

A Case Report of Unicameral Bone Cyst in an unusual site- Metatarsal in a child.

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Abstract

Unicameral bone cysts (UBCs) are benign, osteolytic lesions which are often asymptomatic and are commonly seen in the proximal of humerus and femur. We report such a lesion in an unusual site –metatarsal, in an eight year old boy, who presented to orthopedic clinic with a 1 month history of painful limping after trivial fall while playing. Clinical, radiographic and pathologic findings and cyst curettage evocated solitary bone cyst.

Keywords: Unicameral bone cyst, Simple bone cyst, curettage and bone grafting, synthetic bone graft.

Introduction

Unicameral bone cyst is also called as simple bone cyst, traumatic bone cyst, traumatic hemorrhagic cyst, progressive bone cavity, solitary bone cavity, solitary bone cyst. Unicameral bone cyst was first recognized by Virchow in 1876.[1] The World Health Organization (WHO) in 1992 defined it as an intraosseous cyst having a tenuous lining of connective tissue with no epithelium.[2] Males are affected more often than females in a ratio of 3:2. UBCs make up 3% of solitary bone tumours. 85% of UBCs occurs almost exclusively in children and adolescents. The reported peak age group is 3 to 14 years with a mean age of 9 years.

However, when symptomatic, it is usually as a result of a pathologic fracture causing pain, swelling, or deformity [3]. Treatment is not required unless the bone cyst is large and leads to deformity or symptoms, or there is an impending fracture [4].

Case Report

A 8 year old boy presented to our PSG Medical college Orthopaedic OPD with history of pain, swelling & limp, walking on his lateral border of his left foot since 3 weeks. He had a history of trivial fall while playing a week before he presented to us. The Parents noticed a swelling over the dorsum of the right foot. On examination, a diffuse swelling 3x2 cm over dorsum of 3 metatarsal right foot. No scar/sinus/abnormal pulsation, not warm, tender, firm to hard in consistency skin was pinchable. No distal neurovascular deficit.

MRI was done at a private scan centre which suggested being metadiaphyseal expansile lytic lesion of 3rd metatarsal with cortical scalloping and fracturing with intact physeal plate. Suggestive of enchondroma. Patient was taken up for surgery, curettage and biopsy of the material with bone graft (G Bone substitute). Below are the interoperative pictures.

Figure 1: Clinical picture.

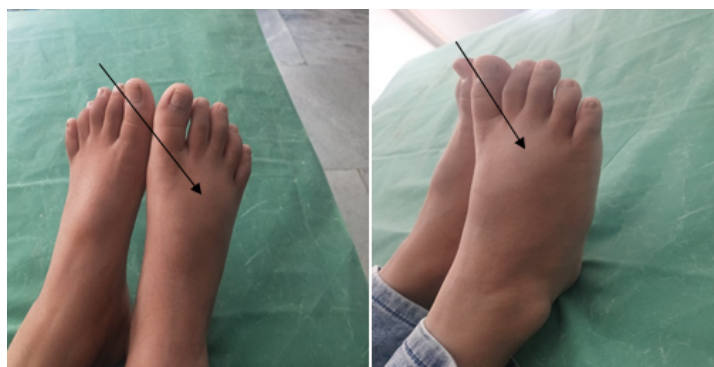


Figure 2: x ray of right foot AP and Oblique views showing an expansile osteolytic lesion with a fracture line foot.



Figure 3: MRI coronal view showing hyperintense lesion around the 3rd & 4th metatarsal of right foot.



Figure 4: Showing sagittal and axial views of a hyperintense area in the 3 rd metatarsal.



Figure 5: Showing sagittal and axial views of a hyperintense area in the 3 rd metatarsal.

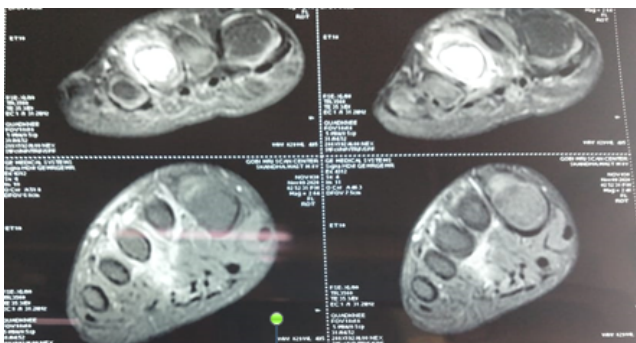


Figure 6: Showing a hypointense area in axial cuts T2 weighted image of 3 rd metatarsal.

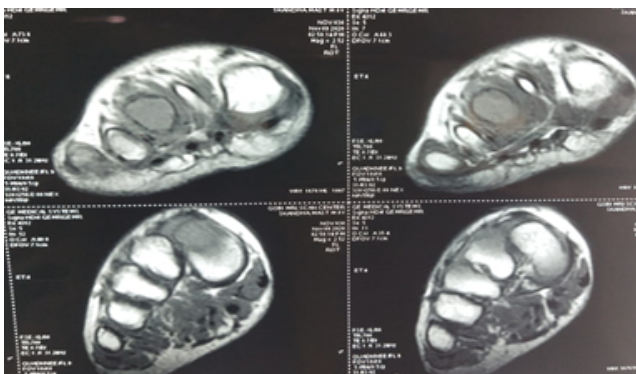


Figure 7: Macroscopic appearance of the tumor.

