

CHONDROMYXOID FIBROMA IN THE METACARPAL BONE OF THE THUMB

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We present a case of a chondromyxoid fibroma in the exceptionally rare location of the first metacarpal bone in a 12-year-old boy. The tumor had evolved asymptotically over a period of 8 years destroying all diaphyseal trabecular bone. No recurrence was evident 50 months following aggressive curettage of the metacarpal lesion, which presented a predominantly myxoid appearance.

Keywords : tumors of the hand ; chondromyxoid fibroma ; metacarpal bone.

Mots-clés : tumeurs de la main ; fibrome chondromyxoidé ; métacarpe.

REPORT OF A CASE

In January 1987, a 12-year-old white boy presented a painless fusiform swelling on the dorsum of the left first metacarpal. This mass had very gradually evolved for at least 8 years. In 1981, a presumptive roentgenographic diagnosis of an osteochondroma was made (fig. 1). Complete physical examination was negative except for a discrete, immobile and nontender tumor, measuring 3 by 2 cm on the radiodorsal aspect of the first left metacarpal. The digital sensation and range of motion were normal. The skin and tendons were freely movable. All laboratory studies were within normal limits. Roentgenographic examination (fig. 2) revealed a prominent, well-demarcated, radiolucent, and ovoid bony projection into the surrounding soft tissues at the proximal radiodorsal aspect of the first metacarpal bone. Its long axis paralleled that of the metacarpal. Its surface was delimited by a thin, blown-up shell of periosteal bone. A few coarse intrale-

sional bony trabeculations gave the tumor mass a multilocular appearance. The epiphyseal cartilaginous plates were spared. Some satellite, smooth, punched-out cystic lesions were seen extending into the distal diaphysis.

At surgery, a radiodorsal incision exposed a sharply circumscribed, smooth, but bulging mass, measuring 4 by 2 cm. It was attached to the underlying metacarpal, but did not involve the joints. The expanded area was outlined by the preserved periosteum and a thin cortical bony shell. The lesion was easily removed with an osteotome. The regional cortex at the base of the metacarpal was found to have disappeared and connection with the medulla was apparent. The tumor abutted the proximal and distal epiphyseal plates, which were spared. The entire medullary cavity had been replaced by tumoral tissue. Extensive and aggressive curettage revealed a very spongy, glistening and translucent gelatinous tissue, which was solid in texture, firm but resilient in consistency. No bone grafting was performed. The postoperative course was uneventful, and the boy was discharged wearing a plaster cast for 4 weeks. No recurrence appeared during the follow-up period of 50 months. Histologically, the lesion was predominantly of myxomatous appearance, consisting of stellate cells in a myxoid matrix.

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There were occasional small areas of more chondroit type fibromas (fig. 3). The lesion was divided by fine fibrous septa into well-circumscribed lo-

bules, at the periphery of which it was slightly more cellular with very occasional multinucleate giant cells (fig. 4).



Fig. 1. — October 1981. A hemispheric broad sessile bony protuberance is seen at the proximal end of the diaphysis of the first metacarpal. A similar but smaller exostosis is arising from an identical area at the proximal phalanx of the thumb.

DISCUSSION

This case emphasizes a few unusual features of a chondromyxoid fibroma (CMF): (a) the location in the first metacarpal bone, (b) the early presentation at the age of 4 years, (c) the extremely slow growing and asymptomatic evolution, (d) the roentgenographic expansile picture, and (e) the absence of recurrence after curettage of a predominant myxoid lesion.

CMF is a distinct cartilaginous neoplasm (6) representing less than 1% of all primary bone

tumors and less than 2% of benign bone lesions (1, 3, 5, 7, 11). The neoplasm is characteristically localized in the metaphyseal region of tubular bones in the lower extremity (80%) (3, 14) with a predilection for the proximal tibial metaphysis (1, 4, 5, 7, 11, 14). The remaining 20% arise in a variety of skeletal areas (13). Although the occurrence of CMF in the tubular bones of the fingers is recorded (2, 7, 8, 12), the extremely rare involvement of the metacarpal bone of the thumb has, as far as we know, only been depicted once, by Lichtenstein (7).

The tumor mainly affects young males between the ages of 10 and 15 years of age (1, 2). The majority are symptomatic, with a history of several years of mild local pain, and some may present a tender mass (2, 3, 12). The tumor described here arose in a 5-year-old boy and had evolved asymptotically to a prominent swelling over a period of nearly 8 years.

The roentgenographic picture of a CMF in a small tubular bone is not characteristic (1, 4, 5, 7, 8, 11, 15). The neoplasm tends to be centrally

located and to extend throughout the entire width of the affected bone, causing a fusiform smooth or irregular and sometimes extensive expansion with extreme thinning of the cortices. The tumor in this case originated in the proximal metaphysis where it expanded the dorsoradial cortex to exhibit a large projection into the surrounding soft tissues. Alternative and more probable diagnoses include a periosteal chondroma, a parosteal osteochondroma, a chondroblastoma, and a benign osteoblastoma (1, 4, 7, 11).



