

Tarsal-related cysts: Different diagnoses with similar presentations



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Abstract

Purpose: To study different tarsal cysts that share similar presentations and are commonly misdiagnosed clinically as a chalazion. **Methods:** A retrospective review of medical charts of all consecutive patients who presented eyelid tarsal-related pathology that needed surgical excision between 2010 and 2016 to a tertiary hospital was done. The data collected included preoperative, intra-operative and postoperative observations. Complete ophthalmologic examination at presentation, surgical procedures needed, complications, histopathological findings, response to treatment and follow-ups were recorded.

Results: Out of 850 patients who had an eyelid tarsal-related pathology, ten patients were found to have an eyelid cystic lesion related to the tarsus. All patients presented with an eyelid mass with no sign of local inflammation. All lesions were fixed to the tarsus with freely mobile overlying skin. Five patients had a recurrent lesion that was misdiagnosed and surgically treated as a chalazion. All patients underwent a surgical removal of these cysts, and a histopathological examination was performed. An intratarsal keratinous cyst was found in six patients and epithelial inclusion cyst was in one patient. Two patients found to have cystic structure lined by double cuboidal epithelium with numerous goblet cells consistent with benign lacrimal duct cyst (Dacryops).

Conclusion: Cysts related to the tarsal plate could have similar presentations. Careful clinical evaluation and histopathological examination play an important role in giving the right diagnosis and in providing the appropriate management.

Keywords: Tarsal cyst, Intratarsal keratinous cyst, Benign lacrimal duct cyst, Epithelial inclusion cyst, Chalazion

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Introduction

Cystic lesion is one of the presentations of tarsal-related pathology. After chalazia and sebaceous cell carcinoma, tarsal-related cysts are considered the 3rd major cause of tarsal swelling.¹ There are several different nomenclatures which can refer to tarsal-related cysts such as intratarsal keratinous cyst, meibomian glands ductal cyst, sebaceous duct cyst, epidermal tarsal cyst and tarsal inclusion cyst.^{1–3} Differentiating them from other eyelid lesions is of great importance, as they require a dif-

ferent therapeutic approach. Frequently, they are misdiagnosed as chalazion where patients undergo incomplete excision and later they tend to recur.^{2,3} Herein, we report different pathological conditions presented as tarsal-related cyst.

Methods

A retrospective review of medical records of all consecutive patients who presented to King Abdulaziz University Hospital, Riyadh, Saudi Arabia, with an eyelid tarsal-related

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pathology that needed surgical excision between 2010 and 2016 was done. All lesions were surgically excised with available tissue diagnosis. The information collected included the preoperative, intraoperative and postoperative observations. Complete ophthalmologic examination at presentation, surgical procedures needed, complications, histopathological findings, and response to treatment were recorded. All patients were followed up for at least 6 months. The study was approved by the institutional review board of College of Medicine, King Saud University; it adhered to the tenets of the Declaration of Helsinki and an informed consent was obtained from the patients.

Results

Out of 850 patients who presented with an eyelid-related pathology during the study period, ten patients were found to have tarsal-related cystic lesion (1.17% of total patients). The mean age of the patients was 35.7 years and eight patients were females. All patients presented with a solitary lid mass with no signs of local inflammation. The duration of this swelling ranged between 2 months and 15 years. Eight patients had upper lid mass and two were with lower lid mass. These lesions were fixed to the tarsus while the skin was freely mobile over them. Five patients were previously diagnosed as chalazion and underwent incision and curettage, yet they came back later with recurrence of the same

mass. All patients underwent surgical removal of these cysts in our hospital. Complete excision of the cysts through eyelid skin crease incision for the upper eyelid and subciliary incision for the lower eyelid was done. All cases were followed up for 6–10 months, and none of them had a recurrence. Histopathological evaluation revealed intratarsal keratinous cyst in 7 patients (Fig. 1). One of the patients had eyelid surgery, two months later patient presented with a lump. Excisional biopsy was done and a histopathological examination showed soft tissue fragments with cystic structures lined by non-keratinizing stratified squamous epithelium that is consistent with epithelial inclusion cyst (Fig. 2). Two patients presented with a non-inflamed lump with no previous history of trauma or surgery. Excisional biopsy was done for both and a histopathological examination showed cystic structure lined by double cuboidal epithelium with numerous goblet cells consistent with benign lacrimal duct cyst (Dacryops), (Fig. 3). Table 1 summarizes patients' information.

