CASE REPORT
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Trichoadenoma of the upper eyelid: case report and literature review

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ABSTRACT

BACKGROUND: Trichoadenoma of Nikolowski is a rare and benign tumor of the hair follicle. It was first described in 1958. The clinical appearance of trichoadenoma can be confused with basal cell carcinoma, and a differential diagnosis must be made with this entity and with other benign lesions such as epidermal cyst, seborrheic keratosis, actinic keratosis, and more exceptionally with comedo.

CASE PRESENTATION: We report a case of a 45-year-old woman with a pigmented lesion in the left eyelid mimicking comedo. Histopathology study showed lesions containing keratinous cysts surrounded by lymphocytic components in the dermis and hair shaft among the cystic keratin, which is unusual in these tumors. The lesions were diagnosed as trichoadenoma.

CONCLUSION: We suggest that all excised eyelid lesions be sent to histopathological study.

KEY WORDS: trichoadenoma; hair follicle tumor; adnexal tumor

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INTRODUCTION

Trichoadenoma is a rare benign tumor derived from the infundibular part of the pilosebaceous unit. Nikolowski [1] described the first case in 1958 as "organoid folicular hamartoma". Clinically, it appears as a solitary tumor. It involves adults without sex predilection [2] and is most commonly presented on the face (57.5%) and the buttocks (24.2%) and may involve eyelid, shoulder [2], lip [3], vulva [4], penis [5]. Only three cases reported are located on the eyelid, and the present case represents the fourth found in the eyelid reported in the literature.

The clinical appearance of trichoadenoma can be misleading and suggest a diagnosis of basal cell carcinoma, epidermal cyst, or seborrheic keratosis.

Histologically, it is characterized by numerous horny cysts lined with stratified squamous epithelium that resembles the external root lamia of the hair follicle.

The aim of this report is to review the literature and collect the cases reported to date about trichoadenoma and detail the clinical and histologic features of a trichoadenoma of the eyelid, a rare location of this lesion. Table 1 lists the published cases, ordered by year of publication, and the loca-

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Table 1. Summary of reported cases of trichoadenoma

	Author	Year	Age	Sex	Location	Clinical diagnosis
1	Nikolowski [1]	1958	63	M	Thigh	Sklerosierter nodulus cutaneus
2–9	Rahbari [11]	1978	41	M	Buttock	Cyst
			33	F	Buttock	Cyst
			38	F	Face (pretemporal)	Basal cell epithelioma
			67	F	Face (suborbital)	Basal cell epithelioma
			38	F	Face (jaw)	Basal cell epithelioma
			31	M	Face (nose)	Basal cell epithelioma
			46	F	Face (cheek)	Basal cell epithelioma
			59	M	Face (retroauricular)	Basal cell epithelioma
10–13	Nikolowski [12]	1978	24	F	Face (nasolabial)	Trichoepithelioma
			21	M	Face (nose)	Basal cell epithelioma
			24	F	Face (glabella)	Basal cell epithelioma
			64	M	Face (angle of the eye)	Millium
14	Garcia e Silva	1982	50	M	Face (preauricular)	Atheroma
15	Undeutsch	1984	26	M	Face (parietal)	Not stated
16	Kanitakis	1986	32	F	Buttock	Histiocytofibroma/dermatofibrosarcoma
17–18	Hey [13]	1987	66	M	Buttock	Atheroma
			63	M	Face (suborbital)	Not stated
19	Bonvalet	1988	38	F	Neck	Atheroma
20–21	Jaqueti [14]	1989	72	F	Face (suborbital)	Seborrheic keratosis
			82	F	Face (cheek)	Seborrheic keratosis
22	Yazaki	1978	72	M	Upper arm	Not stated
23	Shishiba	1984	19	M	Face (rorehead)	Dermatofibroma
24	Iwasaki	1984	58	M	Buttock	Not stated
25	Hirokawa	1987	25	F	Face (forehead)	Solitary trichoepithelioma
26	Yamaguchi	1992	41	M	Buttock	Atheroma
27	Sieron [3]	1993	74	F	Upper lip	Not stated
28	Banuls	1995	50	M	Buttock	Not stated
29	Pavithran [5]	1996		M	Penis	Not stated
30–36	Reibold [15]	1998	17	M	Face (forehead)	Basalioma
			69	F	Buttock	Cyst
			36	F	Back	Cyst
			33	F	Face (suborbital)	Cyst
			25	F	Face (forehead)	Nevus
			7	F	Cheek	Cyst
			45	M	Chin	Fibroma
37	Shields [6]	1998	80	F	Lower eyelid	Basal cell carcinoma
38	Yu	1998	61	F	Shoulder	Not stated
39	Kuwokawa [16]	2005	45	F	Check	Not stated
40	Gonzalez-Vela	2007	29	F	Face (forehead)	Melanocytic nevus
41	Lee W.S.	2007	5	M	Face (forehead)	Nevus sebaceous
42	Lee J.H.	2008	1	M	Nose	Not stated
43	Krishna	2008	28	M	Buttock	Fibroma

