An unusual case of multiple grouped non-familial trichoepitheliomas

Michelle Vy[1] MD, Mehrnaz Mehrzad[3] BA, Thomas Konia[1] MD, Barbara Burrall[1] MD

Affiliations: [1]Department of Dermatology, University of California Davis, Sacramento, California, USA, [2]Department of Pathology and Laboratory Medicine, University of California Davis, Sacramento, California, USA, [3]School of Medicine, University of California Davis, Sacramento, California, USA

Corresponding Author: Michelle Vy MD, 3301 C Street, Suite 1400, Sacramento, CA 95816, Tel: 916-734-6111, Email: m.vy008@gmail.com

Abstract

Trichoepitheliomas (TEs) are benign and rare adnexal hamartomas of the pilosebaceous units. Trichoepitheliomas could occur in the setting of an underlying genetic disorder with multiple TEs or as solitary non-hereditary TEs. We report a healthy 32-year-old woman with sporadic multiple clustered and non-segmental TEs without positive family history. There have been two other cases reported in the literature that had non-familial multiple TEs, one was facially disfiguring and the other was in a segmental pattern. Our case has been the only one reported in the English literature which has sporadic, multiple TEs clustered unilaterally and non-segmentally on the trunk.

Keywords: grouped, multiple, trichoepitheliomas

Introduction

Trichoepitheliomas (TEs) are benign hamartomas of the pilosebaceous unit [1]. Prevalence is unknown but the tumors typically appear in early childhood or puberty. Lesions may increase in size and number but remain asymptomatic most of the time [2]. Multiple trichoepitheliomas typically present as skin-colored-to-pink, firm, papulonodules, which are mostly on the face and occasionally on the scalp, neck, or upper trunk [3]. Although rare, malignant transformation of trichoepitheliomas to trichoblastic carcinoma or basal cell carcinoma can occur [4]. Multiple trichoepitheliomas are often inherited as an autosomal dominant fashion. [3]. We report a healthy 32-year-old woman with a sporadic case of multiple trichoepitheliomas on the trunk. Extensive literature review did not reveal any non-familial cases of non-segmental, but clustered, multiple trichoepitheliomas.

Case Synopsis

A 32-year-old woman presented with asymptomatic multiple small skin-colored raised papules on her right upper back for about 15 years (**Figure 1**). The lesions had been stable since first noticed and had not grown in size or number. She had no significant past medical history and surgical history revealed a nephrectomy a year prior (as a kidney donor). She is otherwise healthy. On examination, she exhibited

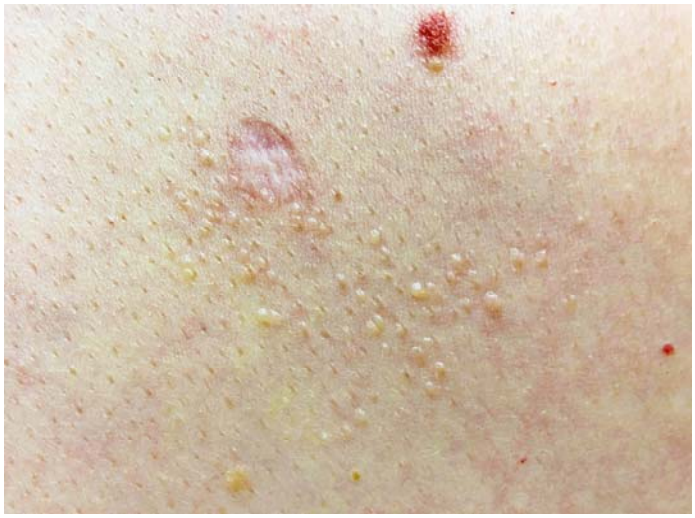

Figure 1. *Close-up view of the patient showing similar skin-colored raised papules on the right upper back, with a scar from the biopsy site at the superior pole. At one o'clock, there is a red lesion which is consistent with an angioma.*