Discussion

Tarsal-related cyst gets more attention in the ophthalmic practice. Jakobiec et al.¹ reported 6 cases of intratarsal keratinous cyst in 2010. In 2013, Zhang et al.⁴ also reported 15 patients with found to have intratarsal keratinous cyst and revealed its clinical and pathological characteristics. Later, Kim et al.² reported a 11 case of intratarsal keratinous cyst

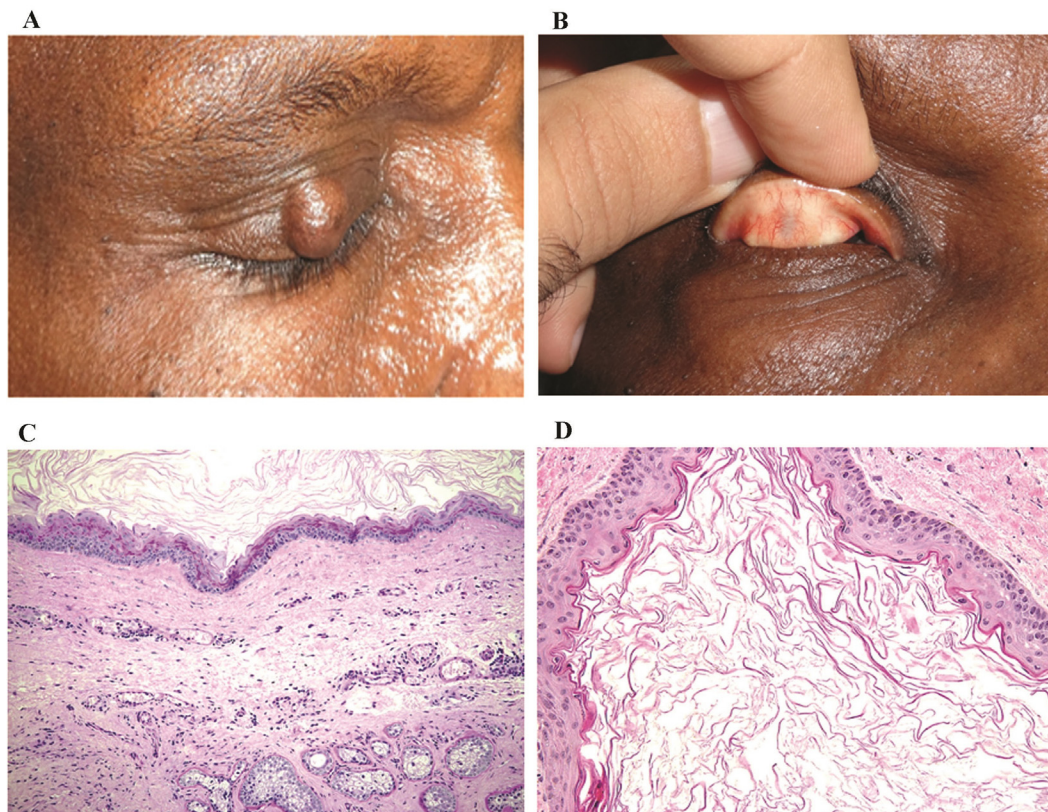


Fig. 1. (A) External photo of the right upper lid mass that has no signs of local inflammation in a 45-year-old male with no previous history of trauma or surgery. (B) Lid eversion showing bluish discoloration of the nodule. (C) and (D) Histopathological examination showed intra-tarsal cyst lined by keratinizing stratified squamous epithelium. The cavity contains keratin in a multi-layered fashion. The cyst is consistent with the diagnosis of a keratinous cyst.

