Subungual Fibro-osseous Pseudotumor

Sir,

We here describe a patient with fibro-osseous pseudotumor of digits in the subungal 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 subungal 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 subungal nodule, about 1.5 x 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).

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 fascititis (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. 1. Clinical appearance of the right big toe.

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

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 phalanges (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 juxtapacortical, 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, chordoma of soft parts and extra-
skeletal osteosarcoma. All of these conditions may produce
pain. Subungual osteochondroma has male predominance and
shows relatively slow growth. Osteochondroma shows well-
de fined sessile bone growth, which arises from the juxtaepiphy-
seal 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. Histologically,
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. Radiogam
shows a loculated radiolucent defect of the distal phalans,
with expansion of the bone (12). Chordoma 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 inade-
quate 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).

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