



## Soft tissues chondromas of the hand : A report of five cases

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Soft tissue chondromas are rare slowly-progressing benign tumours. We report 5 new cases of soft-tissue chondromas of the hand. The median age at the time of diagnosis was 38 years. The evolution ranged from one month to 5 years. Standard radiographs showed variable images depending on the degree of calcification. An excision biopsy was performed in all patients. A well encapsulated and limited tumour was found at surgery. Positive diagnosis was provided by the pathology examination. Simple excision-biopsy should suffice to treat the condition but care should be taken to make the excision complete in order to avoid recurrence.

**Keywords** : chondroma ; soft tissue ; hand.

### INTRODUCTION

Soft-tissue chondroma is a rare tumour, contrary to enchondroma ; it is most commonly found in the hand. Owing to its rarity, it is likely to be undiagnosed clinically. Microscopic examination usually reveals the correct diagnosis.

We report five cases of soft-tissue chondromas of the hand. The aim of this study is to show different clinical, therapeutic and evolution particularities of these tumours and to confront them with literature reports.

### MATERIALS AND METHODS

Our series includes 5 patients (3 females and 2 males). Their median age was 38 years (range : 25 to

47). All patients presented after noticing a painless hand mass which had grown slowly. Symptoms had been present for 1 month to 5 years. The mass was located in the fingers in all cases.

Physical examination found in all cases a hard, painless and well-defined mass. It was not fixed to the superficial or deep tissues (fig 1). Tumour size ranged from 1 to 2.5 cm (table I). The overlying skin was normal. Finger paraesthesia was noted in one patient. Motor function was normal.

All patients had undergone conventional radiological examinations. A focal area of increased soft-tissue density was noted in three patients and calcifications in the other two (fig 4). There was no periosteal reaction nor any erosion of the cortical bone. An excision biopsy was performed in all patients. A well encapsulated and limited tumour was found at surgery (fig 2), without any connexion with joint synovium or periosteal tissue. Excision was easy and complete. Wound healing was uneventful.

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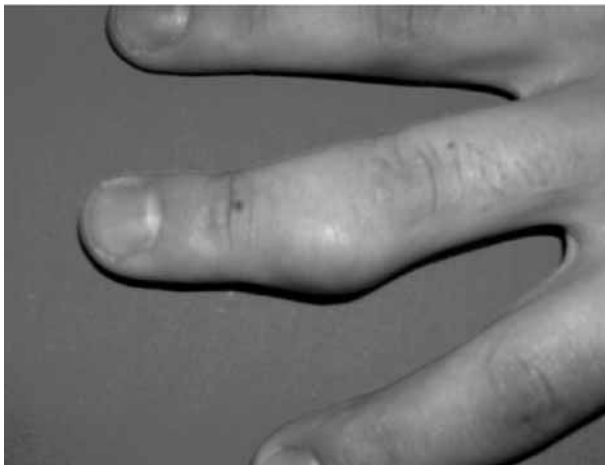
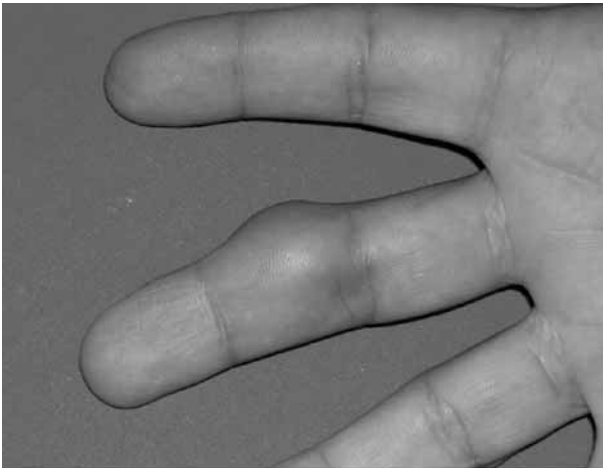
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Table I. — Segmental distribution of soft-tissue chondromas

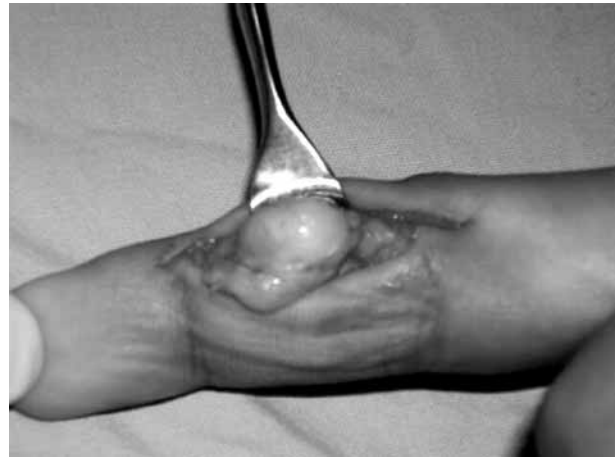
Case	finger	Segment	Size (cm)
1	Thumb	Volar aspect of metacarpo-phalangeal joint	2.5 × 2.5
2	Second finger	Radial side of proximal phalanx	1 × 1.5
3	Third finger	Radial side of middle phalanx	0.5 × 1
4	Third finger	Radial side of proximal phalanx	1 × 1
5	Fifth finger	Volar aspect of middle phalanx	0.5 × 1



*Fig. 1.* — Clinical view of soft-tissue chondroma of the third finger.