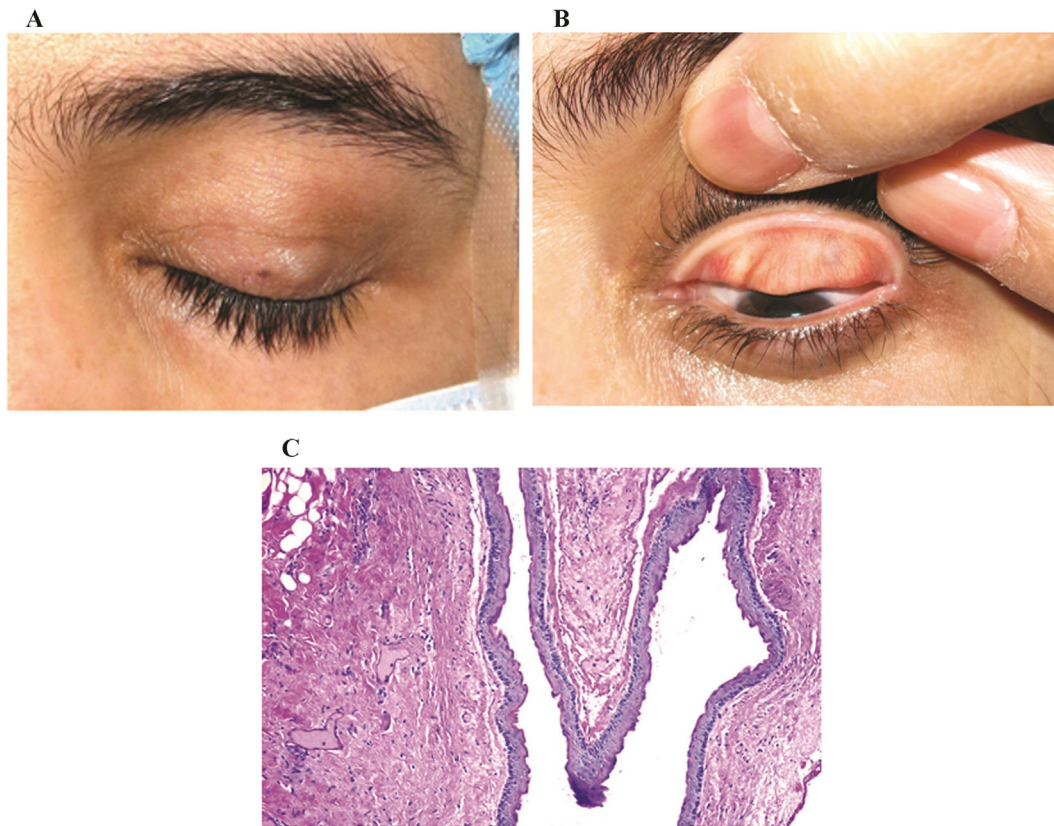


Fig. 2. (A) and (B) a 43-year-old female who underwent incision and curettage for chalazion and presented later with a mass at the same site of the previous swelling. (C) Excisional biopsy showed cystic structures lined by non-keratinizing stratified squamous epithelium that is consistent with epithelial inclusion cysts.

