

Case Report

A Rare Case of Solitary Enchondroma of Distal End of Radius Diagnosed Retrospectively

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Abstract

Introduction: Solitary enchondroma of distal end of radius is extremely rare. Even after extensive search very little regarding it was found in the literature (even after extensive search only two case reports were found). This case being one of its kind as the diagnosis was done retrospectively as all the preoperative investigations pointed on different diagnosis so worthy of reporting.

Case Report: A 15 - year-old female presented with pain in the right distal forearm for about 12 weeks with no associated constitutional symptoms. Preliminary investigations including MRI scan were suggestive of Chronic Osteomyelitis, therefore curettage was done. Histopathological examination report came as solitary enchondroma of distal radius, which is extremely rare (<1% incidence). Patient was symptom free with no evidence of recurrence at the follow-up of one year.

Conclusion: The common differential diagnosis of a lytic lesion of distal radius in this age group includes Osteomyelitis, aneurysmal bone cyst, chondromyxoid fibroma, non-ossifying fibroma. Distal Radius is a very rare location for a solitary enchondroma but as our case signifies enchondroma should be kept as a differential diagnosis while evaluating lytic lesion of distal Radius.

Keywords: distal radius enchondroma, distal radius lytic lesions, solitary enchondroma

1. Introduction

A chondroma is any benign tumour composed solely of normal appearing; mature hyaline cartilage.¹ The term enchondroma usually is reserved for intramedullary chondromas as opposed to eccentrically located periosteal chondromas or soft-tissue chondromas². Enchondromas are second most benign cartilaginous tumour, after osteochondromas³. In contrast to chondrosarcomas, which most frequently affect the axial skeleton (the spine and pelvis), enchondromas have a distinct predilection for the appendicular skeleton and are the most common benign tumour of the hand, particularly the phalanges³. The cartilaginous nodules characteristic of enchondromas may be hamartomatous proliferations rather than truly neoplastic lesions². Regardless of this distinction enchondromas are usually benign lesions with limited potential for malignant degeneration particularly for monostotic disease^{1,4}.

They are most commonly located in the short tubular bones in the hands but are also found in long bones. Approximately 35% of all enchondromas arise in the hand⁵, followed by femur, humerus, and tibia. Solitary enchondroma of radius is rare⁶. Even after extensive literature search, reference for exact incidence of solitary enchondroma in radius is not found, although 1% incidence is quoted for radius and ulna⁷.

Radiographs usually demonstrate a small (<5 cm) cartilaginous lesion with intramedullary calcifications without cortical involvement or soft-tissue extension.⁸⁻¹¹ Histologically, enchondromas exhibit discrete islands of hyaline cartilage surrounded by lamellar bone. Multinucleated cells are rare. An asymptomatic enchondroma usually does not require treatment beyond observation. Occasionally, symptomatic enchondromas are treated by intralesional excision. The incidence of local recurrence is extremely low¹¹.

Enchondromas and high-grade chondrosarcomas have distinct clinicopathologic and radiologic appearances, which can be used to easily distinguish one entity from the other. However, enchondromas and intramedullary low-grade chondrosarcomas of long bones can resemble each other clinically, radiologically, and histologically. Intramedullary low-grade chondrosarcomas are usually painful. They are most commonly located in the metaphyses of the humerus, femur, or tibia and are usually larger (>5 cm) than an enchondroma. Endosteal scalloping and lysis are common^{9,12}. Cortical thickening, expansion, or disruption and soft-tissue masses are uncommon findings^{12,13}. Because low-grade chondrosarcomas can have cytologic features similar to those of enchondromas, histologic evaluation is important¹⁴.

Osteomyelitis has been long known as "the great masquerader" owing to its varied presentations. Sub-acute osteomyelitis simulates a wide range of differential diagnoses including bone tumors¹⁵. This study presents a similar case where preliminary investigations are suggestive of infection which on histopathological examination turns out to be a bone tumour.

