ISSN No:-2456 –2165

Osteochondroma Arising from the Proximal Fibula with Neurological Deficit in 3 Month Old Baby: A Rare Presentation

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Abstract:-Osteochondromas also called exostosisare commonly encountered benign tumors and they are characterized by cartilage capped bony projection arising on external surface containing a marrow cavity that is continuous with that of underlying bone. Osteochondromas tend to grow eccentrically rather than centrifugally. We are reporting a case of an 3 month-old male with hard, irregular swelling over anterolateral aspect of his left leg with neurological deficit[foot drop].MRI showed that the origin of the tumor was from proximal fibula with compression /entrapment of common fibular nerve. Nerve was released along with excision of tumor. A histopathological examination suggestive of a benign osteochondroma. Patient was recovered with good nerve function without any evidence of recurrence.

I. CASE REPORT

A 3 month-old male child brought to orthopaedic department with single irregular hard swelling over anterolateral aspect of left proximal leg with foot drop. Initially, it was small in size which later progressed over a period andreach to the present size. On clinical examination, a hard, non tender, irregularswelling which was adherent to bone, was seen over left proximal leg on anterolateral aspect, of size approximately 3 x3 x 1 cm. Swelling gradually increased from approximately 1 x 1 cm, when it was first noticed 2 month ago, to the present size. Instead of having common peroneal nerve entrapment, therange of motion around knee joint was normal .

Plain radiographs (AP and lateral view) of leg with knee showed a cauliflower like growth arising from proximal fibula, along with scalloping of tibia[figure:1]

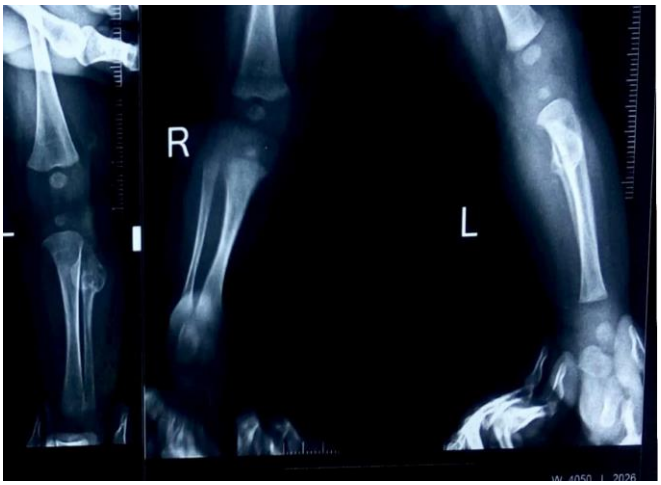

Figure 1. Plain Radiographs (AP and lateral view) of leg

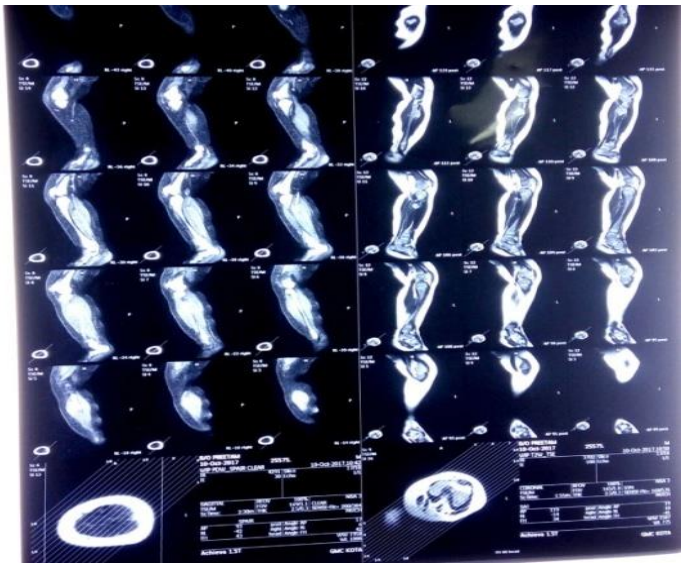

Figure 2. MRI Both upper Leg SE T1W sagittal

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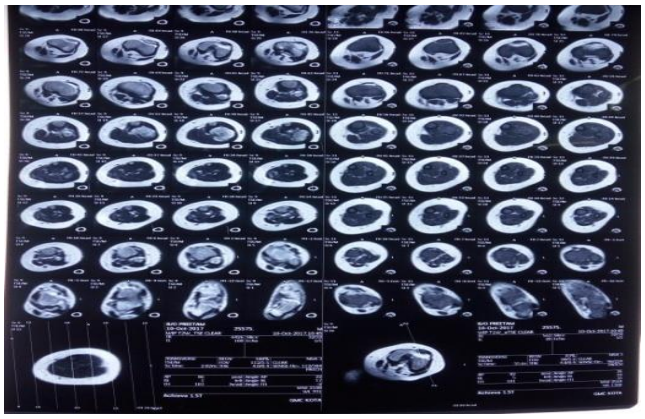

Figure 3. FSE T2W Axial Image

MRI both upper leg SE T1W sagittal [Figure :2] FSE T2W axial image[Figure:3] showing sessile osteochondroma involving upper end of left fibula with common fibular nerve appear prominent with adjacent free fluid-possible compression/entrapment of fibular nerve.

