

Non-Traumatic Fracture Of Pedunculated Osteochondroma

- A case report and brief review of literature

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What to Learn from this Article?

*Atraumatic fractures of osteochondroma may be caused secondary to strong muscle contraction
Such presentations are acutely symptomatic and surgical excision of the lesion gives prompt relief*

Abstract

Introduction: Non-traumatic fracture of pedunculated osteochondroma is a known, but rare complication. Treatment protocols for such complication are debatable, however, surgical intervene have been advocated.

Case Report: 14 years old male presented with pain and redness around the knee with no history of injury. Radiograph showed fracture of solitary osteochondroma of femur. Excision was done through posterolateral approach and confirmed with histopathology. Patient returned to activities at 2 weeks post surgery

Conclusion: Atraumatic fractures may occur due to strong muscular contractions in cases of pedunculated osteochondroma. Surgical excision gives prompt relief from symptoms

Keywords: Pedunculated osteochondroma; fracture; non-traumatic

Author's Photo Gallery



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Introduction

Among all skeletal tumors, osteochondroma constitutes about 10-15 % [1] Non-traumatic fracture of osteochondroma through the stalk is a known, but rare complication. Treatment protocols for such complication are debatable. However, surgical intervene have been advocated [2]. It is going to be case reported as a perusal of rare entity.

Case Report

A 14 years old male patient presented to our outpatient department with pain, redness, and swelling over distal and posterolateral aspect of left thigh with 4 days. On history, taking patient stated that he had a gradual progressive painless mild swelling over that area for 6 month. For 4 days patient increased pain, redness, along with increments in size of previous. He did not reveal episode of recent significant trauma. On physical examination, there was tender, palpable mild swelling over posteromedial aspect of distal thigh. Hip joint was normal but knee joint was painful and restricted due to pain. Distal neurovascular status was intact. Past medical history was insignificant. On radiographic examination, it showed fracture through base of pedunculated osteochondroma, which was situated in distal left thigh posteromedially (Fig-1). On meticulous questioning patient gave the history of mild intermittent pain over osteochondroma site after moderate to

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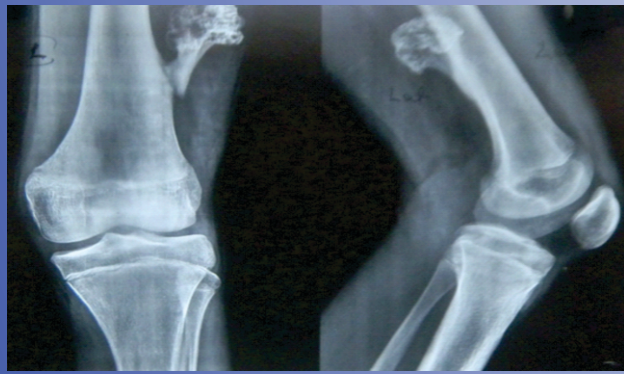


Figure 1: Showing fracture from base of pedunculated osteochondroma

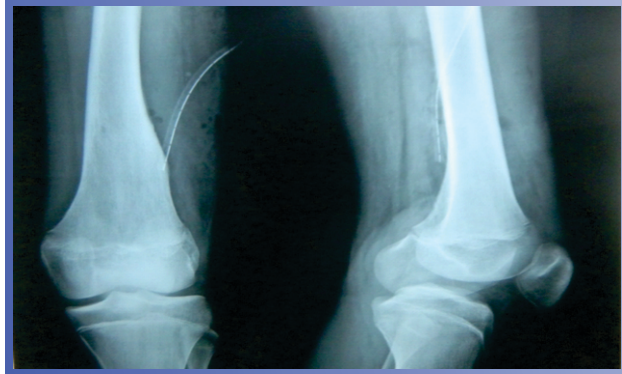


Figure 2: Excision of osteochondroma

severe exertion.

For excision posterolateral approach was used, vastus lateralis was reflected anteriorly and plane was developed between it and lateral intermuscular septum covering hamstring muscles (internervous plane of femoral and sciatic nerve) to reach the base of growth. With the help of chisel, extra-periosteal excision was done (with cartilaginous cap) and raw surface filed (Fig-2) and confirmation was done after histopathological examination. Recuperating period was uneventful and patient resumed pre-disease activity status after two week.

Discussion

Most common presenting age of osteochondroma is childhood or in the second decade [3]. Most of the time it is symptomless, and beings diagnosed incidentally [4]. Fracture, bursa formation, malignant transition and neurovascular compromise are mentioned complications of osteochondroma which entail it for being symptomatic [5, 6].

