Chondrosarcoma Of Distal Radius- A Case Report And Brief Review Of Literature.

Author(s): Dr. Susheel Chaudhary, Dr. Daljit Singh, Dr. Ramesh Sen

Corresponding Author:
Dr. Susheel Chaudhary,
Senior Resident, Orthopaedic Surgery, Post Graduate Institute of Medical Education and Research-Chandigarh, Post Graduate Institute of Medical Education and Research-Chandigarh, Sector-12, 160012 - India

Submitting Author:
Dr. Susheel Chaudhary,
Senior Resident, Orthopaedic Surgery, Post Graduate Institute of Medical Education and Research-Chandigarh, Post Graduate Institute of Medical Education and Research-Chandigarh, Sector-12, 160012 - India

Article ID: WMC001274
Article Type: Case Report
Submitted on: 03-Dec-2010, 02:12:01 AM GMT Published on: 03-Dec-2010, 05:55:38 PM GMT
Article URL: http://www.webmedcentral.com/article_view/1274
Subject Categories: ORTHOPAEDICS
Keywords: Chondrosarcoma; distal radius.

How to cite the article: Chaudhary S, Singh D, Sen R. Chondrosarcoma Of Distal Radius- A Case Report And Brief Review Of Literature. WebmedCentral ORTHOPAEDICS 2010;1(12):WMC001274

Source(s) of Funding:
The authors declare that they did not get any funding for our article.

Competing Interests:
The authors declare that they have no conflict of interest.
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Abstract

A 55 years old patient male presented with progressively enlarging, painful swelling over right wrist. Excision biopsy showed well differentiated chondrosarcoma of distal radius, which is rare and less reported at this location. Excision of the tumour was done with no recurrence detected at the latest follow up of two years.

Introduction

Chondrosarcoma constitutes about 10% of primary malignant bone tumour of bone with peak incidence in fifth and sixth decade of life. It can occur in any location; however, most are located in the trunk, pelvis and proximal portions of femur and humerus. Rarely can it occur in small bones of hand and feet with high malignant potential. To the best of our knowledge, there is no case reported in the literature regarding chondrosarcoma of distal radius in human beings. We are presenting a case report of 55 years old male with chondrosarcoma of distal radius and a brief review of literature.

Case Report(s)

A 55 years old male presented to our institute with complaint of painful, progressively enlarging swelling over the right wrist for the last five years. There was no significant history of trauma to the affected limb.

On examination there were two swellings - one was about 6 cm × 5 cm in size on dorsally and the other smaller one was about 3 cm × 2 cm on palmar aspect and laterally. The overlying skin was normal and freely mobile. The swelling was irregular in shape and hard on palpation (Fig. 1). The range of movement was limited both in palmar flexion as well as dorsiflexion. There was no regional lymphadenopathy in affected limb. At first thought we kept the possibility of ganglion, rheumatoid arthritis or gout as the radiograph was not done, though there was no history suggestive of rheumatoid arthritis and gout.

Radiograph was done that showed fluffy calcification over wrist, dorsally and on lateral and palmar aspect and a destructive lesion over radial styloid process (Fig. 2a and 2b). Haematological and biochemical investigation revealed no abnormality. As the case was discussed with other faculty members, we kept the rare possibility of primary chondrosarcoma arising carpal bones or secondary chondrosarcoma arising from pre-existing osteochondroma though there was no history of any swelling over the wrist before this swelling appeared. There was no history of Maffucci syndrome or Ollier’s disease. After discussion we planned for excisional biopsy. A 10 cm dorsal midline incision was given extending from lower third forearm to dorsum of the hand. The extensor retinaculum was incised. The swelling was not adherent to the surrounding soft tissue. It was irregular in shape with white and bluish hue (Fig. 3). There was destruction of the radial styloid process (Fig. 4). The capsule of wrist joint was excised and all the tumor tissue was removed along with styloid process of radius which was sent for histopathological examination. There was no involvement of carpal bones. Wound was closed and post operative above elbow plaster slab was applied. Sutures were removed on 14th postoperative day and plaster slab was removed at three weeks and wrist movements started.

Histopathology report showed features of well differentiated chondrosarcoma. Tumour cells were arranged in lobules with lacunae in them containing multiple cells. There was increased cellularity and tumour cells showed moderate pleomorphism. Tumour was infiltrating the soft tissue. (Fig. 5a,b&c)

No further surgery was planned for patient. Patient was examined at regular interval and there was no recurrence at local site till the latest follow up at two years.