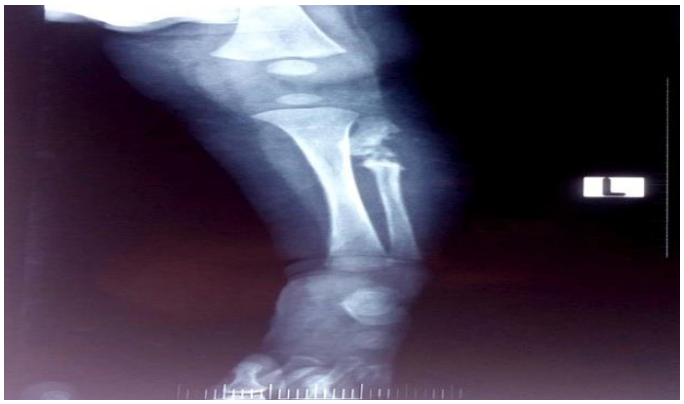

Figure 4. AP View After Excision of Mass and Nerve Release

Post operative radiograph- AP view after excision of mass and nerve release.[Figure :4]

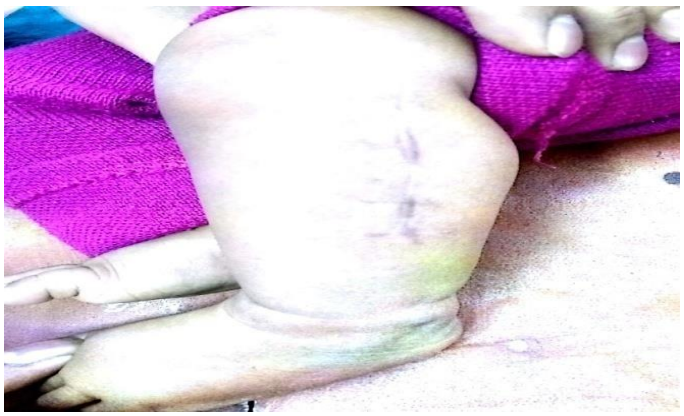

Figure 5. Incision Mark on Lateral Aspect of Left

Photograph showing incision mark on lateral aspect of left leg[Figure:5]

After doing a complete evaluation under general aneasthesia, complete excision of tumor along with cartilage cap was performed and entraped common peroneal nerve was identified and released. Histopathological examination of excised tumor confirmed thebenign nature of osteochondroma, without any evidence of a malignant transformation.

II. DISCUSSION

An osteochondroma was first described by Sir Astley Cooper, in 1818. It is the most common benign developmental tumor of the appendicular skeleton, which is characterized by an abnormal, ectopic, endochondral ossification around the physis. Osteochondromas account for 20-50% of the benign cartilage tumours and 10-15% of all bone tumours. Most lesions are solitary but about 15% of patients have multiple lesions. These growths are comprised of bone which is surrounded by a cap of cartilage. Occasionally, fractures of the pedunculated osteochondromas can occur. osteochondromasappear and grow only during the growth period ,rarely thereafter. Thus, most of the presentation are in the first three decades of life. Mass effect seen on adjacent structures such as bone [especially, when they occur in the forearm and leg], nerves, vessels, muscles, or even in the spinal cord, can also be symptomatic.

These tumors develop within the metaphyses of long tubular bones (distal femur, proximal tibia and proximal humerus) but may also arise in flat bones. Femur is the commonest bone involved with 75% of femoral lesions arising around the distal metaphysis.

There is 2.5% incidence of fibular primary bone tumors [1].The most common tumours found in the proximal fibula are osteochondromas, giant cell tumours, osteosarcomas, and Ewing's tumours. Osteosarcomas and Ewing's tumours have a tendency to grow in a centrifugal fashion, while osteochondromas grow eccentrically. Common locations are rapidly growing ends of long bones, vertebral borders of the scapulae, ribs, and iliac crests. Exostoses, mostly in tibia and scapula are initially recognized and diagnosed in the first decade of life, in over 80% of individuals with Hereditary multiple exostoses (HME)[2,3]. The osteochondromas usually cease their growth at skeletal maturity.

