Subepidermal Calcified Nodule

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Subepidermal calcified nodule (SCN) is a form of calcinosis cutis which is usually present as
a single small, raised, hard nodule with verrucous surface.

A 13-year-old girl presented with a 10-month history of a ricegrain-sized, hard, yellowish
white papule on both upper eyelids. The lesions were asymptomatic and had increased slowly
in size. An excisional biopsy specimen of the left upper eyelid showed acanthosis and narrow
pointed rete ridges of the epidermis, and closely aggregated deposition of basophilic material in
the uppermost dermis. The material in the dermis did not stain with von Kossa. It was confirmed
as calcium deposition by staining with alizarin red S which is far more specific for calcium than

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Subepidermal calcified nodule (SCN) is a form of calcinosis cutis which is not associated with
biochemical abnormalities, other dermatologic disorders, or with systemic illness and recognized
as a definite entity with a characteristic histopathology.1,2 It usually presents as a single small,
raised, hard nodule with verrucous surface and histologically there is extensive deposition of calcium in
the dermis which stains with PAS, von Kossa and alizarin red S.3,4 We present herein an unusual case in
which clinical and histopathological features were characteristic and the calcific nature of the material in the dermis was confirmed by staining with alizarin red S and not with von Kossa.

REPORT OF A CASE

A 13-year-old girl visited our Department because of a rice-grain-sized, hard, yellowish white
papule on each of upper eyelids for 10 months(Fig. 1). An asymptomatic firm yellowish white papule
developed on the medial side of the left upper eyelid 10 months ago, and then a similar lesion developed
on the right upper eyelid 7 months later. Both lesions had increased slowly in size.

Past history was not contributory. She did not have any other dermatologic disorders or systemic ill-
ness and there was no history of injury to the eyelids. Family history was also not contributory. Physical ex-
amination was unremarkable except the skin lesion

The findings of laboratory evaluation including complete blood count, urinalysis, stool examination,
VDRL, liver function test, serum lipid profile, serum calcium and phosphorus, alkaline phos-
phatase, creatinine and blood urea nitrogen were all within normal limits.

An excisional biopsy specimen of the lesion on the left upper eyelid showed hyperkeratosis, marked ir-
regular acanthosis and narrow pointed rete ridges in the epidermis and closely aggregated deposition of
basophilic material in the uppermost dermis(Fig. 2). The material in the dermis was PAS-positive but did not stain with von Kossa. The same results were obtained in other university laboratories. It
was confirmed as calcium by staining with alizarin red S at pH 4.2(Fig. 3).

The papule of the left upper eyelid was treated

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This case was presented at the 47th Annual Meeting of the Korean Dermatological Association on October 14, 1995.
Fig. 3. Reddish orange deposition in the uppermost dermis confirmed as calcium (Alizarin red S stain at pH 4.2, ×100).

with excisional biopsy and the other was treated with CO₂ laser. During 15 months of follow-up, there was no recurrence.

**DISCUSSION**

There are several varieties of calcium deposition in skin. Calcinosus cutis is classified by Lever and Schaumburg-Lever into metastatic calcinosis which develops as the result of hypercalcemia or hyperphosphatemia; dystrophic calcinosis in which the calcium is deposited in previously damaged tissue; idiopathic calcinosis which shows no underlying disease; and subepidermal calcified nodule

Although subepidermal calcified nodule was described as cutaneous calculi in 1877 by Duhring, it was not defined as an entity until Winer classified it as a special form of calcinosus circumscripita in 1952, and named by Woods and Kellaway in 1963.

The lesion is usually a single small, raised, hard nodule, but there may be multiple nodules. Most of the nodules are white or white-yellow, and the surfaces of them are verrucous or mammillated. It tends to involve the exposed skin, most often occurring on the face. Most patients are children, and it is not associated with biochemical abnormalities, other dermatologic disorders, or with systemic illness.

Pathogenesis of the disease is still unexplained. Origins that have been suggested for the lesion include the following: hamartoma of sweat duct origin, calcification secondary to traumatic fat cell necrosis, nests of calcified nevus cells.

Histopathologically, the calcified material in the uppermost dermis is characteristic. In large nodules, it may extend into the deep layers of the dermis but never into the subcutaneous tissue. The calcium is present as granules, globules or large masses, which occasionally contain well-preserved nuclei. Macrophages and foreign-body giant cells may be seen around the large homogeneous masses. Calcium granules may be seen within the epidermis, indicative of transepidermal elimination. The epidermis is verrucous and often thickened, with acanthosis, hyperkeratosis and sometimes considerable patchy parakeratosis. Deep keratin-filled pits and narrow pointed rete ridges commonly extend far into the nodule.

The staining properties of the calcified material vary considerably and may depend on the treat-
We report the case because it is thought to be rare and any case of subepidermal calcified nodule that was von Kossa-negative, to our knowledge, has not yet been described in Korea.

REFERENCES