Fig. 2. ... January 1987. A prominent bony projection into the surrounding soft tissues is present at the proximal part of the first metacarpal. The lesion is delimited by a very thin bony shell. The tumor shows a multilocular aspect. A few satellite small cystic lesions are seen in the distal diaphysis. A small abnormality at the proximal part of the first phalanx is seen.

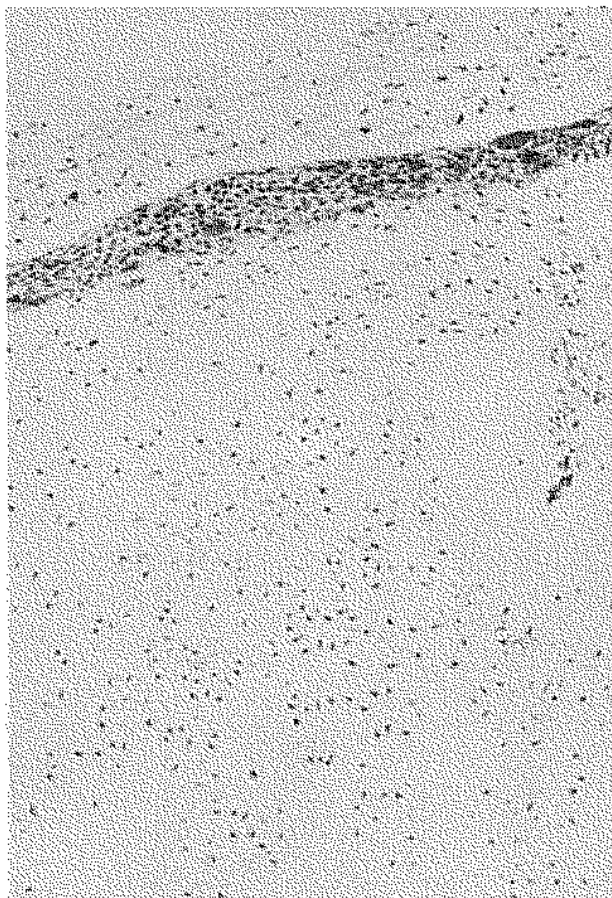


Fig. 3. — The lesion shows a predominantly myxomatous stroma, consisting of stellate cells in a myxoid matrix (HE \times 65).

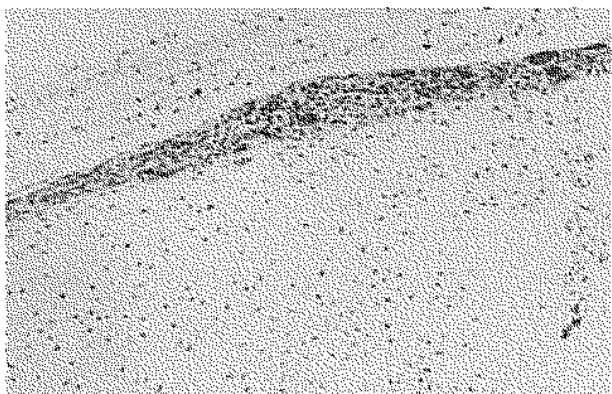


Fig. 4. — The periphery is more cellular, containing scattered multinucleate giant cells (HE \times 165).

The recurrence rate within 2 years of an intralesional curettage of a CMF varies from 10 to 80% (2, 3, 9, 10, 12). The recurrences seem to prevail in children younger than 15 years of age (9) and have been related to the immature myxoid appearance of the tumor (9, 10). No recurrence occurred 50 months after an aggressive curettage of a predominantly myxoid CMF, the least mature tumor (6), in a 12-year-old boy.

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SAMENVATTING

G. M. C. DECLERCK, I. D. RAWLINGS en A. C. HUNT. Chondromyxoïed fibroom van metacarpaal I.

We beschrijven een uiterst zeldzame locatie voor een chondromyxoïed fibroom in metcarpaal I bij een 12-jarige jongen. Na een 8-jaar durende symptoomloze evolutie, werd geen recidief geobserveerd 50 maanden na agressieve curettage van deze hoofdzakelijk myxoïede laesie.

RÉSUMÉ

G. M. C. DECLERCK, I. D. RAWLINGS et A. C. HUNT. Fibrome chondromyxoïde du premier métacarpien.

Les auteurs présentent un cas exceptionnel de fibrome chondromyxoïde du premier métacarpien chez un garçon de 12 ans. Après une évolution asymptomatique de 8 ans, cette lésion de caractère myxoïde ne présentait aucun signe de récurrence, 50 mois après un curettage large.