Whole body PET CT scan was done at two years by injecting 370 MBq of F18-FDG using a dedicated BGO PET-CT scanner. The scan showed no abnormal FGD uptake in radius on right side. Non FDG avid mass with irregular calcification is seen on the ulnar side of the wrist on the right side. There was no local recurrence and distance metastasis. The functional outcome and range of movement were good.
Discussion

Chondrosarcoma is a malignant tumour of proliferating cartilage tissue. It may arise as a primary lesion, or it may occur secondarily at the site of a previous benign lesion such as an osteochondroma or enchondroma. More than 75% are primary tumours. Primary chondrosarcoma occurs between 40-60 years of age and secondary chondrosarcoma have peak between 25-45 years.

Chondrosarcoma can occur in any location, skeletally and extra skeletally. Most common skeletal locations are the pelvis, proximal femur, and proximal humerus. Although chondrosarcoma rarely occur in the hand, they are the most common malignancy of bone in this location. Chondrosarcomas of the bones of the hands and feet are rare and can be difficult to differentiate from enchondromas. In hand, chondrosarcomas are noted in phalanges, metacarpals, trapezium and trapezoid. These can be mistaken for ganglion, gout, bursa, rheumatoid arthritis or a nail abnormality overlying a cyst.

There is no case reported in literature regarding the location of chondrosarcoma at distal radius although there are few veterinary studies that have shown the presence of chondrosarcoma in animals at this site. The diagnosis of chondrosarcoma at this site can pose problems to clinicians and pathologists.

Histologically, various types of chondrosarcoma include: conventional chondrosarcoma, dedifferentiated chondrosarcoma, clear cell chondrosarcoma and mesenchymal chondrosarcoma. Conventional chondrosarcoma are composed of malignant cells with abundant cartilaginous matrix. Dedifferentiated chondrosarcoma consist of a high-grade sarcoma adjacent to an otherwise typical low-grade chondrosarcoma. Clear cell chondrosarcoma is a low grade malignancy, consist of round cell with abundant clear cytoplasm and distinct cytoplasmic borders with a background of cartilaginous matrix. Mesenchymal chondrosarcoma is a high-grade tumour consisting of small round blue cells with islands of benign appearing cartilage. Tumour biopsy from our patient showed a well differentiated conventional chondrosarcoma with tumour cells arranged in lobules and lacunae in them containing multiple cells.

Radiologically, Chondrosarcoma shows “punctate” or “popcorn” calcification with bone destruction, cortical erosions, periosteal reaction, and rarely a soft-tissue mass. Radiograph on our patient showed typical calcification in radiograph of wrist.

Regarding the treatment of chondrosarcoma, chemotherapy and radiotherapy has limited role. Surgical resection remains the mainstay of therapy for chondrosarcoma. The treatment of low-grade chondrosarcoma is controversial with many authors reporting excellent results after extended curettage with use of intraoperative adjuvant treatments. The treatment of high-grade chondrosarcoma is wide or radical resection or amputation. Chondrosarcoma in our case was a low grade well differentiated. Excision of the tumour yielded good result with no recurrence at two years of follow up.

Prognosis of the chondrosarcoma depends on many factors like size, grade, and location of lesion. A 10-year survival rate of 77% for grade 1, 59% for grade 2, and 36% for grade 3 lesions was documented in one study. The five years survival rate is less than 15% for patient with dedifferentiated chondrosarcoma. Our patient needs a regular follow up to look for any local recurrence in future.

Conclusion

We presented a rare case of chondrosarcoma of distal radius. To the best of our knowledge, this is the first case reported in literature regarding this rare location of chondrosarcoma.

References

Illustrations

Illustration 1

Fig. 1 Clinical photograph of right wrist

Illustration 2

Fig. 2a AP radiograph of right wrist showing large chondrosarcoma
Illustration 3

Fig. 2b ? Lateral radiograph of right wrist

![Lateral radiograph of right wrist](image1)

Illustration 4

Fig. 3 ? Intraoperative photograph showing tumour mass

![Intraoperative photograph showing tumour mass](image2)
Illustration 5

Fig. 4 ? Intraoperative photograph showing destruction of radial styloid

Illustration 6

Fig. 5a ? Photomicrograph showing tumour cells arranged in lobules with lacunae in them containing multiple cells (H&E, x100)
Illustration 7

Fig. 5b ? Photomicrograph showing increased cellularity and tumour cells show moderate pleomorphism (H&E, x100)
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