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Fibrosseous pseudotumor of the digit: a clinicopathologic study of 43 new cases

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Abstract Myositis ossificans (MO) is a reactive zonal fibroosseous lesion in skeletal muscle of the proximal extremities and trunk of young patients. It generally matures over several weeks to form a peripheral rim of bone. Fibroosseous pseudotumor of the digits (FOPD) is a similar reactive lesion of the digits, which is reportedly less well organized. Cases up to year 1980 were previously reported from our institution. We examined new cases of FOPD since 1980 and addressed the relationship of this lesion to both myositis ossificans and other distal extremity fibroosseous lesions. Fifty-two cases coded as FOPD or MO limited to the hands and feet, from 1980 to the present, were retrieved from our files. Nine cases were excluded due to incomplete material or rediagnosis as other lesion. Materials reviewed included radiologic images and pathologic material. Forty-three cases of FOPD were included. All cases were in the fingers, except for 1 toe case, with the proximal phalanx of the index finger the most commonly affected site. Duration of lesions was radiologically estimated to range from 2 to 6 weeks. Age of patients ranged from 10 to 64 years (mean and median of 40 years). Sixty percent of cases occurred in women. Morphologically, half of these lesions had a zonal organization, with mature woven bone peripherally and immature woven bone centrally; all bone demonstrated osteoblastic rimming. Clinically, 6 patients had known antecedent trauma, yet edema and pain of the digit were noted in all. Novel findings were that patients often had occupations requiring repetitive manual labor. Cases of FOPD were diagnosed and treated by simple excision. Three patients had residual disease, subsequently resected, without any recurrences. Fibroosseous pseudotumor of the digits is a distinctive, benign, reactive myofibroblastic and osseous zonal lesion that occurs in the finger of mainly adult patients, many with occupations that require repetitive manual use. Imaging can date these lesions, determine their exact location, and help with diagnosis. These lesions are the superficial and distal counterparts of MO. It is important to understand the morphology of FOPD to distinguish this type of lesion from other benign and malignant fibroosseous lesions.

Keywords: Fibroosseous pseudotumor; Digit; Soft tissue lesion

1. Introduction

Fibroosseous pseudotumor of the digits (FOPD) was first described by Dupree and Enzinger [1] in 1986 as a benign subcutaneous fibroblastic and osseous lesion, predominantly without zonation. They noted the following features: focal hypercellularity, cellular atypia, and increased mitotic activity that may lead to a mistaken pathologic diagnosis of sarcoma, resulting in an unnecessary amputation of the digit. Two other older series discussed this rare entity [2,3]. We reviewed new FOPD cases from the Armed Forces Institute of Pathology (AFIP), since the time it was first described, and observed the features of FOPD to establish its relationship with myositis ossificans (MO) and to differentiate it from other distal extremity fibroosseous lesions.

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Table 1
Location of 44 cases of FOPD

Hand (41)	Wrist (1)	Foot (1)
Hand NOS, 6	Wrist NOS, 1	Foot NOS, 1
Finger NOS, 1		
Toe, 1		
Thumb, 3		
Index, 11		
Middle finger, 10		
Ring finger, 4		
Fifth finger, 2		
Hypothenar area, 1		
Web Space NOS, 2		

NOS indicates location not otherwise specified.

2. Materials and methods

Fifty-two cases coded as FOPD or MO limited to the hands and feet were retrieved from the AFIP Soft Tissue Pathology Registry. These were consult cases from 1980 to the present—that is, cases that came to the AFIP after the cutoff date for the original publication of this entity. Cases with incomplete data or those better diagnosed as other conditions (eg, bizarre parosteal osteochondromatous proliferation [BPOP]) were excluded. Slides, available radiologic images, immunohistochemical stains, and patient folders were reviewed and analyzed by the authors.

3. Results

Forty-three FOPD cases were included in the study, comprising 17 (40%) male and 26 (60%) female subjects. Patient age ranged from 10 to 64 years of age, with a mean and median of 40 years. Tumor locations were equally distributed on left and right sides; adjacent to the proximal phalanx of the finger, particularly the index finger, which was the most common location. Tumor locations are reported in Table 1.

