ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 07 | July - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

SYMPTOMATIC SOLITARY OSTEOCHONDROMA OF PROXIMAL RADIUS IN AN ELDERLY FEMALE: A CASE REPORT

Orthopedics

Kaustav Mukherjee* Post graduate, Department of Orthopaedics, Sri Ramachandra Institute of Higher Education and Research, Chennai, Tamil Nadu, India. *Corresponding Author

Aniruddha Mundhada Post graduate, Department of Pathology, Sri Ramachandra Institute of Higher Education and Research, Chennai, Tamil Nadu, India.

Nithin Venkat Post graduate, Department of Orthopaedics, Sri Ramachandra Institute of Higher Education and Research, Tamil Nadu, India.

ABSTRACT

Osteochondroma is a common benign tumor in adolescence but is unusual in elderly age group with atypical site of presentation as proximal radius. Osseous lesions at the level of proximal forearm have often lead to limitations in movements and impingement on surrounding soft tissue structures. Here, we describe a case of a 61 year old female who presented with gross restrictions of forearm rotations with progressively increasing swelling over the proximal forearm. Imaging studies hinted at an osseous lesion with a cartilaginous cap. Surgical excision was done due to rapidly growing mass with functional restrictions. Incidental adjoining bursitis was seen intra-operatively and histopathology confirmed the diagnosis. Patient regained full range of motion and was asymptomatic postoperatively at 8 weeks. Atypical presentations though rare, are a possibility and so surgeons should be aware for appropriate management of these tumors.

KEYWORDS

osteochondroma, elderly, tumor, radius

INTRODUCTION

Osteochondroma represents the most common bone tumor and is a developmental lesion rather than a true neoplasm[1]. Osteochondromas are common benign tumors in the adolescent age group as they commonly develop during skeletal growth and are uncommon in advanced age. Seldom found in elderly, it's still unclear why it occurs in aged population. Solitary osteochondromas have a maximum predilection to lower limb skeleton, while those originating from the elbow is quite rare[2]. Herein, we report a case of solitary proximal radius osteochondroma in an elderly female– the unusual incidence, progressively increasing size of the mass with restriction of forearm movements and treatment.

Case presentation

61 year old female came to outpatient department with progressive increasing mass over the right elbow for the last 10 months. She also complains of restricted movements of the forearm over the last 6 months with complaints of pain for last 2 weeks. Patient gives a history of first noticing the swelling over the right elbow 2 years back. The swelling was not associated with pain initially and lacked any history of trauma. Patient underwent conservative management previously but was ineffective. On physical examination, a visible globular swelling could be appreciated over the volar aspect of the proximal forearm just distal to the elbow crease. On palpating, a hard bony mass could be felt and no tenderness could be elicited. Patient had a significant restriction of supination (0-10˚) and pronation (0-10˚) with almost full flexion-extension movements at the elbow joint. Plain X-rays of the right elbow showed a wide sessile radio-dense lesion arising from the proximal third of the radius, close to the radial tuberosity with varied heterogenicity and at the level of proximal radio-ulnar joint (Figure 1). There were no associated abnormalities in the radio-capitellar and ulno-humeral joints. MRI suggested a lobulated exophytic mixed osseo-cartilaginous component arising from anteromedial cortex of proximal radius metaphysis with cartilaginous component thickened and measuring up to 12mm (Figure 2). Based on the above findings a clinico-radiological diagnosis of osteochondroma was made.

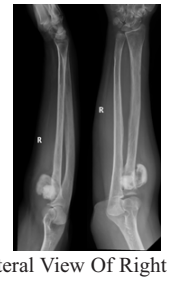

Figure 1- AP And Lateral View Of Right Forearm Showing A Well Defined Osseous Mass.

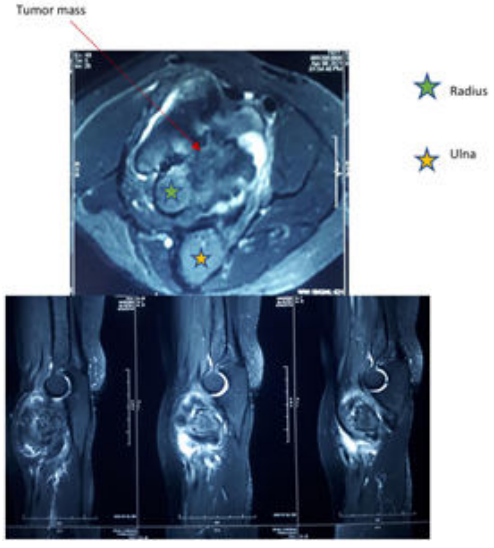

Figure 2- Axial And Sagittal Section Of MRI Showing Heterogeneous Intensity Mass At Level Of Proximal Radio-ulnar Joint.