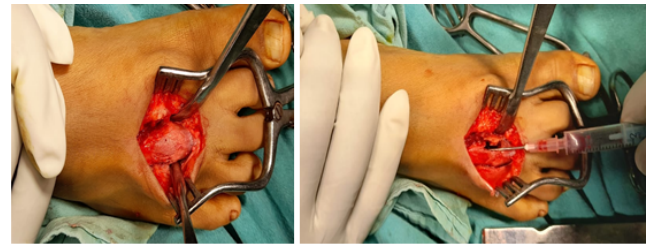


Figure 8: Cortical window created and walls curetted with a mini bone burr.

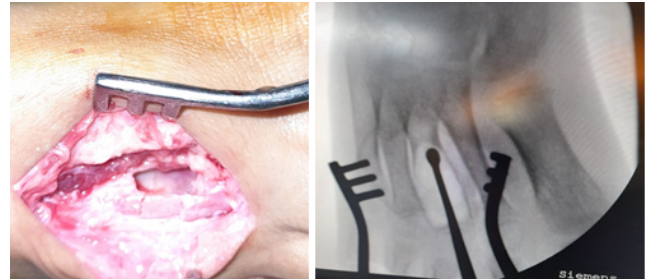


Figure 9: Synthetic bone graft (G bone) packed covering the entire lesion.



Figure 10: Histopathology showing multiple fibrous bands with immature osteoclasts and giant cells suggestive of Simple Bone Cyst.

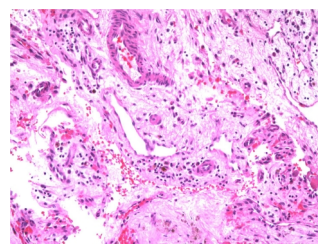


Figure 11(a): Immediate post-operative X ray.



Figure 11(b): 2 months follow-up showing consolidation of the graft.

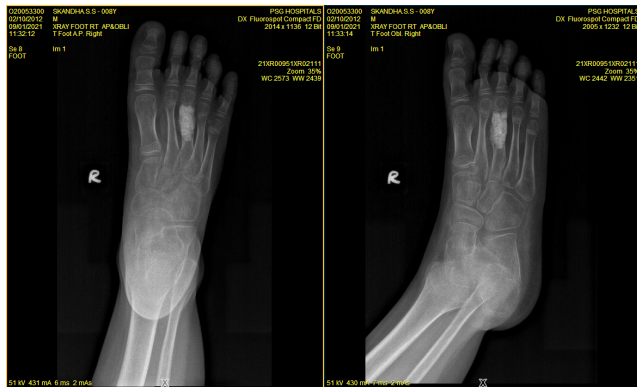


Figure 12: Surgical scar healed well boy is able to fully weight bear & walk.



Discussion

Unicameral bone cyst, (UBC) consist of benign self-healing fluid-filled tumor-like lesions that can self-heal. Radical excision of the cyst reduces the recurrence rate but increases the morbidity and complication rates. Our experience showed that treatment does not provide thorough clearance, but provides sufficient clearance and promotes sufficient healing. Even

scraping off the cyst membrane adjacent to the epiphysis ensures adequate safety. Our case of a 8 year boy with trivial injury was unable to run or walk after the fall. Site for UBC was rather rare with only few cases reported in the metatarsal .Adequate curettage with mini bone burr and bone grafting with synthetic bone graft (G bone) provided a onetime procedure with good clinical outcome.

Conclusion

Bone cyst in children is not uncommon presentation , but metatarsal bone UBC is quite rare and unusual. Most UBCs will heal by the time of physeal closure. Dormans et al. [5] consider patient age as an important factor. Patients older than 10 years heal at a higher rate (90%) than younger patients (60%), irrespective of the treatment modality. On the other hand, Haidar and colleagues [6] consider a lesion located < 2 cm from the physis as a risk factor for recurrence. The risk of recurrence can also be related to the type of treatment rather than the location of the lesion [2]. Overall UBC s generally have a good prognosis with complete healing if treated with curettage and bone grafting.

References

1. Suei Y, Taguchi A, Tanimoto K. (2007). A comparative study of simple bone cysts of the jaw and extracranial bones. *DentomaxillofacRadiol*; 36:125-9.
2. Ajila V, Gopakumar R, Hegde S, Babu S, Harini K. (2015) Unusual presentation of solitary bone cyst- A case report. *NUJHS*; 4:135-7.
3. Rosenblatt J,Koder A, Understanding Unicameral and Aneurysmal Bone Cysts. *Pediatrics in review*. 2019 Feb
4. Noordin S,Allana S,Umer M,Jamil M,Hilal K,Uddin N, Unicameral bone cysts: Current concepts. *Annals of medicine and surgery* (2012).
5. J. Dormans, S. Pill, (2002). Fractures through bone cysts: unicameral bone cysts, aneurysmal bone cysts, fibrous cortical defects, and nonossifying fibromas, *Instr. Course Lect*. 51.
6. S.G. Haidar, D.J. Culliford, E.D. Gent, N.M. Clarke. (2011). Distance from the growth plate and its relation to the outcome of unicameral bone cyst treatment, *Journal of children's orthopaedics*; 5: 151–156.
7. J. Pretell-Mazzini, R.F. Murphy, I. Kushare, J.P. Dormans. (2014).Unicameral bone cysts: general characteristics and management controversies, *J. Am. Acad. Orthop. Surg*;22:295–303.
8. J.S. Biermann. (2002). Common benign lesions of bone in children and adolescents, *J. Pediatr. Orthop*;22: 268–273.