Chondroma of the Distal Phalanx of the Fingers: Clinical and Therapeutic Features: About 3 Cases

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Authors’ contributions
This work was carried out in collaboration among all authors. Author SMA designed the study, wrote the protocol and wrote the first draft of the manuscript. Author TR managed the analyses of the study. Authors SF and BM managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: Chondromas are benign bone tumors that develop at the expense of the cartilage of skeletal tissue. The localization of chondromas in the hand is very frequent and represents 50 to 90% of cases. The localization in the distal phalanx is very rare. Clinically, it can be misleading and evoke digital hippocratism, which can make us think about several general diseases. Their diagnosis must imperatively be based on the comparison of clinical, radiological and histopathological data. The chondroma can be recurrent and can rarely degenerate into malignant lesions.

Methods: We are sharing 3 cases of chondroma of the distal phalanx of the hand of patients who consulted in Taher El Maamouri hospital of Nabeul during these late 10 years.

Results: The analysis of the 3 cases showed the almost constant presence of pain and deformity of the nail which looks like digital hippocratism.
X-rays showed osteolytic lesions in the 3 cases. 1 case was about the thumb, 2 were about the index.

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The diagnosis is evoked depending on clinical data and X-rays. The confirmation was made by the histopathological study. Surgical excision associated with a bone graft allowed us to have good results, without recurrence at the last follow-up. We have not seen any cases of malignant degeneration.

**Conclusion:** At the end of this study, it was concluded that the request for a systematic X-ray in front of every distal deformation of the fingers is necessary. The clinical and radiological data, the surgical biopsy excision with histopathological confirmation, represents the best attitude for the management of bone chondromas in the hand. Post-operative monitoring can detect a recurrence that depends on the quality of the surgical excision. Malignant degeneration is rare for solitary chondromas.

**Keywords:** Chondroma; distal phalanx; fingers; bone tumor.

1. INTRODUCTION

Chondroma is the most common bone tumor of the hand [1]. The hand and the wrist are some of the most frequent sites for chondromas, accounting for 54% of cases. They appear between the first and 4th decades of life [2]. The most frequent sites are the proximal and middle phalanx, followed by the metacarpals [2]. The digital localization at the level of the distal phalanx is very rare and results in a specific and misleading symptomatology. These cartilage tumors are benign but can however get complicated.

The clinical manifestations of the chondroma of the fingers are diverse. This tumor is often accidentally diagnosed on an X-ray of the hands. Clinically, we can have a painful swelling or a pathological fracture. Nail dystrophy and the appearance of digital hippocratism is characteristic of the localization in the distal phalanx and is often misleading. Confirmation of the diagnosis is histopathological [3].

Surgical treatment is well codified, but the problem of recurrence depends on the quality of the excision. The risk of malignant degeneration remains rare.

We present 3 cases of chondroma of the digital distal phalanx, collected in the orthopedic department of Nabeul during the last 10 years. The aim of this study is to show the epidemiological aspects, the clinical characteristics as well as the therapeutic aspects in front of this exceptional localization.

2. CASES

2.1 1st Case

A 50-year-old, right-handed manual worker with no notable pathological history consulted for a deformity with pain in the right thumb evolving for 6 months without any history of trauma or septic inoculation.

The clinical examination showed a deformity of the second phalanx with nail dystrophy and an aspect of digital hippocratism of the right thumb with a normal function of the thumb.

![Fig. 1. et Fig. 2. Clinical aspect: digital hippocratism](image-url)
The general examination and the biology were normal.

The radiological examination showed the presence of a very limited lacunar image evoking a chondroma.

An excisional biopsy was performed by a lateral nail approach supplemented by a bone graft. The histopathological examination confirmed the diagnosis of chondroma.

2.2 2nd Case

A 35-year-old right-handed patient with no specific medical history consulted for deformity and distal pain in the left index finger evolving for 6 months without any history of trauma or septic inoculation.

The clinical examination found a deformity of the distal phalanx of the left index finger with an appearance of digital hippocratism (Fig. 4 and Fig. 5). The physical examination with mobility and sensibility of the fingers was normal. The biological examination was normal.