Surgical intervention was necessary based on the progressively increasing tumor size, restricted forearm movements and thick cartilage cap. The incision was made through Henry's approach and tumor mass exposed. The tumor was located 1cm distal to radial head, obscuring the proximal radioulnar joint and radial neck anteriorly, medially and laterally. The outgrowth had 2 separate distinct masses, one being a smaller completely white bony hard lesion and the other being a larger soft mass resembling bursitis (Figure 3). The tumor mass was encased with rich vascular supply from radial artery posteriorly and in close proximity to the posterior interosseous nerve. The tumour mass had a clear line of separation from the adjoining soft tissues and the underlying bone with no evidence of any invasion. There was no associated bony lesion or destruction. The dissection of the mass was carried out cauterizing all the major vascular supply to the mass and ultimately ligating the radial artery. Bursa was dissected out and the hard bony mass osteotomed taking utmost care not to cause any iatrogenic fracture of the underlying neck of the radius. Post dissection the bony surface of the radial neck was intact, intra-operative supination and pronation movements were restored and elbow joint checked under image intensifier to rule out any tumor mass left behind (Figure 4).

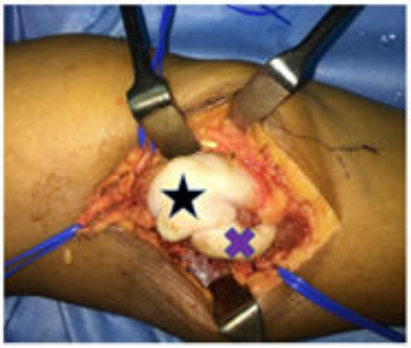

Figure 3- Intra operative picture showing two distinct masses arising from the proximal radius.

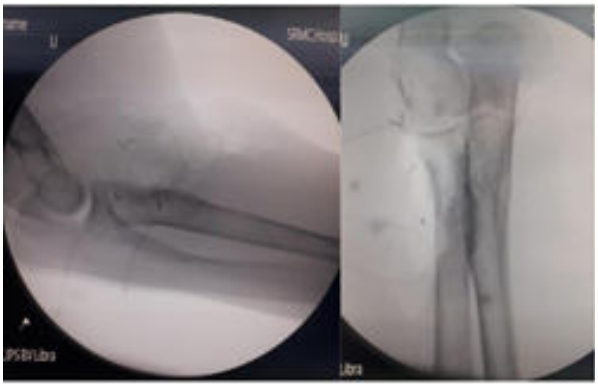

Figure 4- C arm shot post tumor resection.

Specimens sent for histopathology with gross examination revealed cartilage cap of 1cm, ill defined and microscopy did not show any features suggestive of malignancy (Figure 5). Post-operatively the patient developed finger drop and was splinted. Four weeks post-operative the neurodeficit recovered completely and functional rehabilitation was started. Eight weeks postoperatively patient regained full range of motion when compared to the normal side with X-rays showing no evidence of recurrence.

