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Case report

Chondromyxoid Fibroma of the Second Metacarpal Bone – A Case Report

Ivan Kirin[1]*, Davor Jurišić[2]*, Hrvoje Mokrović[3], Zdenko Stanec[4] and Hrvoje Štalekar[1]

[1] University of Rijeka, Rijeka University Hospital Center, Department of Traumatology, Rijeka, Croatia
[2] University of Rijeka, Rijeka University Hospital Center, Institute for Plastic and Reconstructive Surgery, Rijeka, Croatia
[3] Orthopaedic University Hospital Lovran, Lovran, Croatia
[4] University of Zagreb, Dubrava University Hospital, Clinic for Plastic, Reconstructive and Aesthetic Surgery, Zagreb, Croatia
* The first two authors have equally contributed to the preparation of this manuscript.

A B S T R A C T

This report describes a chondromyxoid fibroma of the second metacarpal bone in a 32-year-old female patient. Chondromyxoid fibroma is a rare, benign, slow-growing bone tumor of cartilaginous origin. Tumor has a high recurrance rate. Our aim was to show successful treatment of a metacarpal chondromyxoid fibroma with wide resection and implantation of finger join endoprosthesis

Key words: *chondromyxoid fibroma, metacarpal, radiograph*

Introduction

Chondromyxoid fibroma is a rare, benign, slow-growing bone tumor of cartilaginous origin[1,2]. The tumor was first described in 1948 by Jaffe and Lichtenstein who differentiated the histologic findings from that of chondrosarcoma and enchondroma[2,3]. Chondromyxoid fibroma is thought to originate from the physeal plate remnant[2]. In its etiology, chromosome anomaly and immunologic factors have been proposed[4]. The tumor is rare and accounts for less than 1% of primary bone tumors[1]. In the period from 1948 to 2009 approximately 700 cases have been reported in the literature[2]. It is generally seen in the metaphysis of lower extremity long bones,most frequently involving proximal tibial metaphysis(80%)[1]. It is extremely uncommon in the bones of the hand and less than 30 cases of chondromyxoid fibroma affecting the hand and metacarpal bones have been reported[2]. It is more frequent in men than in women[5], primarily affecting young adults in their second and third decades of life, 80% of patients are younger than 36 years. Histologic findings show lesion consisted of immature-looking cartilage with myxoid and fibrous components[7]. Usualy is slow-growing, sharply demarcated tumor, sometimes it may behave in an aggressive way destroying trabecular bone and extending into soft tissues, malignant conversion is extremely rare. Tumor has a high recurrance rate, up to 25%[8]. Most of the patients are asymptomatic for a long period, pain is the most common symptom and may become more severe with time[9]. Patients may also report local swelling,palpable mass and in very rare cases, a limitation of joint motion[1,2]. In the differential diagnosis chondrosarcoma, chondroblastoma, enchondroma, nonossifying fibroma and aneurysmal bone cyst should be included[10]. We report a case of reccurent chondromyxoid fibroma involving a metacarpal bone of the 32 year old women.

Case Report

A 32-year-old girl presented to our hospital with a 5 month history of pain,weakness and prominent soft tissue swelling in the metacarpophalangeal joint region of the left hand that had persisted since prior surgery made in another hospital. There was no history of trauma and no symptoms suggestive of infection. She had similar symptoms approximately 10 month prior, at which time she presented to another hospital. Physical examination at that time revealed visible mass in the distal part of her

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second left metacarpal bone, tumefaction was immobile and painful to palpation. Limited range of motion was noted. Results of laboratory tests were normal. The radiograph of her left hand showed subcapital expansile, eccentric lesion with thin sclerotic borders of the second metacarpal bone, the overlying cortex was thinned and expanded (Figure 1). Cytologic examination showed a mixoid matrix, with stellate and spindle-shaped cells. She underwent surgery and the tumor was removed. Pathologic diagnosis was reported as chondromyxoid fibroma. The patient presented to our hospital 5 month after the surgery with increased swelling and persistent pain unchanged since prior procedure, pain and tenderness to palpation was noted in operated region of the left hand. The new radiograph revealed expansile osteolytic lesions in the distal part of second metacarpal bone with calcification MSCT of the left hand confirmed conventional radiograph and revealed calcifications within the lesion (Figure 2). Open biopsy was made and 4 cm white mass was found. The histologic study showed reccurent chondromyxoid fibroma with focal calcification and sporadical cytologic atypia and mitotic activity. We repeated surgery procedure after 5 months and replaced metacarpophalangeal joint with finger joint endoprostheses of the »St. Georg« model (Figure 3). Postoperative radiographs taken at 1, 4 and 7 months showed no new lytic lesions. At 9-month follow-up, the patient was experiencing occasional sharp, activity-related pain, but reported no night pain or functional limitations. Physical examination revealed a slightly limited but improved and painless range of motion.

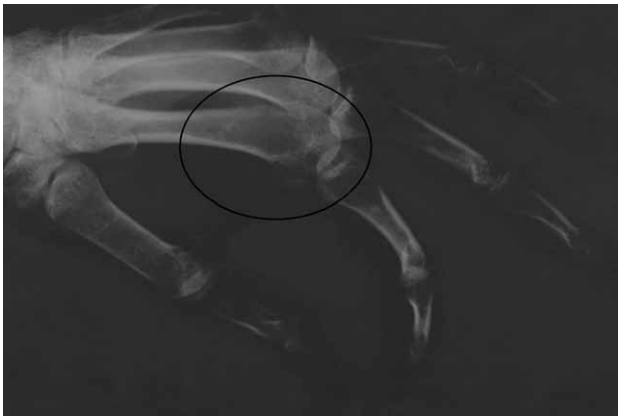

Fig. 1. Initial AP radiograph of the patient's left hand shows subcapital expansile, eccentric lesion with thin sclerotic borders of the second metacarpal bone.