## RESULTS

Microscopic examination confirmed in all cases the diagnosis of soft-tissue chondroma and showed hyaline cartilage arranged in a lobular pattern (fig 3). At 2 year follow-up, there was no recur-



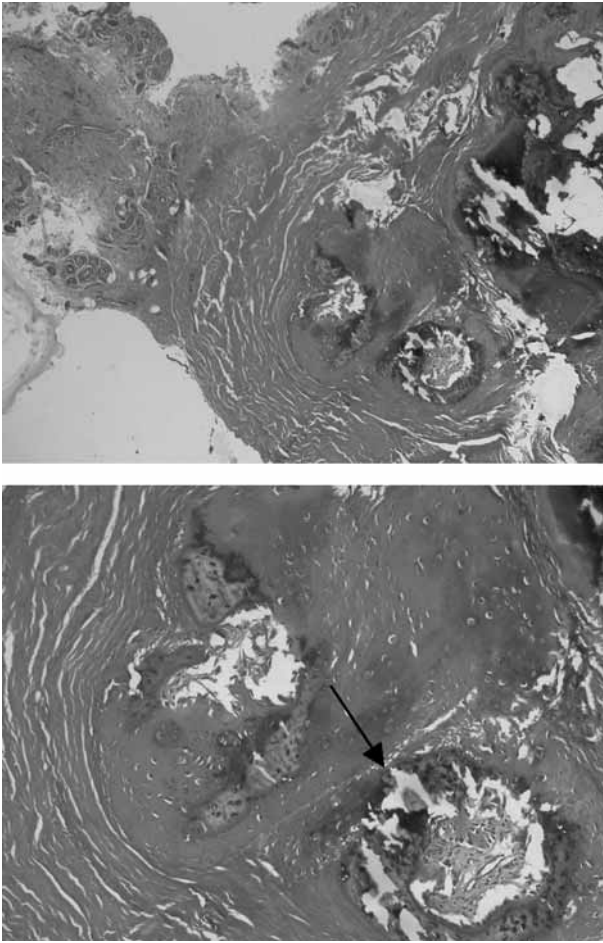
*Fig. 2.* — Intra-operative view

rence. Digital mobility was not affected and no algodystrophic syndrome was noted. All patients were satisfied with the result.

## DISCUSSION

Chondromas arising in the soft tissues are rare and benign tumours. Localisation at the hand was reported in many publications as sporadic cases. These tumours are strictly extraskeletal and do not have any connexion with a synovial sheath. Extraskeletal cartilaginous lesions of the hand are essentially represented by synovial sheath chondroma and extra synovial chondroma (9).

Soft tissues chondromas arise principally in extremities (96%) with 72% in the upper limb, 24% in the lower limb, 2% in the head and neck and 2% in the trunk. In Chung and Enzinger's series, including 104 cases of soft tissues chondromas seen over 23 years, the hand was involved in 64% of cases (5).



**Fig. 3.** — Microscopy view of soft-tissue chondroma (Arrow shows cartilaginous nodule).



**Fig. 4.** — X-ray image of a soft tissue chondroma on the radial side of the proximal phalanx of the fourth finger.

The thumb is less often affected than the other fingers (5). This was also noted in our series, with a predilection for the middle finger. The highest frequency is in the third and fourth decennia (5), somewhat later however for Dahlin and Salvador (6).

Soft-tissue chondromas are rare. There are several theories explaining their origin in the soft tissues: Dahlin and Salvador (6) believed that the chondromas grow from a synovial sheath; however, Uehara and Becker (16), and Rosenfeld and Kurzer (15) support the theory of activation of islands of heterotopic cartilaginous tissue.

The hypothesis of micro trauma has also been put forward in the aetiology of soft tissue chondroma of the hand (3, 7).

Generally, patients present after noticing a long-lasting evolution of a painless tumour (5, 9, 14, 16, 17). Only one of our patients has noted paraesthesia in the affected finger. Nevertheless, a case of median nerve compression has been described in the literature (1, 2, 10, 14). Calcifications have been reported to be present radiographically, in 33% to 70% of soft-tissue chondromas (11, 18). Often, the densest calcification is in the center of the tumour mass. Calcification was observed in 2 of the 5 cases in the current study. The radiological appearance of soft-tissue chondroma may be varied and is related to the extent and degree of calcification of the matrix.

NMR imaging was not used in our study. In the literature, descriptions of MR imaging of soft-

tissue chondromas are rare ; they have been reported to be of intermediate signal intensity on T1 WI and of high signal on T2 WI (1, 4, 12, 13).

Soft-tissue chondromas are reported to be well circumscribed tumours often with an ovoid shape. The sizes of soft-tissue chondromas are typically small, no more than 3 cm (5). In our current series, tumours were no larger than 2.5 cm. Lesions have well-defined margins, and usually grow slowly ; this makes it possible to perform complete excision. Primary biopsy is not indicated (8).

Microscopic examination usually reveals the correct diagnosis. If the tumour is undifferentiated with atypical and dense cellularity, the possibility of a low-grade soft-tissue chondrosarcoma may have to be considered (5).

Recurrences have been reported in the literature in 18% and seem to be related to incomplete excision (5). We did not have any recurrence in our current study at 2-year follow-up.

## CONCLUSION

The diagnosis of soft-tissue chondroma is usually not considered when confronted with a soft-tissue tumour of the hand. Conventional radiography shows varying images depending on the extent and degree of calcification. Excision is easy and must be complete if recurrences are to be avoided. Histological examination will confirm the diagnosis.

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