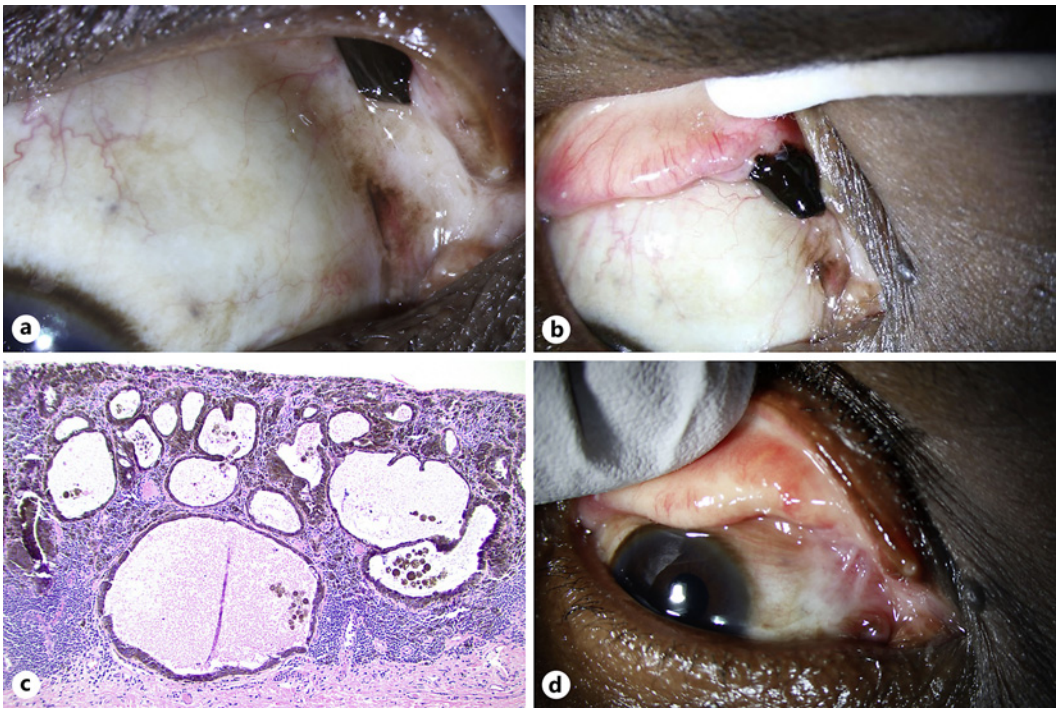

Fig. 1. Compound cystic nevus of superior conjunctival fornix. **a** Clinical photograph demonstrating the lesion involving the right superior palpebral conjunctiva and fornix. An adjacent pigmented elevated lesion involving the caruncle with surrounding melanosis is marked with an asterisk. **b** Clinical photograph with right upper eyelid eversion demonstrates the entire lesion. **c** Histologic examination revealed heavily pigmented melanocytes, mature nevus cells, and abundant melanin-laden macrophages in the underlying stroma, consistent with a pigmented cystic compound nevus of the conjunctiva. Multiple cysts were also present (hematoxylin and eosin, magnification, ×10). **d** Clinical photograph at last visit showing early symblepharon changes.

presented with a conjunctival lesion associated with advanced age, deep pigmentation, forniceal and palpebral conjunctival location along with a background of bilateral pigmentation, which prompted excisional biopsy. In this report, although there was no known history of recent growth of the lesion, stability over time could not be determined as the lesion was first discovered incidentally during a clinic examination. Amniotic membrane grafting was used during excisional biopsy in our case for ocular surface reconstruction. Studies have demonstrated the efficacy of amniotic membrane graft reconstruction in the surgical management of benign and malignant conjunctival tumors, due to enhanced epithelialization, as well as its antiangiogenic, anti-inflammatory, and anti-fibrotic properties [5–7]. Amniotic membrane grafting in this case was utilized to minimize post-surgical scarring after wide excisional biopsy, although mild early symblepharon changes were still seen postoperatively.

Shields et al. [1] reported 410 patients with conjunctival nevi, of which only 1% (n = 6) nevi involved the fornix. In addition, a prior case series reported 2 additional cases of melanocytic nevi involving the inferior palpebral conjunctiva [8]. A recent study reported 3 cases of blue nevi arising in the fornix [9]. Another case series reported 2 cases of melanocytic nevi involving the superior and inferior palpebral forniceal conjunctiva [10]. Previous cases reported in the literature of conjunctival forniceal nevi have had dark brown pigmentation (3 cases), intralesional cysts (2 cases), partial pigmentation (1 case), and moderate pigmentation (3 cases) [8–10]. Interestingly, the majority of prior cases reported in the literature were

inferomedial in location, with only one previous report of a nevus involving the superior fornix. Our case is distinctive in its involvement of the superior fornix. Given the scarcity of such cases, any pigmented lesion in this region is viewed with high suspicion for malignancy [1, 8].