Many theories that have proposed to explain the etiology of osteochondromas; Virchow's physealtheory,Keith's Plate defect theory-1920.D'Ambrosia and Ferguson theory-transplantation of small quantity of rabbit epiphyseal plate cartilage under periosteum and developed exostosis[4]. Muller's theory-cartilaginous metaplasia of periosteum forms exostosis. Boyer firstly described and published about a

ISSN No:-2456 –2165

family with HME. Present thought regarding etiology of osteochondroma is aaberrant growth of a portion of the physeal plate.

Osteochondromasare 2 types sessile or pedunculated.solitary lesions are more common [approximately 90%] than multiple. Tumor is usually covered by a 1-3 mm cartilaginous cap [hyaline cartilage]. Osteochondromas commonly present as masses or bony swelling; may cause tendon, vessel and nerve compressions or a skeletal deformity. A fracture which occurs through the stalk, a pseudoaneurysm formation, infection, ischaemic necrosis, and a malignant transformation may result in appearance of symptoms in adults [5, 6].Rarely osteochondroma transform into malignant chondrosarcoma[approximately 1% for solitary and 20% for patients with multiple lesions] ,suspected only if tumor is suddenly increasing in size and increase in pain .The diagnosis based on radiological imaging-Plain radiograph.Computed tomography and magnetic resonance are useful for bony, vascular and soft tissue involvement . For vascular lesions CT angiography or colour–flow Doppler ultrasonography are advised [7]. Bone scans are also helpful for making a diagnosis, but they cannot differentiate between benign active exostoses and chondrosarcomas.

A proximal fibular osteochondroma may distort the normal anatomical course of nerves and vessels and it may lead to vascular compression syndromes and a pseudoaneurysm or peroneal nerve paralysis [8,9]. In our case, the main concern was size of the swelling andinvolvement of neurovascular bundle [peroneal nerve] causing (foot drop). Another concern was the suspicion of a malignant transformation, but histopathological examination of resected specimen excluded this. When one dealing with proximal fibular tumours should be very cautious about these concerns.

In 2014 ManojKumar[1] Monika Malgonde – reported a case of Osteochondroma Arising from the Proximal Fibula in 18-year-old male with large, hard, irregular swelling over anterolateral aspect of his right leg. There was no neurovascular deficit in the extremity.

There is no treatment required in asymptomatic osteochondromas. most lesion found incidentally, keep observation and reassurance are given over time [2,3]. In case of neuro vascular involvement, treatment of bone and neurovascular lesions is performed simultaneously.

Rarely, recurrence of an exostosis is seen after its surgical excision, but can be observed in case of incomplete removal of lesions with cartilaginous cap. Excellent results are seen after excision.

III. CONCLUSION

Most of the osteochondromas in children should be dealt conservatively until skeletal maturity, but exostosis affecting the proximal tibia or fibula should be treated always with surgical excisions,to prevent knee deformities, vascular compression syndromes pseudoaneurysms or peroneal nerve paralysis .

REFERENCES

[1]. Unni K. Dahlin’s Bone Tumors: General Aspects and Data on 11,087Cases. Philadelphia: Lippincot-Raven Publishers; 1996.
[2]. Ryckx A, Somers Jan FA, AllaertL.Hereditary Multiple Exostosis. ActaOrthopaedicaBelgica. 2013;79:597–607. [PubMed]
[3]. Saglik Y, Altay M, Unal VS, Basarir K, Yildiz Y. Manifestations and management of osteochondromas: a retrospective analysis of 382 patients. ActaOrthopaedicaBelgica. 2006;72:748–55. [PubMed]
[4]. D’Ambrosia R, Ferguson AB, Jr. The formation of osteochondroma by epiphyseal cartilage transplantation. ClinicalOrthopaedics and Related Research. 1968;61:103–15. [PubMed]
[5]. Anderson RL, Jr, Popowitz L, Li JK. An unusual sarcoma arising in a solitary osteochondroma. The Journal of Bone and Joint Surgery American volume. 1969;51:1199–204. [PubMed]
[6]. El-Khoury GY, Bassett GS. Symptomatic bursa formation with osteochondromas. AJR American JournalofRoentgenology. 1979;133:895–8. [PubMed]
[7]. Douis H, Saifuddin A. The imaging of cartilaginous bone tumours. I. Benign lesions. Skeletal Radiology. 2012;41:1195–212. [PubMed]
[8]. Mnif H, Koubaa M, Zrig M, Zammel N, Abid A. Peroneal nerve palsy resulting from fibular head osteochondroma. Orthopedics. 2009;32:528. [PubMed]
[9]. Cardelia JM, Dormans JP, Drummond DS, Davidson RS, Duhaime C, Sutton L. Proximal fibular osteochondroma with associated peroneal nerve palsy: a review of six cases. Journal of Pediatric Orthopedics. 1995;15:574–7. [PubMed]