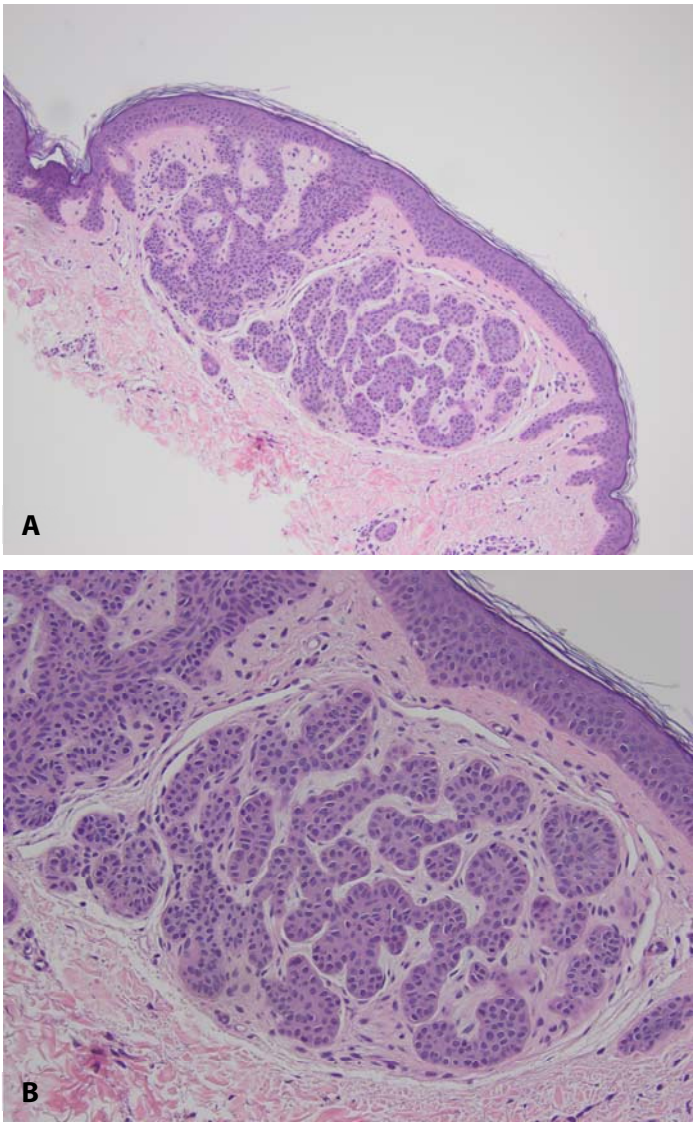

Figure 2. *H&E histopathology.* ***A)*** *Section of skin biopsy on low power showed palisading basaloid tumor islands in surrounding fibrous stroma, 100×.* ***B)*** *On high-power, section of skin biopsy showed basaloid tumor islands, that lack atypia, mitoses, and surrounding artifactual retraction, 200×.*

multiple discrete grouped, shiny skin-colored papules clustered on the right upper paraspinal back. The rest of her skin was not affected. Her parents and siblings did not have any similar lesions.

Skin biopsy was performed which revealed germinative epithelial buds emanating from the undersurface of the epidermis, surrounded by a fibrocellular structure (**Figure 2**). Deeper sections were examined and periodic acid-Schiff-diastase (PASD) stain was negative for any pathogens. Together with the clinical and histologic findings, the diagnosis of grouped, unilateral trichoepitheliomas was made. These lesions were isolated and asymptomatic. Reassurance was provided and no further treatments required.

Case Discussion

Trichoepitheliomas are benign hamartomas of the pilosebaceous unit and often appear in childhood or early adolescence [1]. It is uncommon for trichoepitheliomas to be multiple or grouped; the prevalence is unknown. However, one dermatopathology laboratory in the U.S. approximates 2.14-2.75 cases of TE in 9000 specimens per year [1].

The tumor may arise sporadically or in the setting of an underlying genetic disorder, such as multiple familial trichoepithelioma (MFT). Multiple familial trichoepithelioma is an autosomal dominant inherited genodermatosis associated with mutations on chromosome 9p21 or *cylindromatosis tumor suppressor* gene (*CYLD*), located on chromosome 16q12-113 [2]. In our case, there was no family history of trichoepitheliomas.

Trichoepitheliomas can be divided into three subgroups including MFT, solitary non-hereditary trichoepithelioma, and desmoplastic TE [1]. Multiple familial trichoepitheliomas can be seen in Brooke-Spiegler syndrome, in which there are a combination of inherited adnexal neoplasms including multiple trichoepitheliomas, cylindromas, and spiradenomas [1]. Additionally, MFT can also be seen in other syndromes such as Rombo syndrome (vermicular atrophoderma, milia, trichoepithelioma, hypotrichosis, basal cell carcinomas, and hypohydrosis) and Bazex syndrome (follicular atrophoderma, trichoepithelioma, hypotrichosis, basal cell carcinomas, and hypohydrosis), [1]. The differential diagnosis includes basal cell carcinoma, cylindroma, syringoma, milium, eccrine poroma, eccrine nevus, comedonal nevus, trichoblastoma, and other appendeceal tumors.