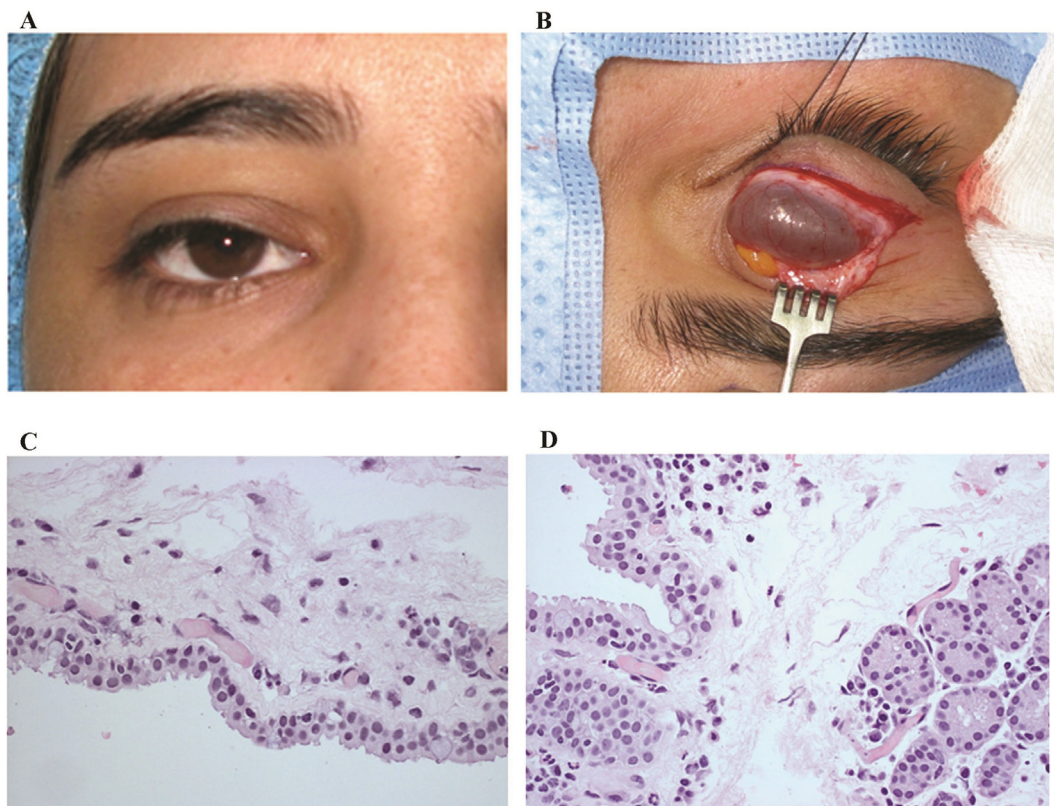


Fig. 3. (A) a 24-year-old female presented with a non-tender mass of the right upper lid for 2 years. (B) Through an anterior orbitotomy, a cyst was found attached to the tarsus. (C) and (D) Histopathological examination showed cystic structure with irregular lumen lined by double cuboidal with numerous goblet cells consistent with benign lacrimal duct cyst (Dacryops).

Table 1. Summary of the main findings of our patients.

Case No.	Gender	Age (Years)	Duration of Symptoms	External Exam	Location	Eyelid Eversion	Previously Diagnosed as Chalazion?	Previous Treatment	Surgical Procedure	Final Diagnosis
1	F	39	3 months	Uninflamed Lump	RUL	White nodule	No	None	Excisional biopsy*	Intratarsal Keratinous Cyst
2	F	22	2 months	Uninflamed Lump	LUL	White nodule	Yes	I&C	Excisional biopsy*	Intratarsal Keratinous Cyst
3	F	43	3 months	Uninflamed Lump	RUL	Not-remarkable	Yes	I&C	Excisional biopsy*	Intratarsal Keratinous Cyst
4	F	18	2 months	Uninflamed Lump	RUL	Not-remarkable	Yes	I&C	Excisional biopsy*	Intratarsal Keratinous Cyst
5	M	45	2 months	Uninflamed Lump	RUL	Bluish nodule	No	None	Excisional biopsy*	Intratarsal Keratinous Cyst
6	F	58	2 years	Uninflamed Lump	RUL	Not-remarkable	No	None	Excisional biopsy*	Intratarsal Keratinous Cyst
7	M	57	15 years	Uninflamed Lump	RUL & LUL	Multiple Bluish and White nodule	Yes	I&C	Excisional biopsy*	Intratarsal Keratinous Cyst
8	F	43	2 months	Uninflamed Lump	LUL	Bluish nodule	Yes	I&C	Excisional biopsy*	Epithelial Inclusion Cyst
9	F	24	2 years	Uninflamed Lump	RUL	Not-remarkable	No	None	Excisional biopsy*	Benign lacrimal ductal cyst (Dacryops)
10	F	8	5 months	Uninflamed Lump	RUL	Not-remarkable	No	None	Excisional biopsy*	Benign lacrimal ductal cyst (Dacryops)

* Complete excision: Excisional biopsy of the cysts through eyelid crease incision I&C – incision and curettage; RUL – Right upper lid; LUL – Left upper lid; LLL – Left lower lid.

and provided different characteristics to distinguish them from other intratarsal lesions. Lucarelli et al.⁵ described 3 cases of epidermal inclusion cyst that arose within the tarsus.