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Table 1. Summary of reported cases of trichoadenoma

	Author	Year	Age	Sex	Location	Clinical diagnosis
44–62	Shimanovich [2]	2010	37	M	Face	
			58	M	Face	
			57	M	Face	
			25	M	Face	
			59	M	Face	
			13	M	Face	
			44	M	Face	
			23	F	Face	
			19	M	Face	
			33	F	Buttock	
			37	M	Buttock	
			37	M	Buttock	
			67	M	Buttock	
			40	M	Thigh	
			30	F	Thigh	
			56	F	Thigh	
			60	F	Shoulder	
			46	M	Shoulder	
			41	M	Breast	
63	Matos	2011	76	F	External auditory canal	Not stated
64	Lever [7]	2012	63	M	Lower eyelid	Chalazion
65	Rashmi	2015	60	F	Vulva	Fibrosis lymphangioma circumscriptum
66	Arora	2013	28	F	Cheek	Lupus vulgar
67	Bombeccari	2015	44	M	Upper Lip	Not stated
68	Sangwaiya	2017	25	F	Vulva	Not stated
69	Cheng [8]	2019	54	M	Upper eyelid	Giant comedos
70	Pampena	2019	45	M	Eyebrow	Not stated
71–82	Huet [10]	2020		12 F 5 M	Buttock 4 Thigh 1 Forehead 2 Cheek 3 Ear 1 Unknown 1	Not stated
83	Mir-Bonafe	2020	60	F	Chin	Millia cyst

tion of the lesion and the previous clinical diagnosis are also presented.

CASE REPORT

A 45-year-old woman was referred to Ophthalmology Department for evaluation of a pigmented lesion on her left eyelid.

Four lesions in the inner third of the upper eyelid as a group of nodules stuffed with black material mimicking comedos (Fig. 1A) were founded on a slit-lamp exam.

The lesions were surgically removed under local anesthesia and sent for histopathological examination.

Histological exam revealed the existence of several cystic formations lined by squamous epithelium that resembled a follicular infundibulum. They were occupied by abundant keratotic material in which hair structures were recognized.

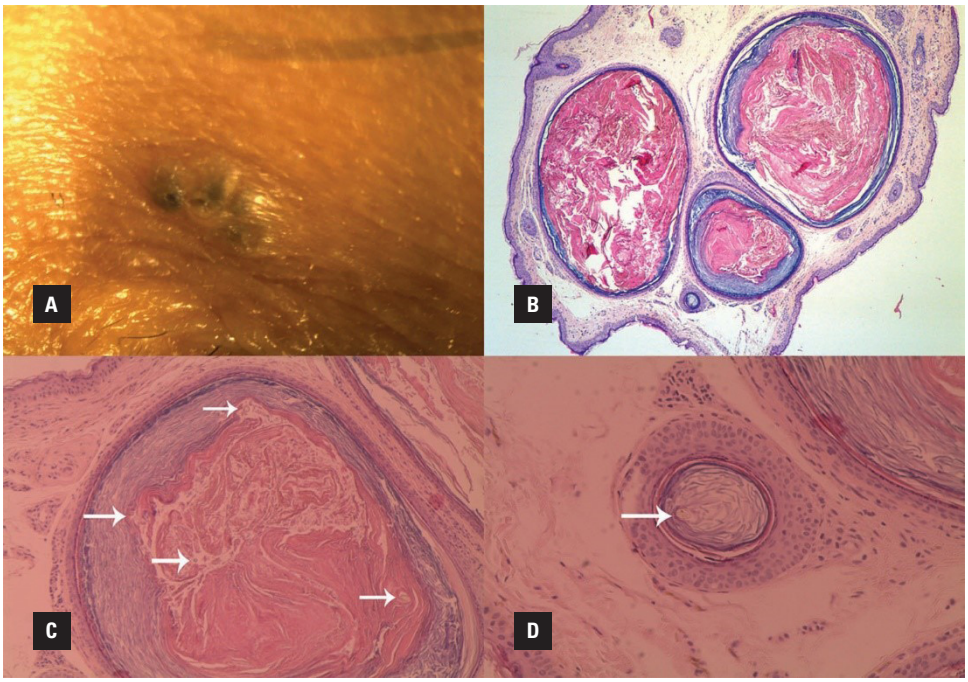

FIGURE 1. A. Multiple nodular comedo-mimicking lesions on upper eyelid. **B.** Keratin cysts surrounded by mature squamous cells (H&E, ×4). **C.** White arrows shows hair shafts among cystic keratin, an unusual finding in these tumors (H&E, ×10). **D.** White arrow showing detailed hair shaft (H&E, x15)

