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Subepidermal calcified nodule presenting as a cutaneous horn: two cases and a review of the literature

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Abstract

Subepidermal calcified nodules are an uncommon subtype of idiopathic calcinosis cutis. Morphologically, this entity typically present as a single, well-circumscribed, white-yellow nodule. Based on clinical appearance alone, subepidermal calcified nodules are frequently misdiagnosed and often requires histological confirmation. We describe two cases of subepidermal calcified nodules presenting atypically as cutaneous horns. Subepidermal calcified nodules presenting as a cutaneous horn has rarely been reported; on review, there are fewer than 10 such cases have been described within the past 30 years. The cases described here illustrate the clinical variety and should increase awareness of subepidermal calcified nodules presented.

Keywords: calcified nodule, calcinosis cutis, pediatric dermatology, SCN

Introduction

Subepidermal calcified nodule (SCN) is a rare form of calcinosis cutis which presents in the absence of systemic abnormalities. Children are most commonly affected, with a 2:1 male to female predominance. Lesions often favor the head or neck region [1]. Although typically painless, the nodules may be brought to a dermatologist's attention after unsuccessful therapies by other providers. Subepidermal calcified nodule usually presents as a single, well-circumscribed, white-yellow nodule. Rarely they can appear as multiple lesions. Herein, we describe two cases of SCN presenting as exuberant cutaneous horns.

Case Synopsis

The first patient, a five-year-old boy, presented with a verrucous horn approximately one centimeter in length emanating from his earlobe (**Figure 1A**). The second patient, a seven-year-old boy, had a verrucous papule on the posterior aspect of the earlobe (**Figure 2A**). Dermoscopy demonstrated a keratotic verrucous papule with no specific features (**Figure 2B**). Both lesions were asymptomatic and neither patient had any additional remarkable findings on examination. The growths were clinically suspected to be verrucae and were removed with shave excision. Histopathology of both lesions demonstrated verrucous papules with calcium deposits (**Figure 1B**, **2C**).

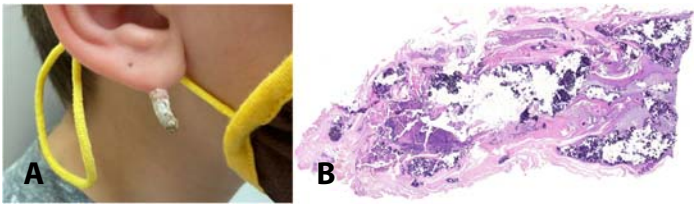

Figure 1. *Patient 1.* ***A)*** *Cutaneous horn emanating from the right earlobe.* ***B)*** *H&E histopathology demonstrating a verrucous papule with calcium deposits. H&E, 40×.*

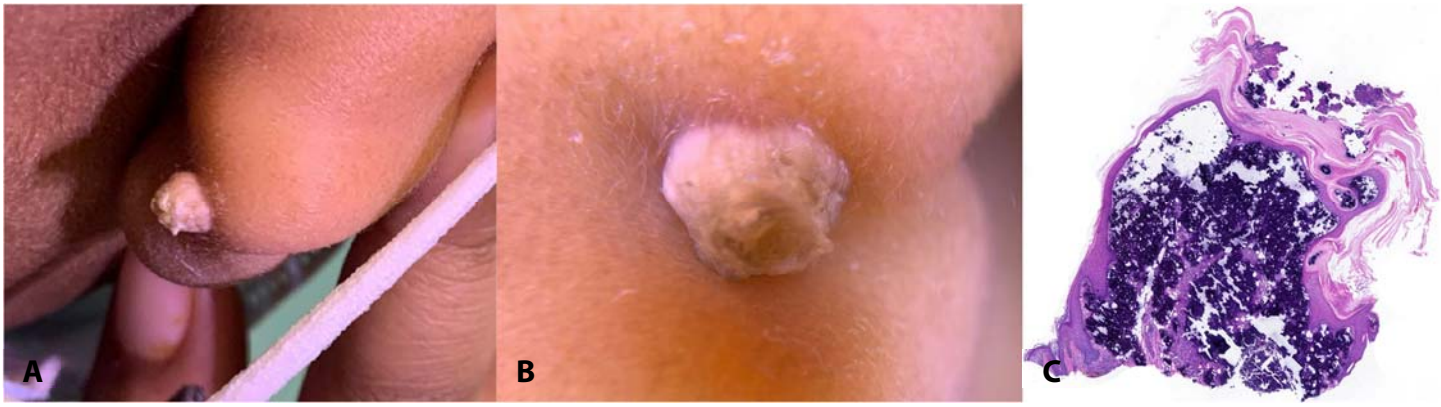

Figure 2. *Patient 2. **A)** Verrucous papule on the posterior aspect of the right ear. **B)** Dermoscopy demonstrating a keratotic lesion without prominent vessels. **C)** H&E histopathology demonstrating verrucous papule with calcium deposits, 40×.*

