Subungual Fibro-osseous Pseudotumor

Sir,

We here describe a patient with fibro-osseous pseudotumor of digits in the subungual area and review the literature. The clinical and histopathologic features of this entity should be familiar to clinicians for avoidance of misdiagnosis.

CASE REPORT

A 10-year-old boy complained of subungual mass in the right big toe for approximately 4 months. It had developed insidiously and steadily enlarged without subjective symptoms. There was no history of trauma on the affected part. Past medical history and family history were non-contributory.

On examination the patient had a non-tender, firm, non-movable subungual nodule, about 1.5 × 1.3 cm-sized, with a moderately hyperkeratotic cap in the right big toe (Fig. 1). Routine laboratory findings such as complete blood count, liver function test, calcium, phosphorus and urinalysis, were within normal limits or negative. A radiogram of the right foot revealed a calcified mass, about 1 cm, in the soft tissue just adjacent to the medial aspect of distal phalanx of the right big toe (Fig. 2). Magnetic resonance imaging showed a benign-looking mass with calcification at the distal phalanx of the right big toe (Fig. 3).

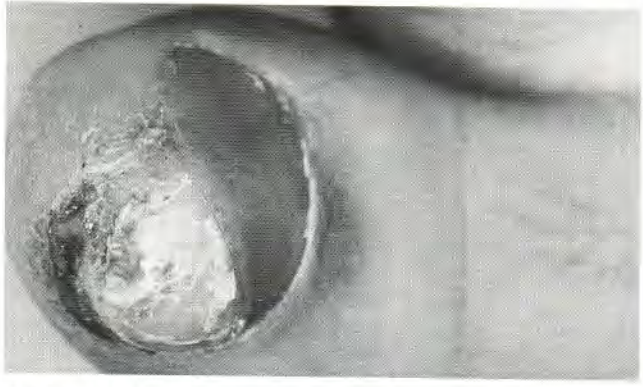

Fig. 1. Clinical appearance of the right big toe.

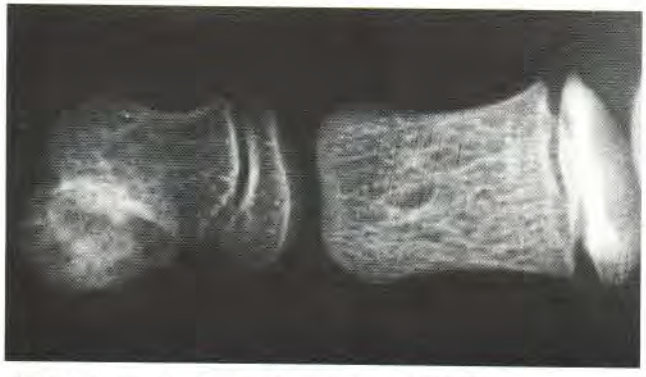

Fig. 2. Radiograph showing the soft tissue calcified mass.

A punch biopsy was performed. Histopathological examination showed bone and cartilage components in the dermis. In the peripheral area of the lesion bony components were found, and more centrally there were immature cartilaginous structures (Fig. 4). Two months after biopsy, the mass was totally excised under local anesthesia. Microscopically, the lesion was composed of well-differentiated bone trabeculae without evidence of fibrous proliferation. The woven bone was rimmed with osteoblasts. The osteoblasts were not atypical. It had hypocellular stroma and many dilated, so-called injury-type capillaries (Fig. 5). Atypical mitotic figures were not present. The lesion has not recurred in 9 months of follow-up.

DISCUSSION

Fibro-osseous pseudotumor of digits is a rare, benign, extraskeletal bone forming lesion and usually occurs in the small bones of the hands (1). This lesion has been described under a variety of terms, including localized myositis ossificans (2), parosteal fasciitis (3) and florid reactive periostitis of the tubular bones of the hands and feet (4–6). More recently periostitis ossificans of hands and feet was also proposed (7).

Fibro-osseous pseudotumor of the digits occurs mainly in young people, in the early 30s. The lesion is usually asymptomatic but pain and erythema may be present. The constant clinical finding is an enlarging soft-tissue mass of digits. The

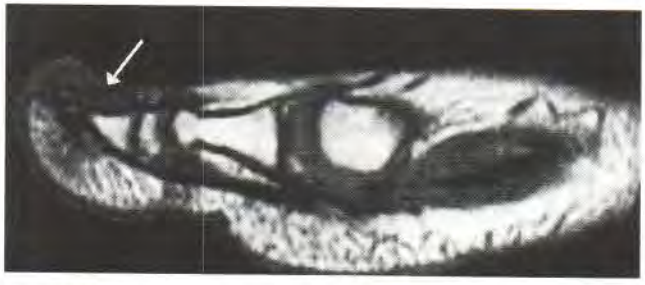

Fig. 3. MRI shows well demarcated tumour mass (*arrow*), with calcification at the upper portion of the distal big toe.

