

Chondromyxoid Fibroma of the Hand: A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. Author MOC designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors RA and SMA managed the analyses of the study. Author KM managed the literature searches. All authors read and approved the final manuscript.

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Case Study

ABSTRACT

Chondromyxoid fibroma is a rare benign bone tumor whose usual location is the metaphysis of the long bones of the lower limbs, affects young adults, the location in the hand is exceptional. It is a tumor which poses a problem of differential diagnosis with chondroma and chondrosarcoma, recurrences are not uncommon and malignant degeneration remains the oretical. We present the case of a chondromyxoid fibroma of the first phalanx of the right index finger having developed wellafter excision and spongy stuffing. The objective of this work is to see the different diagnostic, therapeutic and progressive aspects of this rare pathology.

Keywords: *Chondromyxoid fibroma; bonetumor; index finger; excision; spongy stuffing.*

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1. INTRODUCTION

Chondromyxoid fibroma (CMF) is a very rare benign bone tumor, described for the first time in 1948 by Jaffe [1], representing less than 1% of all primary bone tumors and 2% of benign bone tumors. The localization in the hand is exceptional, the diagnostic presumption is radiological and the diagnostic confirmation is anatomopathological. Regular monitoring of the patient must be required given the frequent risk of recurrence and which depends on the quality of surgical resection.

Our clinical case, the location of which is exceptional, gives us the opportunity to review the different radiological, pathological, therapeutic and progressive aspects of this tumor.

2. CASE REPORT

27-year-old woman, seamstress, right-hander, with no particular pathological history, consulted for a painless swelling of the first phalanx of the right index, evolving over the past 6 months, gradually increasing and without any notion of trauma. The clinical examination notes a swelling of the base of the first phalanx of the right dorsolateral index, eccentric, firm, painless, without local inflammatory signs. The mobility of the proximal metacarpo-phalangeal and interphalangeal joints is normal.



Fig. 1. X-ray showing osteolysis at the base of the first phalanx of the index finger

The radiography of the hand from the front and in profile shows a lacunar metaphyseal-epiphyseal image of the base of the first phalanx respecting the articular cartilage, with the presence of intratumoral calcification, well limited and the cortex is blown with extension in the soft parts.

The biology was normal, in particular no inflammatory syndrome, and the phosphocalcic rate was normal.

A tumor biopsy was performed, which removed a well-defined whitish swelling 1.5 cm in diameter.

Microscopic examination showed a well limited, encapsulated and well vascularized cell proliferation, made of an immature mesenchymal tissue with star myofibroblasts, surrounded by a myxoid stroma in chondroid or sclerotic place with the presence of chondroblastic and histiocytic cells associated with rare giant cells concluding to a chondromyxoid fibroid.

The entire tumor was removed by a radial laterodorsal approach to the tumor with the scar from the biopsy with a spongostuf fingertaken from the homolateral iliac crest.

The evolution was good on the functional and radiological level without recurrence after 5 years' follow-up.

3. DISCUSSION

CMF is a rare benign cartilage tumor, accounting for only 2% of all benign tumors. It predominates at the level of the metaphyses of the long bones: The bone most often involved is the tibia, approximately 75% of all the cases occurred, other localizations have been described: ribs, vertebrae, scapulas and mastoid [2-5]. Localization at the hand level is exceptional and represents only 3% of all cases of CMF [6].

CMF affects young adults in the first 3 decades of life. Although some authors [7,8] have suggested a second peak in the 5th-7th decades with a slight male predominance [9].

The clinical presentation is non-specific: mild pain, chronic, well localized is the most reported clinical sign. Sometimes a palpable mass of often firm, painless, without local inflammatory signs. The joint mobility of the metacarpophalangeal and interphalangeal joints is respected. Chance discovery is possible. A revealing pathological fracture is rare [10].