Histopathology typically shows palisading basaloid tumor islands in surrounding fibrous stroma. The tumor islands lack atypia, mitoses, and surrounding artifactual retraction (clefting), that would be seen in basal cell carcinomas.

Table 1. *Comparison of features of the reported patient with the two non-familial multiple trichoepithelioma cases in the literature.*

Age	Sex	Race	Location	Description of lesions	Subtype of Trichoepithelioma	Number of biopsies	Treatment
32	Female	Caucasian	Trunk	Multiple, clustered, unilateral and non-segmental papules	Non familial sporadic trichoepitheliomas	1	None
50	Female	Unknown	Face [3]	Multiple, discrete papules and nodules of varying sizes [3]	Non familial sporadic trichoepitheliomas [3]	2	None
24	Female	Caucasian	Shoulder [6]	Multiple, segmental papules [6]	Type 1 somatic mosaicism of multiple familial trichoepitheliomas [6]	1	Unknown

Multiple trichoepitheliomas are rare, and the diagnosis is usually made with clinicopathologic correlation along with family history, and if needed, genetic studies. Our case is unique in that our patient exhibited a non-familial, sporadic form, that was clustered solely on the trunk. The limitation to note is that only one biopsy was performed from the cluster of lesions. Thus, speculating that all the other lesions in the cluster were also trichoepitheliomas, then this is the third case of non-familial multiple trichoepitheliomas in the literature. Literature review indicated two other cases that had non-familial multiple trichoepitheliomas (**Table 1**). One showed extensive and disfiguring trichoepitheliomas on the face [3]; another showed multiple trichoepitheliomas that presented segmentally, following a line of Blaschko on the right shoulder [6]. Parren et al. theorized that this latter case was a form of segmental multiple trichoepitheliomas and suggestive of a Type 1 somatic mosaicism of multiple familial trichoepithelioma [6]. Their genetics study showed no *CYLD* mutations in peripheral blood or affected tissue. They theorized that this presentation could be a heterozygous de novo postzygotic somatic mutation causing segmental presentation of disease without the germ line mutation [7].

Conclusion

The uniqueness of our case indicates that multiple trichoepitheliomas may occur as a sporadic disorder, clustered unilaterally and non-segmentally on the trunk. After extensive review in the English literature, no similar case has been reported to the best of our knowledge.

Potential conflicts of interest

The authors declare no conflicts of interest.

References

1. Karimzadeh I, Namazi MR, Karimzadeh A. Trichoepithelioma: A comprehensive review. *Acta Dermatovenerol Croat.* 2018;26:162-165. [PMID: 29989874].
2. Miotto IZ, Romiti R. Nonfamilial multiple trichoepithelioma. *JAMA Dermatol.* 2019;155:1070. [PMID: 31290950].
3. Sehrawat M, Jairath V, Jain VK. Nonfamilial multiple trichoepithelioma: Few and far between. *Indian J Dermatol.* 2016;61:78-80. [PMID: 26955100].
4. Lee KH, Kim JE, Cho BK, Kim YC, Park CJ. Malignant transformation of multiple familial trichoepithelioma: Case report and literature review. *Acta Derm Venereol.* 2008;88:43-6. [PMID: 18176750].
5. Yamamoto N, Gonda K. Multiple trichoepithelioma with basal cell carcinoma. *Ann Plast Surg.* 1999;43:221-2. [PMID: 10454338].
6. Parren LJ, Munte K, Winnepenninckx V, et al. Clustered unilateral trichoepitheliomas indicate Type one segmental manifestation of multiple familial trichoepithelioma. *Clin Exp Dermatol.* 2016;41:682-4. Epub 2016. [PMID: 27339671].
7. Happle R. A rule concerning the segmental manifestation of autosomal dominant skin disorders. Review of clinical examples providing evidence for dichotomous types of severity. *Arch Dermatol.* 1997;133:1505-9. [PMID: 9420534].