Fig. 4. Punch biopsy specimen from mass. The mass is composed of osseous components in the outer area and cartilaginous components in the inner area (H&E, ×40).

duration of symptoms ranges from 2 weeks to 2 years (1, 7). The lesion has involved the hands in the vast majority of cases reported so far. It commonly appears in the proximal phalanx, followed by the distal and middle phalanx (1). The toe is an unfrequent involvement site, with only 3 cases described (8). Moreover, the subungual location of the lesion in our case is highly unusual.

The etiology of this lesion is still unclear. This lesion is closely related to myositis ossificans and may be considered its superficial variant (1). Close to 40% of patients recall a specific incidence of trauma to the affected part (7). Our patient revealed the histologic sign of maturation that the central cartilaginous component had changed into bony structure. This finding is comparable to the benign zoning phenomenon seen in myositis ossificans and supports a reactive process, not truly tumorous conditions (9). Chan et al. (8) also suggested that it was a reactive fibroblast proliferation, the osseous component of which represents a metaplastic process.

The main radiologic feature is a juxtacortical, ossifying mass in the soft tissue; none of the lesions take origin from cortical bone (7). Some cases may show focal periosteal thickening (1). Histologically, the lesions show varying quantities of osteoid, bone, cartilage, and proliferating fibrous tissue (1). The entire lesion can be osseous and lacking in a fibroblastic component, like our case (7). The lesion may be falsely interpreted as being neoplastic. Because of this, it is necessary to correlate the clinical and radiological findings with the histopathologic examination.

Differential diagnosis includes subungual osteochondroma, exostosis, enchondroma, chondroma of soft parts and extraskeletal osteosarcoma. All of these conditions may produce pain. Subungual osteochondroma has male predominance and shows relatively slow growth. Osteochondroma shows well-defined sessile bone growth, which arises from the juxtaepiphyseal area of the bone. Pathologic examination may show trabecular bone topped with a hyaline cartilaginous cap (10). Exostosis is most often found in females. Radiologically exostosis shows trabeculated osseous growth with expanded distal portion from the underlying cortical bone. Histopathologically, the cartilage cap of subungual exostosis is composed of fibrocartilage rather than hyaline cartilage (11). Enchondroma is a tumor composed of cartilage that arises in the medullary cavity of the tubular bone. Radiogram shows a loculated radiolucent defect of the distal phalanx, with expansion of the bone (12). Chondroma of soft parts is composed chiefly of hyaline cartilage, with partial calcification or fibrosis. Radiologic examination reveals a mass in the soft tissue, with foci of calcification without protrusion or bulging of the underlying bone (13). Extraskeletal osteosarcoma is rarely encountered in patients younger than 35 years of age and rarely develops in the digits (1, 7).

Although the probability of local recurrence due to inadequate excision has been reported, it is estimated as small (4), and local excision has been shown to be a curative and proper treatment modality (1).

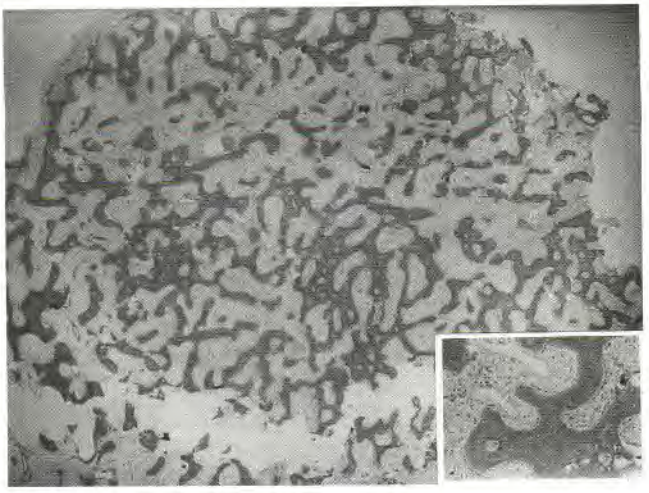

Fig. 5. Excised specimen. The mass is entirely composed of woven bone with osteoblast rimming, dilated capillaries (H&E, ×10, ×200).

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