Malignant transition in solitary lesion of osteochondroma is very less (1%) in comparison to autosomal dominant hereditary multiple exostoses, in which it may be up to 5% [1, 8, 9, 10]. Usually pathognomonic radiological features are sufficient for delineating it, and CT scan is further needed for diagnostic confirmation and pre-op management. MRI is preferable diagnostic tool to detect malignant change. It also measures the cartilaginous cap, which ($\geq 1.5\text{cm}$) may be the herald of malignant changes [1, 2, 11]. Biopsy usually not used, until other diagnostic tools fail, due to chance of spreading.

Commonest site of fracture of osteochondroma is around knee [1, 2, 12, 13]. Only few cases of non-traumatic fracture of pedunculated osteochondroma has been reported [4, 7, 13, 16, 17]. Fracture of osteochondroma may occur due to direct or indirect injury. Growth of stalked osteochondroma leads to weakness at its stalk, so

the violent muscle contraction or relative friction of muscles may cause the fracture and pain in the absence of history of trauma [14, 15]. Carpintero et al. noticed fracture of osteochondroma occurred due to indirect violent muscle contraction [2]. Our patient did not give the history of significant trauma so indirect muscle contraction was the probable cause of fracture.

Observation and conservative management has also been suggested for such a rare complication, but surgery gives quicker recovery and return to normalcy [2, 7]. In our case report, it was also true in which patient got full recovery in two week.

Conclusion & Clinical Message

In conclusion, it was an uncommon type of presentation of non-traumatic fracture of pedunculated osteochondroma. Strong muscle contractions are postulated to cause this complication and surgical excision provides prompt relief.

Clinical Message

Though rare, it do occur as a clinical presentation in casualty department. It needs clinicoradiological evaluation and management. And surgical intervention is a preferred modality of treatment with shorter period of recuperation.

References

1. Murphey MD, Choi JJ, Kransdorf MJ, Flemming DJ, Gannon FH. Imaging of osteochondroma: variants and complications with radiologic-pathologic correlation. *Radiographics*. 2000 ; 20 :1407-1434.
2. Carpintero P, León F, Zafra M, Montero M, Berral FJ. Fractures of osteochondroma during physical exercise. *Am J Sports Med*. 2003;31:1003-1006.
3. Campanacci M, Bacchini P, Bertoni F. *Bone and Soft Tissue*

- Tumors: Clinical Features, Imaging, Pathology and Treatment*. 2. Wien: Springer; 1999.
4. Davids JR, Glancy GL, Eilert RE. Fracture through the stalk of pedunculated osteochondromas: a report of three cases. *Clin Orthop*. 1991;271:258–264.
 5. Fiddian NJ, King RJ. The winged scapula. *Clin Orthop*. 1984;185:228–236.
 6. Kwon OS, Kelly JI. Delayed presentation of osteochondroma on the ventral surface of the scapula. *Int J Shoulder Surg*. 2012;6:61–63.
 7. Ozkan Kose, Abdullah Ertas, Mustafa Celiktas, and Bulent Kisin. Fracture of an osteochondroma treated successfully with total excision: two case reports. - *Cases J*. 2009; 2: 8062.
 8. Kivioja A, Ervasti H, Kinnunen J. Chondrosarcoma in a family with multiple hereditary exostoses. *Journal of Bone & Joint Surgery (Br)*. 2000; 82:261–6.
 9. Hendel HW, Daugaard S, Kjaer A. Utility of planar bone scintigraphy to distinguish benign osteochondromas from malignant chondrosarcomas. *Clinical Nuclear Medicine*. 2002 ; 27:622–4.
 10. Willms R, Hartwig C, Bohm P. Malignant transformation of a multiple cartilaginous exostosis a case report. *International Orthopaedics*. 1997; 21:133–6.
 11. Fageir MM, Edwards MR, Addison AK. The surgical management of osteochondroma on the ventral surface of the scapula. *J Pediatr Orthop B*. 2009;18:304–307.
 12. Lee K, Davies A, Cassar-Pullicino V. Imaging the Complications of Osteochondroma. *Clinical Radiology*. 2002; 57:18–28.
 13. Prakash U, Court-Brown C.M. Fracture through an osteochondroma. *Injury*. 1996; 27:357–8.
 14. Woertler K, Lindner N, Gosheger G. Osteochondroma: MR imaging of tumor-related complications. *European Radiology*. 2000; 10:832–40.
 15. Krieg JC, Buckwalter JA, Peterson KK, el Khoury GY, Robinson RA. Extensive growth of an osteochondroma in a skeletally mature patient. A case report. *Journal of Bone & Joint Surgery (Am)*. 1995;77:269–73.
 16. Tanigawa N, Kariya S, Kojima H, Komemushi A, Fujii H, Sawada S. Lower limb ischaemia caused by fractured osteochondroma of the femur. *Br J Radiol*. 2007;80(952):78–80.
 17. Alonso-Torres A, Bernabéu D, López-Barea F, Martín-Hervás C, González-López JM. Growth and fracture of an osteochondroma in an adult patient. *Eur Radiol*. 2004;14(12):2366–2367.

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