In some cysts, there were projections from the epithelium towards the periphery that resembled abortive follicular bulbs and was surrounded by a lymphocytic inflammatory cyst at the dermal level (Fig. 1B).

DISCUSSION

Trichoadenoma generally occurs as a solitary, nodular lesion that clinically resembles basal cell carcinoma, epidermal cysts, or seborrheic keratosis, and differential diagnosis of these lesions is needed. The lesions are usually isolated, asymptomatic, and slow-growing, with a size of less than 1.5 cm. The evolution of trichoadenoma is benign, and surgical excision is the preferred treatment.

This is the second reported case of comedo-like trichoadenoma on the upper eyelid to the best of the authors' knowledge. There are only three reports of trichoadenoma affecting the eyelids [6–8].

The lesion reported by Shields et al. [6] was suspected to be a basal cell carcinoma affecting the lower eyelid. The lesion published by Lever was thought to be a sebaceous cell carcinoma that involved the lower eyelid [7], and Cheng reported a case mimicking comedo affecting the upper eyelid [8], as in the reported case.

Microscopic examination is necessary to make the diagnosis of trichoadenoma. The tumor is composed of keratin-filled cysts surrounded by mature squamous cells similar to the follicular infundibulum. Stromal fibroblastic inductions are evident around these cysts, sometimes associated with solid outgrowths of epithelium. The differential diagnosis with other cystic cutaneous neoplasms is based on the absence of basaloid cells (cystic basal cell carcinoma, seborrheic keratosis, or trichoepithelioma) and the absence of stromal induction in the case of epidermal cysts [9]. Interestingly, in our case, several hair shafts were identified among the cystic keratin, which is unusual in these tumors (Fig. 1C–D).

Table 1 lists over 70 cases of trichoadenoma reported to date, and most of them are single cases. Shimanovich [2] in 2010 reported 19 cases, and Huet [10] in 2020 — 12 cases, and these are the largest case series. Another case series found in the literature was: Rahbari [11] in 1978 (8 cases), Nikolowski [12] in 1978 (4 cases), Hey [13] in 1987 (2 cases), Jaqueti [14] in 1989 (2 cases) and Reibold [15] in 1998 (7 cases). The histogenesis of trichoadenoma remains unclear. In terms of morphological differentiation, trichoadenoma is less mature than trichofolliculoma and more differentiated than trichoepithelioma. Trichoadenoma is

characterized by a prominent cyst formation and resembles some features of trichoepithelioma. Both lesions retain Merkel cells as an element of differential diagnosis [2] regarding basal cell carcinoma. Regarding follicular neoplasms, trichofolliculoma is characterized by numerous secondary hair follicles radiating from primary central dilated hair follicles and a well-organized fibrovascular stroma. Immunohistochemical studies have shown cytokeratin (CK) 20 positive in trichoadenoma and trichoepithelioma as a specific marker for epithelial neuroendocrine cells of Merkel. In 2005 [16], Kurokawa reported a case with the immunohistochemical study of cytokeratins and found that CK10 and CK15 were present in trichoadenoma. CK10 may be found in most horn cysts with keratohyalin granules and CK15 in the outermost cells in horn cysts and the basaloid epithelium, suggesting that trichoadenoma differentiates towards the follicular infundibulum and follicular hair bulge of the outer root sheath.

Trichoadenoma is an underdiagnosed tumor, mainly due to its resemblance to common periocular lesions such as actinic keratosis, seborrheic keratoses, or epidermal cysts. These lesions are not routinely sent to the histopathological exam. Most of the histopathologically diagnosed cases of trichoadenoma are due to clinical suspicion of basal cell carcinoma and its referral to histopathological analysis.

CONCLUSIONS

Despite the studies focused on the immunohistochemical analysis of the lesions, the histopathological diagnosis continues to be the one that provides the most cost-benefit balance. We suggest referring all excised periocular lesions for a correct histopathological diagnosis, even those suspected of macroscopically benign or common lesions.

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