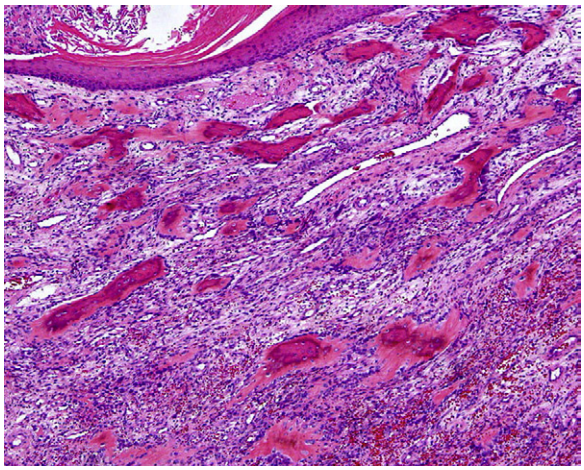

Fig. 1. Fibroosseous pseudotumor of the digits mainly involves the dermis (above) and subcutis, and occasionally causes skin surface ulceration. Depicted is the superficial rim, with more immature bone deeper.

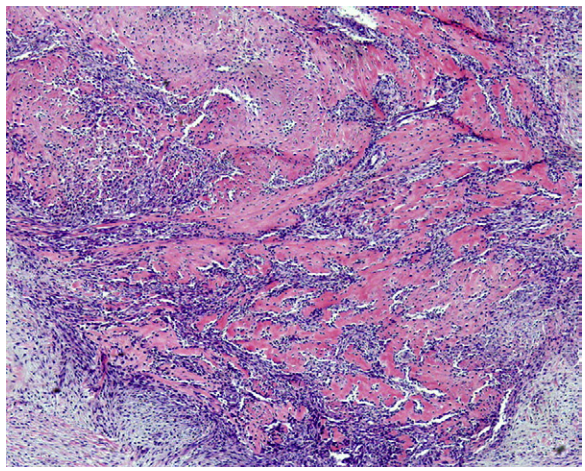

Fig. 2. Low power image of FOPD.

3.1. Contributors' diagnoses

Contributor's diagnoses ranged from possibly malignant, extraskeletal osteosarcoma (n = 6), chondrosarcoma (n = 1), epithelioid sarcoma (n = 1), and sarcoma not otherwise specified (n = 1) to nodular fasciitis or fibroma of tendon sheath (n = 3), pyogenic granuloma (n = 2), soft tissue chrondroma (n = 2), or giant cell tumor (n = 2). Reactive fibrous and osseous, MO, or even FOPD was considered by 17 contributors. The other cases did not list a referring diagnostic opinion. One patient had a coexistent Dupuytren contracture (fibromatosis) of the other hand and another developed myxofibrosarcoma of an unrelated site several years later.

3.2. Radiology

Radiographs (all x-ray, 1 magnetic resonance imaging) were available for review in 12 patients and all cases revealed a soft tissue mass or fullness adjacent to bone. The lesions appeared adjacent to proximal distal phalanx in 15% of cases, 39% near middle phalanx, and 46% near proximal phalanx. Those cases with radiologic images available

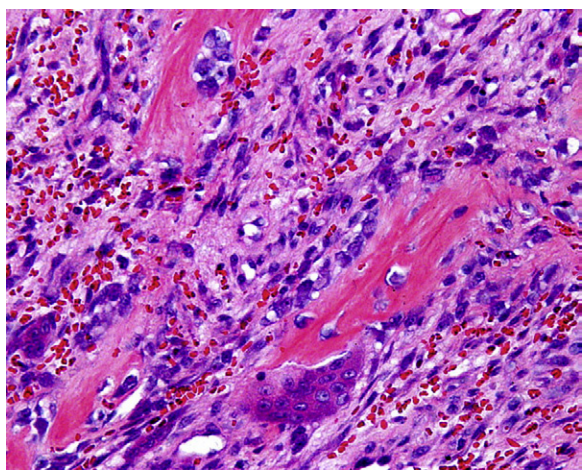

Fig. 3. Higher magnification of FOPD shows woven bone surrounded by rimmed osteoblasts (a benign sign) and rarely osteoclasts.