The radiological aspect of the chondromyxoid fibroma is not characteristic, it is a lesion which sits preferentially in the metaphyseal regions, and of ten eccentric [11], more rarely an epiphyseal localization can be seen. Involvement of the entire bone remains rare and is seen mainly in the bones of the foot or hand [12]. Intra tumoral calcifications are very rare and vary between 1.5 and 3% of cases depending on the

series [8,9,10]. Further imaging was not performed in the current study, although CT/MRI are the preferred investigations at present. CT helps in defining cortical integrity and in confirming that there is no mineralisation of the matrix, in contrast to other cartilage tumours. MRI shows decreased signal on T1-weighted images and increased signal on T2-weighted images. MRI is helpful in preoperative planning and staging.

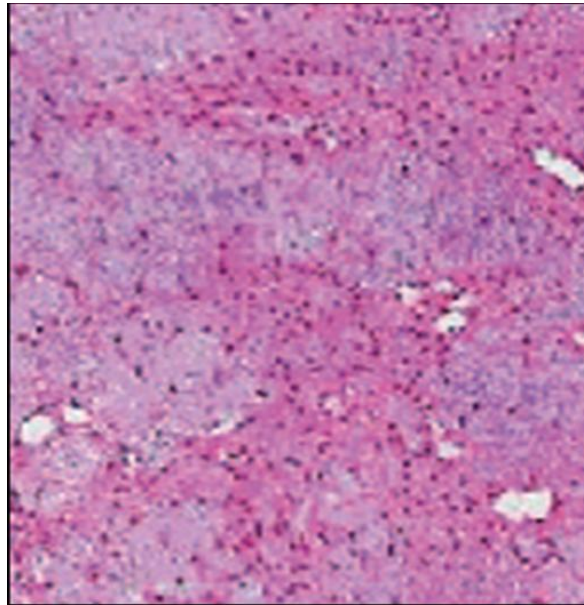


Fig. 2. Histological aspect of the tumor showing the lobules of fusiform cells, with the chondroide matrix



Fig. 3. Post-operative x-ray showing the filling of the cavity

Since this tumor was described by Jaffe and Lichtenstein in 1947 [13], then well studied by Dahlin in 1953 [1], there has been no change in the histological description: macroscopically, the tumor is well limited, contained in a bony cavity, white-yellowish or grayish in color [4]; microscopically, it is characterized by a lobular organization of spindle or stellar cells, with an abundant myxoid or chondroid intercellular matrix. These lobules are separated by zones formed by a tissue rich in spindle-shaped or rounded cells, with a variable number of giant multinucleated cells of different sizes. A large cellular polymorphism may be present, which can be confusing with low-grade chondrosarcoma of malignancy.



Fig. 4. Image showing clinical outcome (Good mobility of the second ray metacarpophalangeal) at the last recoil

Mitoses are rare, even absent, without mitotic abnormalities, which makes it possible to differentiate it from chondrosarcoma. The nucleus tends to be large and bizarre in appearance, but without altering the cytonuclear ratio.

Other tumors can also lead to confusion with chondromyxoid fibroma, such as chondroma, especially since the histological border of this one with chondrosarcoma is not always obvious [14]. Chondroblastoma and giant cell tumor are also cited [15].

Surgical treatment should be the rule. It consists of a broad resection of the tumor tissue, with

filling of the residual cavity with spongy or cortico-spongy tissue.



Fig. 5. X-ray, at last decline (3 years postoperative), showing bone consolidation and no tumor recurrence

Some authors have performed simple curettage, but the risk of recurrence seems to be higher than in the case of associated spongy intake from the iliac bone.

The frequency of recurrence varies between 12.5% [12] and 25% [9] according to the authors; it is all the more important since the initial resection was incomplete.

The malignant transformation of CMF seems exceptional. Two out of 278 cases have been reported in a series from the Mayo Clinic [9], for locations outside the hand and involving the pubis and the upper extremity of the tibia. Post-operative chemotherapy is not indicated in the treatment.

Degeneration was observed following radiation therapy in one case. Currently, all authors are against the indication of CMF's irradiation [14,15].

4. CONCLUSION

Chondromyxoid fibroma is a rare, benign, slow-growing bone tumor. The diagnosis is an atheromopathological. Surgical treatment including excision of the tumor and spongy stuffing reduces the rate of recurrence.

CONSENT

As per international standard informed and written participant consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard written ethical permission has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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