Subepidermal Calcified Nodule of the Buttock

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Subepidermal calcified nodule, a form of idiopathic calcinosis cutis, typically present as a hard, 3 to 11 mm, solitary lesion on the exposed area of the head and the extremities. Here we report an unusual case of subepidermal calcified nodule occurring on the buttock. A 15-year-old girl presented with a 6-month history of a 12×6 mm, oval, hard, erythematous nodule on the right buttock. Histopathologic examination of an excision biopsy specimen revealed extensive deposition of calcium in the whole dermis as large multilobulated masses.

Keywords: Subepidermal calcified nodule, Buttock

Subepidermal calcified nodule (SCN) is a distinctive form of idiopathic calcinosis cutis which was first recognized by Winer1 in 1952 and named by Woods and Kellaway2 in 1963. The lesions present as solitary or multiple, hard, verrucous, dome-shaped papules or nodules that may appear white or yellowish white. Histologically, the calcified deposits are characteristically found in the upper dermis, usually immediately beneath the epidermis, which separates this entity from other forms of calcinosis cutis. In Korean literature, there have been four case reports of SCN3-6. Although it is most frequently reported on the head and the extremities of children, it can rarely occur on other parts of the body.7-9

Here we report an unusual case of SCN occurring on the right buttock, which histologically showed extensive deposition of calcium in the lower dermis as well as in the upper dermis as large multilobulated masses.

CASE REPORT

A 15-year-old girl presented with an asymptomatic erythematous nodule on the right buttock, which had been present for 6 months. There was no history of previous trauma at the site of the lesion. Examination revealed an 12×6 mm, oval, hard, erythematous nodule on the right buttock (Fig. 1). The center of the lesion was chalky and protruding from the underlying nodule. No other cutaneous abnormalities were observed. Her past history and medical history were not contributory.

Histopathologic examination of an excision biopsy specimen revealed extensive deposition of amorphous basophilic material in the whole dermis as large multilobulated masses (Fig. 2). The material was confirmed as calcium by staining with von Kossa. Laboratory findings including serum calcium and phosphorus were within normal limits.

During 6 months of follow-up, there was no recurrence.

DISCUSSION

Calcinosiis cutis, calcium salt deposition in the skin, is commonly classified as metastatic, dystrophic, or idiopathic. Idiopathic calcification occurs without evidence of tissue abnormality or aberrant calcium and/or phosphate metabolism. SCN is
one specific type of idiopathic calcinosis cutis that is relatively uncommon, and describes the location of the calcium deposit and separates it from other forms of calcinosis cutis. It is more common in early childhood and may be congenital or acquired. The incidence among male and female children is approximately equal.

Clinically, the lesions appear as dome-shaped, firm to hard, whitish, flesh-colored or erythematous papules or nodules, ranging from 3 to 11 mm in size, with smooth or verrucous surface. Although usually solitary, occasionally more than one nodule is present; less frequently, the lesions are numerous. The most common location of SCN is the face or the extremities. In our case the lesion developed on the buttock, an unusual location. In our review of previous reported cases, there has been only one case of SCN occurring on the buttock.

Histologically, the calcium is deposited either as large, amorphous deposits or small globules of calcium or as a mixture of both. The calcified material is characteristically located in the upper dermis, usually immediately beneath the epidermis. Macrophages and foreign body giant cells may be arranged around the calcium deposits. The epidermis is often hypertrophic. Calcium granules may be observed within the epidermis, indicative of transepidermal elimination. In this case, the histopathologic examination showed extensive calcium deposits in the deep dermis as well as in the superficial dermis. Neither foreign body reaction nor transepidermal elimination was seen.

SCN is not usually diagnosed easily and most often mistaken for verruca, molluscum contagiosum, pilomatrixoma, epidermal cyst, sebaceous cyst, or xanthoma. Our case was initially misdiagnosed as a pilomatrixoma or an epidermal cyst, but the histologic findings were not consistent with any of them. Moreover, because of the large size and the deep dermal calcium deposits in our case, tumoral calcinosis was also considered. However, tumoral calcinosis is a familial metabolic disease in which serum phosphorus levels are usually elevated and subcutaneous masses of calcium are found. Our patient had no familial history of tumoral calcinosis, a normal serum phosphorus level, and no other evidence of subcutaneous calcium deposits on the physical and pathologic examination.

The pathogenesis of SCN is uncertain, but several theories have been described. It is not likely that they originate from specific pre-existing structure, such as sweat ducts or nevus cells, as has been assumed. Tezuka suggested the initial event in the formation of SCN was the degranulation of mast cells followed by secondary deposition of calcium and phosphorus. Recently, Evans et al. reviewed 21 childhood patients with SCN and suggested that it represents dystrophic calcification following dermal damage, from unknown cause.
The majority of their cases had architectural features suggestive of verruca vulgaris, which may be a primary or a secondary phenomenon. In this case, there was no evidence of pre-existing dermatoses or trauma. Thus, we think our case is idiopathic rather than dystrophic. Effective removal of SCN usually consists of curettage or simple excision. Recurrence after these treatment modalities has not been reported. Also, in our patient, simple excision was performed, and after 6 months of follow-up, there was no recurrence.

In summary, our case is an unusual form of SCN occurring on the right buttock, which has not been reported in Korean literature. Histologically, it revealed extensive calcium deposits in the whole dermis, which has been rarely seen in the classical form of SCN.

REFERENCES