Chondrosarcomas of the hand: A report of three cases

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Introduction:

Chondrosarcoma of the is very rare. It was first described by Lichtenstein and Jaffe in 1943. The rarity of the hand chondrosarcoma, associated with the problems of histological interpretation which it poses, make it that it can be confused in a certain number of cases with a chondroma, all the more that the latter can degenerate into chondrosarcoma. Treating a chondrosarcoma of the hand like a chondroma is fraught with consequences. Indeed, the resumption of surgery becomes more aggressive in order to take away all the areas contaminated by non-cancer surgery. Through three observations, we have tried to illustrate certain aspects of hand chondrosarcoma and to group together clinical, radiological and anatomopathological signs which allow the diagnosis to be made. We have also raised the various therapeutic possibilities.

Case reports / (Table 1)

Case 1: A 30-year-old Woman, with no notable disease history; presented 2 years earlier a swelling of the 5th left finger, which became painful, touching the 1st and 2nd phalanges on the palmar and dorsal side (Figure 2a). Physical examination revealed a predominant hard dorsopalmar swelling on the 1st phalanges and extending to the 2nd.

The X-ray showed a lytic image of P1 with rupture of the radial cortex and the distal epiphysis with invasion of the base of P2 (Figure 3a). A biopsy was performed and the histological examination revealed a grade 1 chondrosarcoma was suspected. The little finger was disarticulated at the metacarpophalangeal in front of the extension of the lesion. The histological examination revealed a morphological aspect suggestive of a well-differentiated grade 1 chondrosarcoma which was retained before the radiological and histological comparison. The extension assessment was negative without recurrence or metastasis with a 2-year follow-up.

Case 2: A 33-year-old Woman, followed for diabetes under treatment and chondroma on the 2nd phalanges of the 4th finger; presented 3 years earlier an exaggeration of the swelling and pain in this finger. Physical examination revealed a predominant hard dorsopalmar swelling on the 4th finger and extending to the 2nd. The X-ray showed a lytic image of P2 with rupture of the radial cortex and the distal epiphysis with calcification in the parietal epitome without invasion of the P1 and P2. Malignant degeneration was confirmed by histological examination. The 4th finger was disarticulated at the metacarpophalangeal. The histological examination revealed a morphological aspect suggestive of a differentiation grade 2 chondrosarcoma which was retained before the radiological and histological comparison. The extension assessment was negative without recurrence or metastasis with a 2-year follow-up.

Case 3: A 33-year-old Man, with no notable disease history; presented 2 years earlier a swelling and pain of the 1st left metacarpal. Physical examination revealed a predominant hard dorsal swelling on the 1st metacarpus.

The X-ray showed a lytic image with rupture of the radial cortex of the metacarpal shaft and the distal epiphysis. A biopsy was performed and the histological diagnosis of chondrosarcoma was confirmed. The first ray was disarticulated at the trapeziometacarpal joint. The histological examination revealed a morphological aspect suggestive of a differentiation grade 2 chondrosarcoma. The extension assessment was negative without recurrence or metastasis with a 2-year follow-up.

Discussion:

Chondrosarcoma is the most common malignant bone tumor of the hand [1]. The average age of our patients was 48 years lower than in the literature [2, 3].

The duration from the first symptoms to the first operation in our patient population varied between 1 to 2 years, other authors also report long periods of time, up to 72 years [3]. This shows that a long course of symptoms isn’t a criterion to rule out malignancy in our cases, there was no Ollier disease or Maffucci syndrome, which is known to be associated with a high risk of degeneration and a tendency towards metastasis [4,5]. The repeatedly discussed possibility of malignant degeneration of a pre-existing chondroma should be seen as a rare exception [6]; rather, the preparation should be assessed by a radiological pathologist if there are any doubts.

In most cases, as in our patient population, the conventional X-rays already show malignancy criteria such as cortical bone destruction, lytic zones, expensive and locally displacing growth and the perilobal reaction [3, 6].

The histological differentiation between chondroma and chondrosarcoma on the hand is difficult because the transitions are not clearly defined [5] and chondromas of the hand and foot may have a similar histological appearance in some places [7, 8].

This shows that the diagnosis of chondrosarcoma can only be made by looking at the radiological, histological and clinical findings. The metastasis of hand chondrosarcoma is very rare, but had been described [3, 9, 10]. For this reason, staging should be carried out after diagnosis.

Regarding the local recurrence rate, the data in the literature vary between 1.7% and 50% [3, 11]. No tumor metastasis or local recurrence was found in our patient population. Studies confirms that the chondrosarcoma are locally aggressive tumors with a low metastatic rate, which accordingly require local radical therapy with safe removal of the tumor in healthy conditions. With regard to the therapy recommendations, most authors also tend to use locally aggressive measures, such as finger amputation or radiation resection, in order to avoid local recurrence [2, 10]. Boise and co-workers [7] consider excision to be sufficient in many cases due to the low tendency to metastasize. If one decides on the last-mentioned procedure, however, we consider that close checks are necessary.

Conclusion:

Chondrosarcoma located in the hands is a diagnostic and therapeutic challenge. Distinction between benign and malignant lesions is not always easy; the same could be said about low- and high-grade lesions. Indeed, these lesions are believed to have a more benign behavior compared to chondrosarcoma located elsewhere: they are locally aggressive, but show poor tendency to metastasize. The principle goal of surgery should be minimizing functional impairment. This provides the rationale for performing curettage, local adjuvant therapy and bone grafting in low-grade lesions. This treatment has proven itself useful even in the management of local recurrence. High-grade lesions should be treated with radical resection.

Table 1: Description of the patients

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender</th>
<th>Clinical examination</th>
<th>Conventional</th>
<th>Operation</th>
<th>Grading</th>
<th>2 years Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>W</td>
<td>2 years</td>
<td>P1-P2</td>
<td>G1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>W</td>
<td>1 year</td>
<td>P2, 4th Finger</td>
<td>G2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>M</td>
<td>2 years</td>
<td>Metacarpopenephalic joint</td>
<td>G1</td>
<td>0</td>
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References: