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Solitary Osteochondroma in Uncommon Sites- A Rare Case Report

Karthik Loganathan[1], Prabhu Vasudevan[1], Ajithkumar Krishnan[1], Nawinsurya Arunachalam[1], Akash Manivannan[1]

Learning Point of the Article:

The osteochondromas are uncommon in flat bones but can still manifest at any site.

Abstract

Introduction: Osteochondroma is a bony lesion arising from the surface of the bone. It com-prises a large percentage of all benign bone tumors. A unique feature of this tumor is the conti-nuity of cortical and medullary components between the normal bony tissue and aberrant tissue of osteochondroma. Even though the predominant composition is bone, growth takes place in the cartilaginous portion. The incidence of osteochondroma in flat bones which are ossified by intramembranous type of ossification including the scapula, clavicle, ribs, and pubic ramus is usually rare.

Case Report: We report three cases of osteochondroma involving less common and unusual sites. We have included one case of osteochondroma of the medial end of the clavicle, one case of iliac wing osteochondroma, and one case of radial head osteochondroma.

Conclusion: Osteochondroma rarely occurs in unusual sites. Although uncommon, osteochon-droma can involve small and flat bones.

Keywords: Osteochondroma, exostosis, clavicle, iliac wing, proximal radius.

Introduction

Osteochondroma is a bony outgrowth surrounded by a cartilage layer and involves long bones around the knee and elbow. They constitute 10% of all bone tumors and 20–50% of all benign tumors [1]. It is usually diagnosed before the third decade of life particularly around the knee joint and proximal humerus. The flat bones which are ossified by intramembranous type of ossification including the scapula, clavicle, ribs, and pubic ramus are less commonly involved. Whether osteochondroma is a tumor or a developmental condition is still up for debate. Osteochondromas are bony projections that form on the outside of bones and are covered in carti-lage, according to the World Health Organization [2]. Although bone makes up the majority of the composition, the cartilaginous region is where growth occurs.

Case Reports

In our study, we report three cases of solitary osteochondromas occurring at rare sites, varied clinical presentation, and their management.

Case 1: Medial end of clavicle

A 16-year-old female patient presented to our orthopedic clinic at Government Stanley Hospi-tal with swelling in the anterior aspect of the neck. Over the previous 6 months, it was seen that

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Author's Photo Gallery


Dr. Karthik Loganathan


Dr. Prabhu Vasudevan


Dr. Ajithkumar Krishnan


Dr. Nawinsurya Arunachalam


Dr. Akash Manivannan

[1]Department of Orthopedics, Stanley Medical College, Chennai, Tamil Nadu, India.

Address of Correspondence:
Dr. Karthik Loganathan,
Assistant Professor, Department of Orthopedics, Government Stanley Medical College, Chennai, Tamil Nadu, India.
E-mail: karindu1989@gmail.Com

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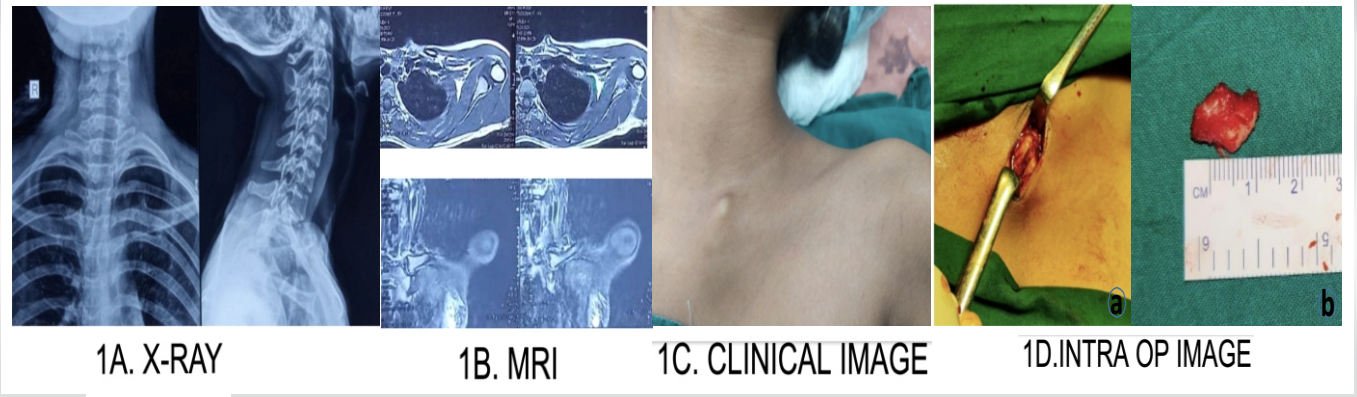

Figure 1: Osteochondroma of the medial end of the clavicle.

the edema was getting bigger. Other than the cosmetic appearance, the patient did not have any other symptoms. Upon examination, the swelling on the front aspect of the left clavicle's medi-al end was discovered to be hard and inflexible. On X-ray chest PA view and X-ray left shoul-der, the lesion is located at the anteromedial aspect of the left clavicle. We ordered for a computed tomography which suggested a bony lesion of size 1 × 0.8 × 0.9 cm suggestive of an os-teochondroma. An MRI of the same lesion was done which also suggested a solitary osteochon-droma of the clavicle. The diagnosis and the necessity of excision surgery followed by biopsy were explained to the patient and consent was obtained (Fig. 1).

Osteochondroma excision was done under general anesthesia. On the left side of the neck, di-rectly lateral to the sternoclavicular joint, a linear skin incision was performed over the bony prominence along the Langerhans line. A longitudinal separation of the strap muscles revealed the bony protrusion. Following electrocautery to delineate the base, an osteotome was used to perform the osteotomy of the osteochondroma. Gel foam was used to establish hemostasis at the excision site. The excised mass a brown bony tissue measuring 1 × 0.9 × 1 cm was sent for histopathological examination. The pathology report was consistent with osteochondroma. The patient was reviewed regularly for a period of 6 months with no further complaints.

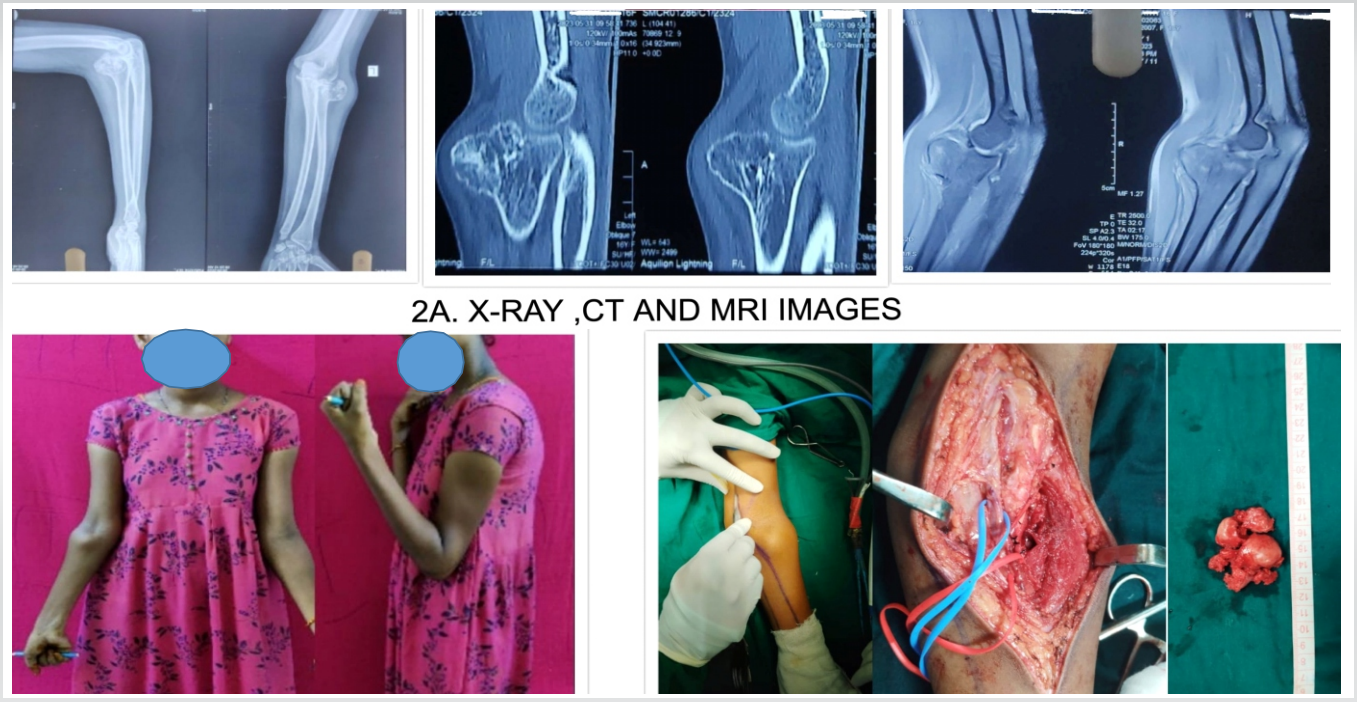

Figure 2: Osteochondroma of radial head.

Case 2: Solitary osteochondroma of Radial head

A 16-year-old female presented to orthopedics OPD in Government Stanley Medical College and Hospital with complaints of progressive swelling over the left elbow region for the past 5 years associated with pain over the elbow joint. The patient was examined and on palpation, a non-tender, hard mass was located over the anterolateral aspect of the elbow. It was non-reducible, non-compressible, and fixed to the underlying bone. Terminal flexion and rotational movements of the elbow were restricted. On investigation, a plain X-ray of the elbow showed exostosis in the proximal radius metaphysis. CT and MRI were taken, which showed a 3 × 4 × 2.4 cm size swelling arising from the proximal metaphyseal region of the radius with a carti-laginous cap of 2.4 mm (Fig. 2).

After doing thorough pre-operative evaluation, the patient was taken up for surgery. Under the supraclavicular block, the incision was made and superficial dissection was done. Since the brachial artery was in close proximity to the tumor, vascular surgeon assistance was obtained to isolate the brachial artery. Marginal excision of the exostosis was done. The intraoperative and post-operative periods were uneventful. Confirmatory post-operative radiographs were taken.

Case 3: Iliac wing osteochondroma

An 18-year-old male presented to the outpatient department in Government Stanley Medical College Hospital with complaints of progressive swelling over the left iliac region for the past 5 years associated with pain while sitting and sleeping in a decubitus position. The patient was examined. On palpation, a tender hard mass was located poster superior to the left anterior su-perior iliac spine (ASIS) of the iliac bone. The skin over the swelling was free and mobile. On investigation, a plain X-ray pelvis showed exostosis in the iliac bone. MRI was taken and it showed a swelling of size 8.1 × 5.3 × 6.1 cm present in the left iliac bone with irregular carti-laginous cap thus confirming our diagnosis (Fig. 3).

With the patient in the right lateral position, a skin incision was made from the left side ASIS to the left side posterior superior iliac spine (PSIS). The site was dissected in layers and then the tumor mass was identified. In extra periosteal manner, tumor excision was done along with a pedunculated stalk. The specimen was sent for histopathological examination. Post-operative X-ray showed complete excision of the tumor mass. The patient mobilized on immediately post-operative. Suture removal was done on POD 14th. At 6 months follow up the patient is mobilizing without pain and no recurrence of tumor.

Discussion

Osteochondromas are benign tumors that are typically discovered by accident and are asymp-tomatic. These are the most prevalent kinds of benign bone tumors, appearing on the external surface of bones. The metaphyseal area of long bones is where they are most frequently found. It is more prevalent around the knee joint and more common in the proximal humerus after the third decade [3, 4]. A small masculine preponderance has been noted in certain research stud-ies. The clavicle, scapula, ribs, pubic ramus, and iliac wing – flat bones that are typically ossi-fied by intramembranous type of ossification during the fetal period – are less frequently im-plicated [5, 6].

There is controversy regarding the genesis of osteochondroma. They are described as either real neoplasms that may result from cell separation in the epiphyseal plate, or as developmental le-sions in certain studies. Numerous investigations have documented the emergence of oste-ochondroma following radiation therapy or trauma [7]. Osteochondroma is a true neoplastic lesion, as evidenced by numerous research that indicate genetic alterations in both solitary and hereditary varieties [8].

Osteochondroma manifests clinically in two different ways: as a

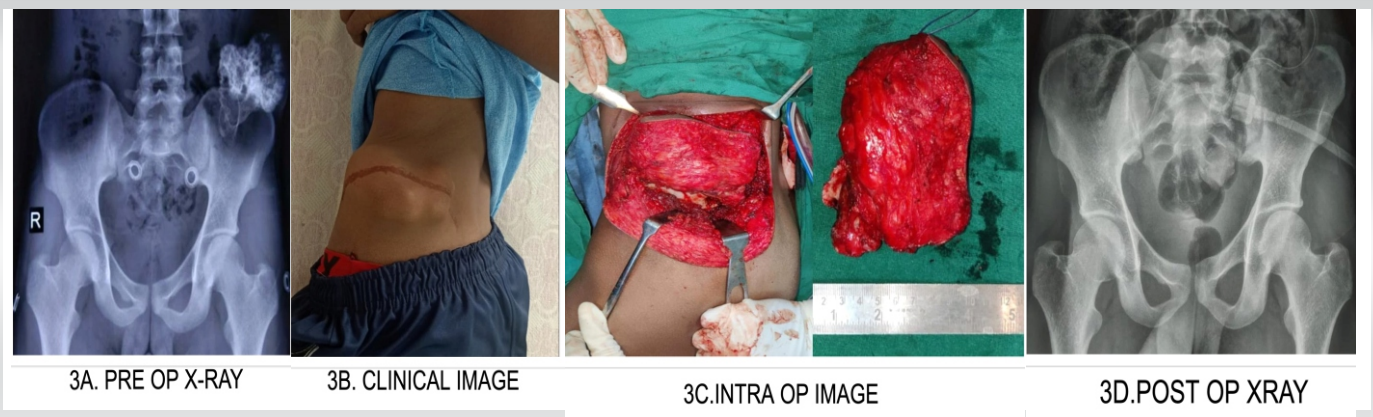

Figure 3: Solitary osteochondroma of iliac wing.

single lesion known as solitary osteochondroma, or as several lesions known as multiple osteochondroma. It is called a pedunculated type of tumor if it has a stalk or stems protruding from the normal bone. The tumor ex-pansion is referred to as sessile type if it has a wider base attached to the bone. Large, sessile osteochondromas with a thick cartilage covering are typical of multiple hereditary osteochon-dromas. Solitary osteochondroma is commonly known as exostosis. Most isolated osteochon-droma is discovered accidentally and is asymptomatic. The location and size of the exostosis are frequently associated with symptoms in patients. They cease when skeletal maturity is at-tained, growing gradually and slowly alongside the affected bone. Greater intensity of pain may be brought on by edema, a pathological fracture, or related nerve compression.

Osteochondroma malignant transformation is extremely uncommon, occurring in approximate-ly 1% of isolated tumors. In contrast, the frequency of malignant transformation in cases with multiple exostosis is approximately 10% [9]. New-onset discomfort, irregular calcification, growth beyond skeletal maturity, irregular borders, and erosion of surrounding bone are indica-tors of malignant change [8]. Another predictor is the thickness of the cartilage cap; in adults, a cap thickness of more than 2 cm, and in teenagers, a thickness of 3 cm is predictive of malig-nancy [9, 10].

The majority of clavicle-related cases, according to our review of the literature, occur toward the lateral end of the clavicle [11, 12]. Osteochondroma of the medial/proximal end of the clavicle is very rare [13, 14]. Some of the manifestations reported in the literature for this type of lesion are Horner syndrome [15, 16], tendinopathy [12], subclavian thrombosis [17], brachial plexopathy [18], and impingement syndrome [11]. In one of our cases, the patient presented with an osteochondroma of the medial end but without any symptoms except for cosmetic deformity.

In our second case involving the iliac wing, the lack of major symptoms allowed the oste-ochondroma to grow unnoticed until it became evident from its mass effect. When these secondary effects become noticed, they can present in multiple ways interfering in day-to-day ac-tivities. A pelvic tumor can grow to the extent that it can even cause sexual dysfunction [19].

In our third case involving the proximal radius, the main symptom was swelling, pain, and re-striction of movements. Only five cases of osteochondroma involving the proximal radius were reported in the literature with one particular case presenting with radial head dislocation [20]. Another one case presented with impingement of the posterior interosseous nerve with symp-toms resembling radial tunnel syndrome [21].

The treatment for these isolated lesions that did not reveal anything concerning during the first imaging is to perform routine, straightforward follow-ups. After surgical excision, there is a 1–2% chance of recurrence. For a single osteochondroma, the prognosis is usually better than that of multiple osteochondromas.

Conclusion

Osteochondroma is a benign lesion that usually presents without any symptoms. The incidence of osteochondroma in flat bones in particular is rare and often has unusual symptoms. The pre-senting symptoms can be attributed to mechanical block at the presenting site, which may vary across different locations. Excision of the lesion is a curative form of treatment without any recurrence. However, the surgical technique must be precise as the involvement in unusual sites may pose a risk to neurovascular structures. Regular follow-up is important to prevent any re-currence or malignant transformation. Hence, we would like to conclude that though unusual, osteochondroma can still involve small and flat bones.

Clinical Message

Although osteochondroma is rare in unusual sites, it is important to evaluate all patients pre-senting with swelling and pain over bony regions to diagnose and manage accordingly.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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