2. Case Report

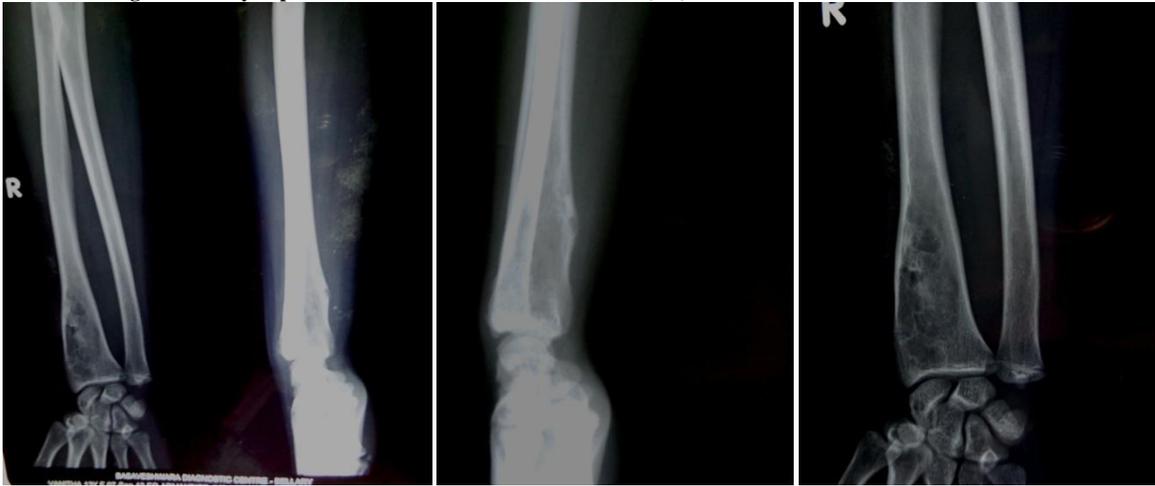
A 15 - year-old female presented with pain in the right distal forearm for about 12 weeks. Pain started after lifting weights and aggravated by physical work. Swelling of distal wrist since one month. No associated constitutional symptoms.

On Examination there was diffuse swelling of right distal radius firm to hard in consistency associated with tenderness. Thickening of distal end of radius was felt. There was no restriction of wrist movements. There were no associated neurovascular deficits.

Routine blood investigations were within normal limits.

X-ray features were suggestive of radioluscent lytic lesions in the distal radial metaphysis with thickened periosteal reactions suggestive of Sub-acute Osteomyelitis. (Figure 1)

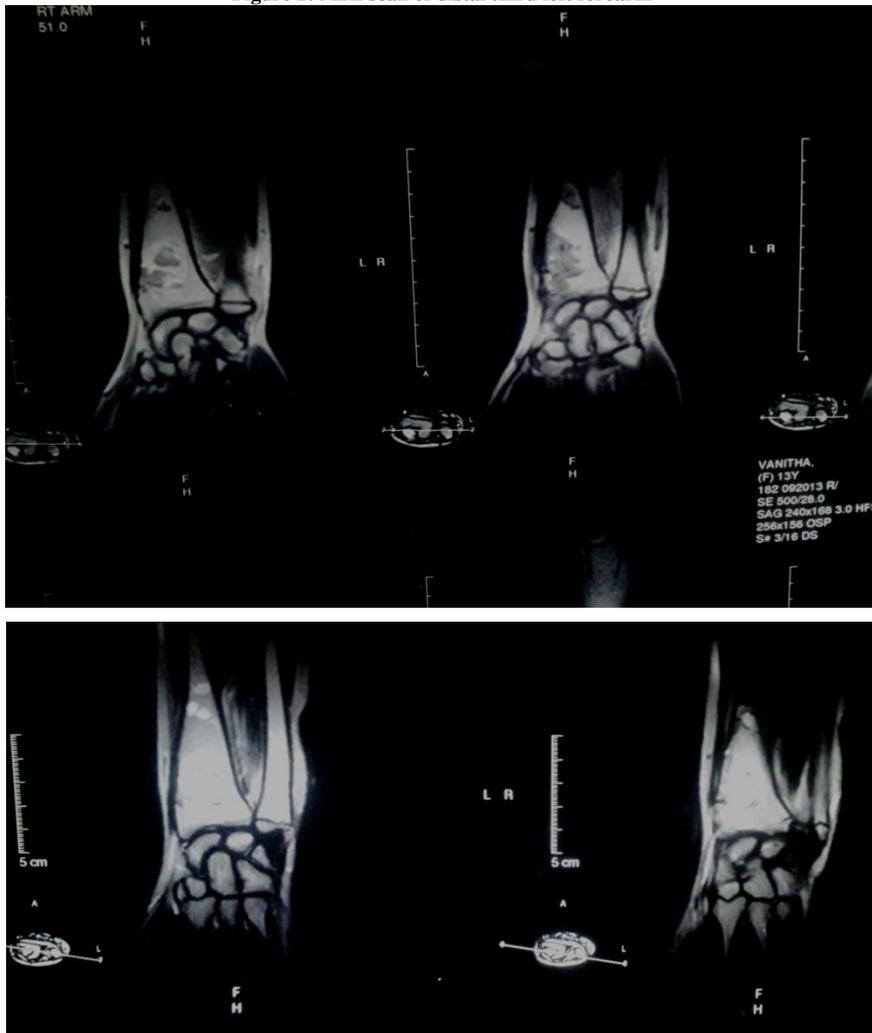
Figure 1: X-ray at presentation- includes Postero-Anterior (PA) and Lateral view of left distal forearm.