The radiograph of the left index finger showed a lytic image which englobed the entire distal phalanx without going beyond the cortex of the distal phalanx evoking a benign lytic tumor (Fig. 6).
The biopsy confirmed the diagnosis of chondroma.

The total excision of the chondroma and the bone graft allowed the patient to heal with good digital function and radiological consolidation and without recurrence at 5 years postoperative (Fig. 7).

2.3 3rd Case

25-year-old patient, right-handed with no notable pathological history, consulted for pain in the left index evolving for 12 months with history of benign trauma dating from a few months (finger at the door) and without history of septic inoculation.

The clinical examination showed a swelling of the base of the third phalanx of the left index. The distal joint of the finger has a full range of motion (Fig. 8).

An X-ray of the left index showed a lytic image of the base of the distal phalanx with the presence of calcifications inside suggesting a chondroma (Fig. 9).

![Fig. 7. X-ray of the index finger after excision and bone graft](image1)

![Fig. 8. Clinical appearance, swelling of the base of the third phalanx of the left index](image2)
Fig. 9. X-ray of the index showing the lytic image of the base of the third phalanx with the presence of calcifications

Fig. 10. X-ray of the index after excision and bone graft showing bone consolidation without recurrence at the last follow-up

The total excision of the chondroma and the bone graft allowed a healing of the lesion with good digital function, a radiological consolidation and without recurrence at 3 years postoperative (Fig. 10).

3. DISCUSSION

Chondromas are benign bone tumors that develop at the expense of the cartilage of skeletal tissue. They are a proliferation of mature
hyaline cartilage in the metaphyseal regions of bones which ossification is enchondral.

Various anatomical forms can be encountered. A chondroma can be solitary or multiple, we talk then about enchondromatosis; its unilateral form is Ollier’s disease. The association with cutaneous angiomas defines Maffucci-Kaast syndrome.

Chondromas are quite common; they constitute 50% of cartilaginous tumors or 15% of primary bone tumors, all locations combined. Although overall, bone tumors of the hand are rare, it is one of the common locations for the chondroma. Depending on the series, the frequency varies from 50% to 90% of bone tumors of the hand and wrist; for Marty et al. [1] and Unni and Dahlin [3], their actual incidence remains difficult to assess given their asymptomatic nature. Localization in the distal phalanx is exceptional, with clinical and radiological symptoms specific to this localization.

Localization in the distal phalanx varies from 0 to 14% of localization in the hand (Kenesi 14% [4], Bonneville 11% [5], Jewusiak 8% [6], Restuccia 6% [7], Takigawa 5% [8], Wilhem 6% [9] and Maalla 0% [10]. For the digital localization, all the fingers can be affected.

This tumor can be discovered at any age. In enchondromatosis, it touches younger patients. We have not noted a preferred age for this location.

Solitary or multiple, chondroma affects the male population barely more often than the female population, 2 men for a woman for our reported cases.

The clinical manifestations of the chondroma of the fingers are diverse. This tumor is often accidentally diagnosed on an X-ray of the hands or revealed by the discovery of a painful swelling by a pathological fracture. For localization at the level of the phalanx, it results clinically in a nail deformation taking on the appearance of digital hiccopotatism, which can be misleading.

The iconographic diagnosis of chondromas is almost exclusively based on the standard radiography assessment. The other imaging means (computed tomography [CT], magnetic resonance imaging [MRI], scintigraphy) are mainly used for fine analysis and in case of suspicion of sarcomatous transformation [1]. Radiologically, the enchondroma shows an aspect of an intraosseous gap.

Takigawa [8] has classified the radiographic images of enchondroma in five types: central (58%), eccentric (19%), combined (21%), polycentric (11%), and giant (3%) [2].

Therapeutically, the surgical attitude is controversial for asymptomatic and / or distal forms. The other cases are accessible to a curettage-filling treatment [11]. The lateral nail approach is the best alternative to avoid postoperative nail dystrophy.

The recurrence or degeneration after the surgery is possible, although very rare. It depends mainly on the quality of the excision [3,12].

4. CONCLUSION

The distal phalanx chondroma of the fingers is a specific pathological entity with a particular clinical aspect which is often misleading and for which surgical management is specialized.

CONSENT

As per international standard or university standard written patient consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES


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