A Soft Tissue Chondroma Presenting As A Rapidly Enlarging Mass Within The Hand With Associated Median Nerve Compression

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Citation

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Abstract

We present the case of a rapidly enlarging mass in the hand which was removed at surgery with comparative ease and confirmed to be a soft tissue chondroma.

CASE HISTORY

A 90 year old lady presented with a one year history of a large soft tissue swelling in her right dominant palm. She was aware of some loss of power grip and in the month prior to admission developed clumsiness of her right hand and impaired sensibility in the thumb, index and long fingers with associated nocturnal waking.

A smooth oval shaped swelling measuring around 5x4 centimetres was found arising from the centre of her right palm. It was firm and unattached to the palm skin. There was reduced power in all the intrinsic muscles of the hand and diminished static two-point discrimination in her radial digits.

MRI with intra-venous gadolinium contrast revealed a large mass measuring 4.7x3.9x3.6 cm (transverse, proximal distal and AP respectively) extending between the flexor tendons just distal to the carpal tunnel. The radiological diagnosis was that of a sarcoma.

A decision was made to proceed with complete excision. The lesion was deep to palmar fascia and distal to the carpal ligament. The median nerve was of normal calibre and displaced radially. The superficial palmar arch was stretched over the palmar aspect of the lesion. The lesion was sent for histology (Figure 1).

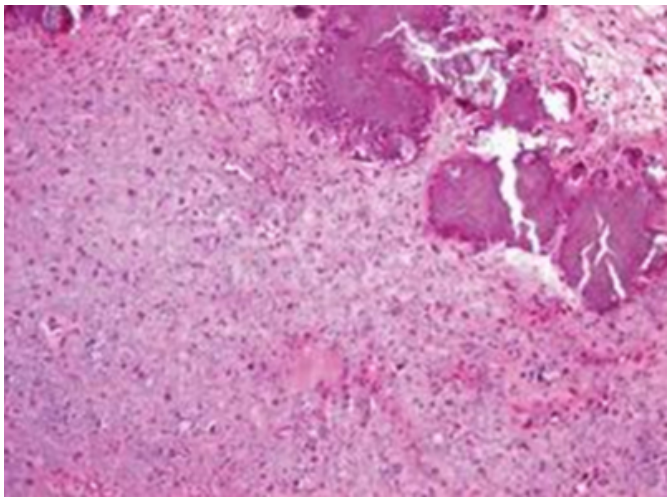
Figure 1

Figure 1: Intra-operative photograph showing the location and size of lesion.

Macrosopically, the lesion appeared to be grey/white in colour measuring 50 x 40 x 20 mm. The cut surface had a homogenous firm myxoid appearance with focal specks of calcification. Microscopically, there was extensive calcification, with an associated foreign body type giant cell response, resembling tumoral calcinosis. The chondrocytes showed no significant atypia and there was no evidence of malignancy. These changes were typical of marked degenerative changes in a soft tissue chondroma (Figure 2).

Figure 2

Figure 2: Chondroid cells and matrix showing calcification, crystal formation, foreign body type giant cells and focal fibrosis.



At her follow-up consultation four weeks post excision, the patient had made good functional recovery with complete relief of symptoms (Figure 3).

Figure 3

Figure 3: Photograph four weeks post op showing restoration of normal hand anatomy.

DISCUSSION

Soft tissue or extra-skeletal chondromas are rare benign cartilage-forming tumours. They usually arise from tenosynovial sheaths or the peri-tendonous soft tissue in the extremities (80%) [1,2]. Approximately 60% occur in the hands and around 20% in the feet [3]. These tumours develop primarily in the third and fourth decades with a slight male predominance [4]. In a majority of cases, the growth of these lesions remains slow and asymptomatic. In a small number of cases, they present with pain or tenderness [5]. The pathogenesis remains unclear; involvement of chromosomes six and eleven has been implicated [6]. Reports of small (<3 cm diameter) soft tissue chondromas of the fingers have been published, but a lesion of similar size and location leading to median nerve compression has not been described in the past decade.

Radiological appearance of soft tissue chondroma on plain radiographs is typically unhelpful, showing a soft tissue mass with calcification in 30-70% of cases [7]. Magnetic resonance imagings of these lesions are classically described as well-defined, lobulated, homogeneously high signal intensity masses on T2-weighted images [8]. This is due to the high water content of hyaline cartilage relative to its mucopolysaccharide component. This signal intensity can however vary with the degree of calcification. Majority of lesions arising in the palm of the hand tend to be calcified as demonstrated by our case [9].

Histologically, these tumours mainly compose of lobules of mature hyaline cartilage. In some variants, the cartilage matrix can become extensively mineralised associated with necrosis of chondrocytes causing the tumour to resemble tumoral calcinosis. Nevertheless, hyaline cartilage may also undergo enchondral ossification which can be mistaken as an osteogenic neoplasm or a reactive lesion. These tumours may also exhibit variable degrees of cytologic atypia including enlarged cells, moderate pleomorphism and hyperchromasia making exclusion of malignancy difficult [10].

Surgical excision is the optimal treatment for soft tissue chondromas [11]. Local recurrence is rare and to the authors' best knowledge cases of metastasis have not been documented [12].

The definitive diagnosis of soft tissue chondroma cannot be made from clinical features alone. The presentation and radiological appearances demonstrated in this example illustrate that this comparatively rare condition should be included in the differential diagnosis of a rapidly enlarging mass in the hand.

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