Few studies have described the specific histopathologic features of conjunctival fornix nevi. In our patient, there was proliferation of heavily pigmented melanocytes and abundant melanin-laden macrophages in the underlying stroma. There were multiple epithelial cysts. Immunohistochemistry stained positive for MART-1 and HMB-45, all features consistent with a compound cystic nevus. Shields et al. [1] reported compound nevus as the most common histopathologic pattern in their series. Although not utilized in our case, anterior segment optical coherence tomography is a useful tool in visualizing the boundaries of conjunctival nevi and detecting the presence of intralesional cysts and should be performed routinely for all lesions [11]. The unique location of our case, along with its clinical and histopathological features, underscores the need for individualized evaluation in conjunctival nevi arising from the fornix.

Considering the rarity and potential for malignancy in pigmented conjunctival forniceal lesion, complete surgical excision with margins and histologic evaluation is strongly recommended in cases of diagnostic uncertainty. Notably, melanomas originating from the palpebral conjunctiva are associated with 2.2 times higher mortality, emphasizing the importance of a vigilant approach and a lower threshold for surgical intervention in pigmented lesions arising in the conjunctival fornix [3]. The CARE Checklist has been completed by the authors for this case report, attached as online supplementary material (for all online suppl. material, see https://doi.org/10.1159/000537876).

Statement of Ethics

Ethical approval was not required in accordance with local guidelines. Written informed consent was obtained from the patient for publication of the details of their medical case and any accompanying images in this report.

Conflict of Interest Statement

The authors have no conflict of interest to declare.

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Author Contributions

All authors attest that they meet the current ICMJE criteria for authorship. M.A. contributed to the design of the study, collecting the data, and writing of the manuscript. A.M. performed the surgical management and contributed to the design of the study and writing of the manuscript. M.M. and T.C. contributed to the diagnosis and critically reviewed the results and manuscript. All the authors read, edited, and approved the final manuscript.

Data Availability Statement

All data generated or analyzed during this study are included in this article and its online supplementary material files. Further inquiries can be directed to the corresponding author.

References

1 Shields CL, Fasiuddin AF, Mashayekhi A, Shields JA. Conjunctival nevi: clinical features and natural course in 410 consecutive patients. Arch Ophthalmol. 2004;122(2):167–75.
2 Zembowicz A, Mandal RV, Choopong P. Melanocytic lesions of the conjunctiva. Arch Pathol Lab Med. 2010;134(12):1785–92.
3 Shields CL, Markowitz JS, Belinsky I, Schwartzstein H, George NS, Lally SE, et al. Conjunctival melanoma. Ophthalmology. 2011;118(2):389–95.e2.
4 Levecq L, De Potter P, Jamart J. Conjunctival nevi clinical features and therapeutic outcomes. Ophthalmology. 2010;117(1):35–40.
5 Furdova A, Czanner G, Koller J, Vesely P, Furda R, Pridavkova Z. Amniotic membrane application in surgical treatment of conjunctival tumors. Sci Rep. 2023;13(1):2835.
6 Shields CL, Regillo AC, Mellen PL, Kaliki S, Lally SE, Shields JA. Giant conjunctival nevus: clinical features and natural course in 32 cases. JAMA Ophthalmol. 2013;131(7):857–63.
7 Dalla Pozza G, Ghirlando A, Busato F, Midena E. Reconstruction of conjunctiva with amniotic membrane after excision of large conjunctival melanoma: a long-term study. Eur J Ophthalmol. 2005;15(4):446–50.
8 Buckman G, Jakobiec FA, Folberg R, McNally LM. Melanocytic nevi of the palpebral conjunctiva. An extremely rare location usually signifying melanoma. Ophthalmology. 1988;95(8):1053–7.
9 Sayed-Ahmed I, Murillo JC, Monsalve P, Ulloa JP, Fernandez MP, Wong J, et al. Blue nevi of the ocular surface: clinical characteristics, pathologic features, and clinical course. Ophthalmology. 2018;125(8):1189–98.
10 Yazici B, Bilge AD, Yagci A, Naqadan F, Altintepe F. Melanocytic nevus of the tarsal conjunctiva. Balk Med J. 2016;33(4):477–9.
11 Shields CL, Belinsky I, Romanelli-Gobbi M, Guzman JM, Mazzuca D, Green WR, et al. Anterior segment optical coherence tomography of conjunctival nevus. Ophthalmology. 2011;118(5):915–9.