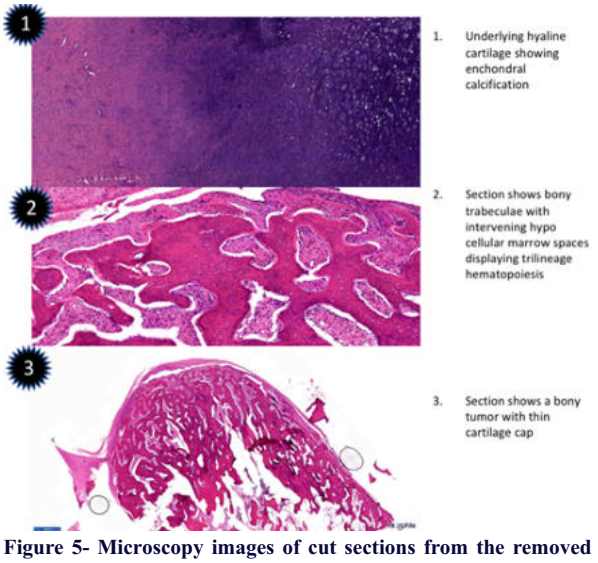

Figure 5- Microscopy images of cut sections from the removed tumor mass

DISCUSSION

Osteochondroma is a most common primary bone tumor which manifests as two different forms - solitary osteochondromas also known as exostosis and multiple osteochondromas[3]. Solitary osteochondromas constitute 10% of all bone tumors and 35% of all benign tumors[4]. Although the most common pathogenic sites of solitary osteochondromas are lower limb appendicular skeleton, osteochondromas of proximal radius have been quite scantily reported in literature. While osteochondromas in adolescent age group are still explainable, with lesions resulting from separation of fragment of epiphyseal growth plate cartilage which subsequently herniates through the periosteal bone cuff that normally surrounds the growth plate (encoche of Ranvier)[1]; substantial growth of tumor after physeal closure in elderly population may indicate malignant transformation[5], and often been linked with the variants of osteochondromas. Variants of osteochondromas include subungual exostosis, dysplasia epiphysealis hemimelica, turret exostosis, traction exostosis, bizarre parosteal osteochondromatous proliferation, and florid reactive periostitis[1]. In the upper extremity, exostoses are most commonly observed in setting of neoplasia or due to post traumatic causes[6]. Post-traumatic exostosis frequently occurs in phalanges and metacarpals, described classically as "turret exostosis" by Wissinger and Boyes, and is described as ossification of subperiosteal haematoma owing to persistent function of adjacent periosteum and limited path for egress[7]. Around the elbow, impinging osseous lesions are frequently described in the context of post-traumatic olecranon and coronoid fossa osteophytes, heterotrophic ossification, malpositioned fracture fragments and radio-ulnar synostosis[8]. As a result the flexion-extension and forearm rotations are often affected owing to the highly congruous articulations at proximal forearm and so are the chances of impingement due to close proximity to neurovascular and tendinous structures. Complications commonly associated with these exophytic masses include cosmetic and osseous deformities, fracture, vascular compromise, neurologic sequale, overlying bursa formation and malignant transformation[1]. Orlow originally described bursa formation between osteochondroma and surrounding soft tissue as "exostosis bursata"[1]. These bursa are lined by synovium and may become inflamed, infected or haemorrhagic[1]. In addition, these bursas may undergo chondrometaplasia of the synovial lining leading to secondary synovial chondromatosis[9]. These bursas often show rapid enlargement and differentiation from a malignant lesion is important radiologically and histopathologically.

Our case had this elderly lady of 61 years presenting with osteochondroma of proximal radius which was painful with restricted forearm rotations. However, she did not give any history of trauma or any other inciting events to develop these symptoms. We decided to operate and excise the mass due to rapid growth and the unusual age of presentation, to rule out any sarcomatous changes. We performed an extra-periosteal resection of the mass and an adjoining bursa removal, which is often a known complication of long standing osteochondromas over high friction zones. Histopathology confirmed the diagnosis of osteochondroma and 8 weeks post-operatively patient is asymptomatic with full range of motion of the forearm. An extra periosteal excision is treatment of choice and completely removes the tumor, but if tumor is not completely excised, then there are chances of recurrence[10].

CONCLUSIONS

Proximal radius osseous lesions may produce significant pain and functional disability. One should be aware of the atypical presentations of these tumors, despite the usual adolescent age preponderance, for accurate diagnosis and approach to treatment. Majority of the cases are asymptomatic and conservative management is usually enough, but in cases with rapid progressive increase in size with neurovascular symptoms, especially in elderly patients, do warrant a surgical intervention.

REFERENCES:

1. Murphey, M. D., Choi, J. J., Kransdorf, M. J., Flemming, D. J., & Gannon, F. H. (2000). Imaging of osteochondroma: variants and complications with radiologic-pathologic correlation. *Radiographics*, *20*(5), 1407-1434.
2. Niu, X. F., Yi, J. H., Hu, J., & Xiao, L. B. (2015). Chronic radial head dislocation caused by a rare solitary osteochondroma of the proximal radius in a child: a case report and review of the literature. *BMC research notes*, *8*(1), 1-4.
3. Czerniak, B. (2015). *Dorfman and Czerniak's Bone Tumors E-Book*. Elsevier Health Sciences.
4. Bovée, J. V. M. G., Khurana, J., & Abdul-Karim, F. (2002). Osteochondroma. *World Health Organization of Tumours. Pathology and genetics of tumours of soft tissue and bone.*
5. Bottner, F., Rodl, R., Kordish, I., Winkelmann, W., Gosheger, G., & Lindner, N. (2003). Surgical treatment of symptomatic osteochondroma: a three-to eight-year follow-up study. *The Journal of bone and joint surgery. British volume*, *85*(8), 1161-1165.
6. Casstevens, C., Hubbard, J., & Abrams, R. (2021). Impinging exostoses of the proximal radius: a report of two cases with distinct clinical features. *JSES Reviews, Reports, and Techniques*, *1*(2), 141-144.
7. Wissinger, H. A., McClain, E. J., & Boyes, J. H. (1966). Turret exostosis: ossifying hematoma of the phalanges. *JBJS*, *48*(1), 105-110.
8. Streubel, P. N., & Cohen, M. S. (2015). Open surgical release for contractures of the elbow. *JAAOS-Journal of the American Academy of Orthopaedic Surgeons*, *23*(6), 328-338.
9. Peh, W. C. G., Shek, T. W., Davies, A. M., Wong, J. W., & Chien, E. P. (1999). Osteochondroma and secondary synovial osteochondromatosis. *Skeletal radiology*, *28*(3), 169-174.
10. Jalan, D., Agarwal, S., & Prakash, S. (2020). Osteochondroma of Proximal Ulna–A rare case presentation. *Journal of Orthopaedic Case Reports*, *10*(6), 1.