Case Discussion

Subepidermal calcified nodule is a relatively uncommon condition and often requires histological confirmation. Based on clinical appearance, SCN is frequently misdiagnosed as a verruca or molluscum contagiosum. Subepidermal calcified nodule presenting as a cutaneous horn has only rarely been reported in the literature [2]. In the largest series of SCN, only five of 109 reviewed cases mentioned cutaneous horn in the differential diagnosis [1]. Four cases of SCN originally diagnosed as a cutaneous horn in children are shown in **Table 1** [3-6]. In adult populations, cutaneous horns raise the suspicion of non-melanoma skin cancer, whereas verrucae, cysts, and molluscum contagiosum are the main entities in the differential diagnosis in children. Pyogenic granulomas, epidermal nevi, pilomatrixomas, and xanthogranulomas have been reported to occasionally present as cutaneous horns [7,8].

The histopathology of SCN demonstrates epidermal acanthosis, focal parakeratosis, and amorphous calcified deposits of varying sizes within the papillary dermis. Because SCN are benign without any underlying systemic or metabolic disorder, a work-

Table 1. *Four cases of subepidermal calcified nodules presenting as a cutaneous horn in children.*

Age	Gender	Location	Size	Pathology	Treatment	Follow Up	Reference
14	M	Left lower eyelid	10mm× 3mm	Calcium deposits in the dermis and epidermis – "globules, fragments and granules of intensely basophilic amorphous material measuring 5 to 50 microns in diameter"	Excision	No recurrence	[3]
13	F	Left upper eyelid	4mm	Basophilic amorphous and globular deposits are present beneath the acanthotic and papillomatous epidermis	Excision	No recurrence	[4]
11	M	Left medial canthus	3mm	Parakeratosis, epidermal acanthosis, and an area of granular basophilic deposits of calcium in the papillary dermis.	Saucerization biopsy followed by electrodessication	No recurrence	[5]
13	M	Left upper eyelid	3.5mm× 4mm×4 mm	The dermis was almost completely replaced by dense accumulations of calcium in both a finely granular form and in larger fragmented shards. The calcium deposits were strongly positive when subjected to alizarin red and von Kossa staining	--	--	[6]

up for underlying conditions is not required. The etiology of these lesions remains unclear. Some have suggested a post-viral or traumatic origin; sweat glands may also provide a nidus for calcification [1,9]. There is also little evidence to support a clear reason for the predominance seen in males and the pediatric population.

Subepidermal calcified nodules can be bothersome if in a visible location, particularly on the face. These can be recalcitrant to topical and intralesional injections; however, excision usually leads to resolution [10]. Recently, Howard and Smith (2020) reported success in treating calcinosis cutis with topical or intradermal sodium thiosulfate [10]. Sodium thiosulfate is believed to contribute to the dissolution of the calcium deposits within the nodules, but the precise mechanism is still unknown. In their study, 100% of lesions less than 0.2cm responded to topical therapy and 100% of lesions smaller than 2.0cm responded to intradermal injections. Further, a recent review of topical sodium thiosulfate treatment for calcinosis cutis found that 78% of patients had a partial or complete response to treatment, with only one patient (out of 45) reporting localized pain at the application site [11]. In the cases reported here, both nodules resolved with excision and did not recur in the subsequent four months of follow up.

Conclusion

Subepidermal calcified nodules are an uncommon condition which may rarely present as a cutaneous horn in a small subset of patients. Histological confirmation is often required for accurate diagnosis. Surgical excision can be curative. However, topical or intralesional sodium thiosulfate injections may also be used, depending on patient preference and nodule size.

Potential conflicts of interest

The authors declare no conflicts of interest.

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