A 10-year-old girl presented to the dermatology department with a solitary keratotic papule on the superior aspect of the helix of her right ear. The lesion had been present for approximately 4 years, initially manifesting as a small papule that subsequently grew in size for approximately 1 year before ultimately becoming static in size for the past 3 years. It had occasionally been tender but was otherwise asymptomatic. There was no history of discharge or bleeding. Her personal and family history were unremarkable and she was not taking any regular oral medication.

On examination, she had a solitary, well-circumscribed keratotic papule on the right helix, measuring 10 mm × 4 mm across its widest margins. The lesion was firm and slightly tender on gentle palpation (Figs. 1 and 2).

Results of histopathologic examination are shown in Fig. 3 and 4.

What is the diagnosis?
Diagnosis: Subepidermal calcified nodule

Investigations and Treatment

Blood tests including corrected calcium phosphate, parathyroid hormone, and vitamin D were normal. Shave excision, gentle curettage, and cautery were performed under local anaesthetic, with a good cosmetic outcome.

Histology showed irregular acanthosis and hyperkeratosis. Within the superficial dermis, a large area of basophilic granular material was evident with palisaded granulomatous inflammation. In the adjacent tissue, further discrete foci of calcification were observed. No identifiable preexisting lesion was discernible. The appearances were consistent with calcinosis cutis. Figure 3 shows multiple refractile basophilic calcified deposits in the dermis associated with a mild chronic inflammatory cell infiltrate (shown at higher magnification in Fig. 4). The calcium deposits stained black with von Kossa stain (Fig. 5) because of the concomitant presence of phosphate and carbonate.

Differential Diagnosis and Discussion

Subepidermal calcified nodule (SCN) is an uncommon form of idiopathic calcinosis cutis. It typically presents as a solitary asymptomatic white-yellowish papule, most commonly on the face and ears of children (1). Multiple lesions have been reported, but this is less common. It can also be present at birth (1,2) and is extremely rare in adults. In the 21 cases of SCN documented by Evans et al (3), patient ages ranged from 1 to 17 years, with a mean age of 8.4 years. The most common sites were the head and neck, more specifically the ears and face. Evans et al believe that SCN is the result of dystrophic calcification after dermal damage of an unknown cause. The exact pathogenesis of SCN is unclear. In our patient, the differential diagnosis considered was a viral wart. Other differential diagnoses, depending on the appearance of the lesion, include xanthelasma, milia, molluscum contagiosum, pilomatrixoma, congenital inclusion cyst, and sebaceous cyst (4).

Cadinosis cutis encompasses a group of disorders characterized by the deposition of calcium in the skin. Apart from the idiopathic form of calcinosis cutis described above, the other subtypes are metastatic, dystrophic, and iatrogenic. The dystrophic type is the most common type and manifests secondary to localized tissue damage or alterations in collagen, elastin, or subcutaneous fat in the context of normal serum phosphate and calcium (5). Metastatic calcinosis cutis occurs in the context of high serum calcium and phosphate levels secondary to systemic diseases. The idiopathic type occurs in normal tissue and iatrogenic calcinosis cutis results from medical administration of calcium-containing products.

Surgical excision is usually the treatment of choice (6). Recurrence after excision is uncommon, but has been reported in a 6-year-old with SCN of the nose that recurred 1 month after initial treatment with curettage (7). Other treatments include electrodesiccation and carbon dioxide laser ablation (4).

The clinical diagnosis of SCN can be difficult to make and requires clinicopathologic correlation, with characteristic basophilic masses and granules in the upper dermis. In a series of 21 patients with confirmed SCN histologically, no case was correctly identified clinically (3). This diagnosis should be considered in children presenting with a solitary mass, especially when present at the typical sites described above.

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