X-ray features were suggestive of radioluscent lytic lesions in the distal radial metaphysis with thickened periosteal reactions suggestive of Sub-acute Osteomyelitis

MRI features showed multiple altered signal intensity lesions in the Metadiaphysis and Epiphysis of lower 1/3 radius which were irregular and few were also seen along the endosteal margins. There was cortical irregularity with Mild bone enlargement and minimum subperiosteal edema. Impression was suggestive of Sub-acute osteomyelitis with Brodies Abscess in distal 1/3 radius. (Figure 2)

Figure 2: MRI scan of distal third left forearm



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Case was provisionally diagnosed as Sub-acute osteomyelitis and curettage was done and the sample was sent for histopathological examination. Histopathological Examination section showed lobules of mature cartilage surrounded by bony trabeculae. Scattered inflammatory cells being seen in adjacent stroma. Section was negative for granulomas or malignancy. Features were in Favour of Enchondroma. (Figure 3)

Figure 3: Histopathology of the excised lesion



Histopathological Examination section showed lobules of mature cartilage surrounded by bony trabeculae. Scattered inflammatory cells being seen in adjacent stroma. Section was negative for granulomas or malignancy. Features were in Favour of Enchondroma.

At 12-month follow-up, patient was found to be completely symptom-free, have full ROM (range of motion). X-ray showed filling up of the excised area with bone. (Figure 4,5,6)

Figure 4: Six months post-operative X-ray - includes Postero-Anterior (PA) and Lateral view of left distal forearm.

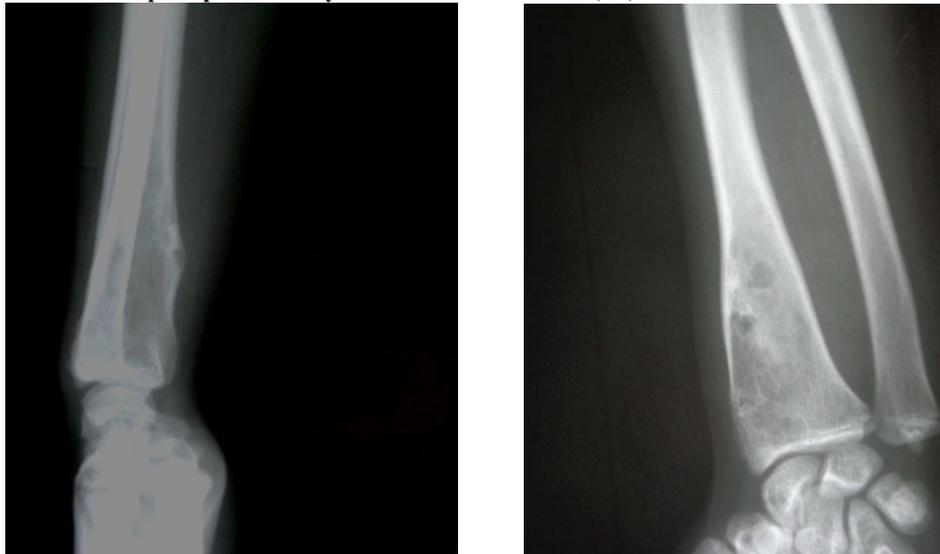


Figure 5: Clinical photograph of the patient at six months post-operative- shows good functional range of wrist movements with a healthy scar.



Figure 6: Twelve months post-operative X-ray - includes Postero-Anterior (PA) and Lateral view of left distal forearm.



Patient was found to be completely symptom-free, have full ROM (range of motion). X-ray showed filling up of the excised area with bone

3. Discussion

Approximately 35% of all enchondromas arise in the hand⁵, followed by femur, humerus, and tibia. Solitary enchondroma of radius is rare⁶. Even after extensive literature search, reference for exact incidence of solitary enchondroma in radius is not found, although 1% incidence is quoted for radius and ulna⁷.

We are presenting a rare case of solitary enchondroma of distal radius diagnosed retrospectively on histology. Even after extensive research very few cases of distal radius enchondroma were found and none in which diagnosis was made retrospectively.

4. Conclusion

The common differential diagnosis of a lytic lesion of distal radius in this age group includes Osteomyelitis, aneurysmal bone cyst, chondromyxoid fibroma, non-ossifying fibroma, Enchondroma. This report concludes the importance of keeping Enchondroma as a differential diagnosis when treating a case of lytic lesions even in the long bones. It also highlights the importance of biopsy as the investigation which helps in reaching the correct diagnosis whereas other investigations may be misleading in some cases. Therefore even if though rare but still enchondroma can present in unusual locations like distal radius and should be kept as one of the differential diagnosis when managing such cases.

Consent

A well informed and written consent was taken from the patient and her father for the presented case report including both for the data and the photos.

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