Most of the reported cases were thought to be chalazion where patients underwent surgical incision and curettage. Later, they presented with a recurrence of that mass.¹⁻³ It is very challenging to differentiate them from chalazion. A variety of cases presented to us sharing a common feature, in which all of cystic lesions were fixed/attached to the tarsal plate. These lesions enrolled in this study included intratarsal keratinous cyst, epithelial inclusion cyst, lacrimal ductal cyst (dacryops) attached to the tarsus.

Intratarsal keratinous cysts are noticed to have progressive, slow growth with a delayed recurrence, lack of inflammation and no fluctuation of their size.⁵ They are usually isolated but multiple cysts have been reported to occur.⁶ Intratarsal keratinous cysts occasionally have a blue-gray color as a result of the Tyndall effect.¹ Intraoperatively, they are smooth, circumscribed and fixed to the tarsal plate.

Unlike chalazion that contains sebum and inflammatory materials, those cysts have the consistency of tofu residue like a milky fluid as described by Kim et al.² They are characterized by strand-like keratinous materials within the cyst and lined by stratified squamous epithelium with eosinophilic cuticle.^{1,7} Also, they lack the formed underlying stratum granulosum which is known for epidermoid cysts.⁸

Intratarsal keratinous cysts are thought to be secondary to the blockage of the tarsal meibomian ducts and subsequently squamous metaplasia is secondary to trauma or surgery as a suggested mechanism for the development of such a lesion.⁵ This mechanism was disputed by Jakobiec et al., as those ducts are squamous in nature and no evidence of metaplasia was detected.¹ Tang et al. supported the hypothesis that the origin of intratarsal keratinous cysts is from dilated ducts of the meibomian glands. They also showed that histochemical profile of intratarsal keratinous cysts is similar to that of the meibomian ducts.⁹

Most of the reported cases as well as our cases were managed by a complete excision of the cyst with the excision of the tarsus. It showed good responses with no recurrence in almost all of the cases. Either total or partial tarsectomy was done for the different reported cases, no difference noticed in regard to recurrence.^{1,2,10} Conjunctival approach was suggested to be a better way for a complete excision of the lesion and to avoid a cosmetic problem.⁴ However, transcutaneous compared to transconjunctival approach in reported cases did not show any recurrence or cosmetic problem.⁷ The use of an amniotic membrane patch graft after the excision of the conjunctival tarsus is an option to cover the defect.⁷ An injection of cortisone into the cyst alone didn't show a response in one case reported by Jordan et al.¹⁰

Epidermal inclusion cysts are slowly growing round, firm and freely movable unless they are fixed to the tarsus.⁵ Mandal et al., reported a case of giant epidermal inclusion cyst of the lid and orbit following an evisceration due to an ocular injury.¹¹ This supports that mechanical implantation of epidermal cells leads to the formation of epidermal cell within the tarsus. On the other hand, few cases were reported as a case of intratarsal epidermal inclusion cyst with no previous history of trauma, surgery or inflammation suggesting sequestration of epidermal rests during the embryonic development.^{12,13} Jakobiec et al. questioned the theory of congenital malformation as this lesion appeared at patient's eighth decade.¹

Structures in the very close proximity to the tarsal plate may be a source of tarsal-related cyst. Benign lacrimal duct cyst (Dacryops) most likely arising from accessory lacrimal gland adjacent to the tarsal plate has been reported. Associations with trauma, infection or conjunctival inflammation were proposed and, on the contrary, some reported cases were not.^{14,15} Complete cyst excision through conjunctival approach seems to be curative with no recurrence.

In conclusion, this study showed that cysts related to the tarsal plate could have similar presentations. Careful clinical evaluation, intraoperative findings and mandatory histopathological evaluation are the keys to the diagnosis of tarsal-related cyst which can provide the right therapeutic approach.

Conflict of interest

The authors declared that there is no conflict of interest.

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