Discussion

The Chondromyxoid fibroma described here arose in 32 year old female patient wich correlate with literature reports about the age of patients. It is generally seen in patients at age of 30. It has been reported that it is seen somewhat more in men than in women. The lesion generally occurs in the metaphysis of long bones and most commonly involved bone is tibia. It is rare in the bones of the hand. In our case tumor is affecting subcapital region of metacarpal bone and as far as we know only few cases had been reported until now. The patients generally present with a complaint of pain and local swelling, in some cases there may be problems related to movement of the joints. Our patient had similar simptoms. On plain radiographs cortical thinning and a lesion with sharp borders that causes expansion are generally seen[6]. Roentgenographic picture in our case was characteristic. In some cases magnetic resonance imaging and CT may demonstrate spread to soft tissue, with our patient that wasnžt a case. Tumor has a high recurrance rate, up to 25%[9].

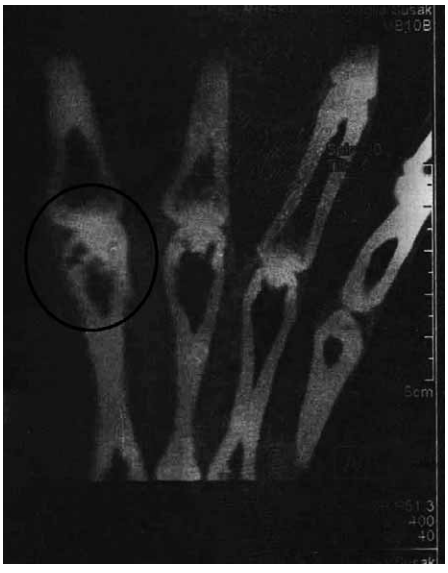

Fig. 2. MSCT shows expansile osteolytic lesions in the distal part of second metacarpal bone with calcification.

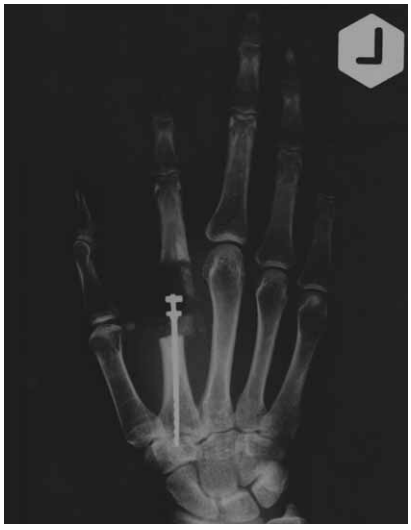

Fig. 3. AP radiograph of the patient's left hand 9 months after implantation of the finger joint endoprostheses model »St. Georg«.

Some studies reported recurrence rate from 7% to 80%, depending on the treatment[11]. Lersundi et al. found a 50% recurrence rate in patients treated with curettage alone, and a rate of 10% in patients treated with curettage + bone graft or bone cement[11]. Our patient presented to as 5 month after prior surgery made in other hospital. We made the open biopsy and patohystologic finding were characteristic for chondromyxoid fibroma but with some mitotic activity and cell atypia reported. Treatment options for chondromyxoid fibroma include en bloc resection, simple curettage, and curettage with bone grafting or polymethylmethacrylate placement. Becouse of chondromyxoid fibroma well known tendency to recur and mitotic activity with atypia found in tumor's tissue, we decided to replace metacarpophalangeal joint with finger joint endoprostheses.

Conclusion

Chondromyxoid fibroma is a rare bony tumor which involves the bones of the hand infrequently. Clinically and radiologically, it may be confused with other benign bone tumors, and for this reason the histopathological diagnosis is important.Tumor has high risk of recurrence. Treating chondromyxoid fibroma with simple curettage offers the highest risk of recurrence, while en bloc resection has an almost negligible recurrence rate, but is associated with functional loss[2]. Some studies advocate curettage combined with autologous bone graft and report a low recurrence rate for these procedure[9,11]. In our case we treated chondromyxoid fibroma with wide resection and implantation of finger join endoprosthesis[12]. This procedure offers good functionality of operated hand and low reccurence rate.

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D. Jurišić

University of Rijeka, Rijeka University Hospital Center, Institute for Plastic and Reconstructive Surgery, Krešimirova 42, 51 000 Rijeka, Croatia
e-mail: davor_jurisic@inet.hr

HONDROMIXOIDNI SARKOM DRUGE METAKARPALNE KOSTI

SAŽETAK

Rad prikazuje slučaj hondromixoidnog fibroma druge metakarpalne kosti kod 32-godišnje pacijentice. Hondromixoidni fibrom je rijedak, benigni, sporo rastući tumor hrskavičnog porijekla. Tumor ima visoku stopu recidiva. Cilj našeg rada bio je prikazati uspješno liječenje metakarpalnog hondromixoidnog fibroma širokom resekcijom te implantacijom endoproteze za zglobove prstiju sake.