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Case Report

Giant Cell Tumor with Aneurysmal Bone Cyst Changes of Proximal Fibula in a Young Male - A Case Report.

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Abstract

Giant cell tumor (GCT) account around 5% of bone tumors with a slight female preponderance. We are presenting a case 32yr old gentleman, who presented with c/o swelling present on lateral aspect of proximal third of left leg for past one year and pain over the swelling for past 3 months with no significant history of trauma. X ray revealed solitary lytic lesion with thin rim of cortex over proximal fibula. MRI showed a lytic lesion over sub articular area with internal septation having a "bubbly" appearance involving left fibula with mass effect on lateral tibial plateau. Intraoperatively tibia appears to be normal. Histopathological examination of the excised mass revealed giant cell tumor of proximal fibula with secondary aneurysmal bone cystic (ABC) changes with the margins free of tumor. Postoperatively, patient is pain free with loss of dorsiflexion of foot with loss of sensation over dorsum and he is put on regular follow up.

Key-words: Giant cell tumour, Proximal fibula, Aneurysmal bone cyst.

Introduction

Giant Cell tumor (GCT) of long bone is a very uncommon lesion representing between 4 and 9.5% of primary bone neoplasms with a slight female preponderance.[1] The most common site of tumor occurrence being distal femur more than proximal tibia followed by distal radius.[2] It is most commonly seen in early adulthood, with a peak incidence in the fourth decade. It is usually seen in the skeletally mature patients.[1,3] GCT is clinically locally aggressive tumor with higher recurrence rates after excision, but histologically it is a benign tumor with secondary ABC changes.[1, 4] The most common clinical presentation is dull aching pain and associated with swelling around the knee joint. Some of the patients may also present with stiffness of nearby joint.[5]

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Case History

A 32yr old gentleman presented with complaints of swelling present on the lateral aspect of proximal third left leg for past one year and pain over the swelling for past 3 months with no significant history of trauma. On palpation, a 13x8cm immobile, tender, bony hard ovoid mass noted over the left proximal fibula. Distal ankle and toe movements were present with no sensory deficit.

Investigations

Plain X ray left leg revealed single, expansile, lytic lesion with thin rim of cortex present on proximal fibula. [Fig 1]. MRI showed a lytic lesion over sub articular area with internal septation having a "bubbly" appearance involving left fibula with mass effect on lateral tibial plateau. [Fig 2]. PET CT scan

revealed an expansile and a lytic lesion involving left fibular epiphysis with nodular peripheral hyper metabolism without any evidence of pulmonary metastasis [Fig 3].

Fig 1: X rays of left leg revealing expansile, cystic and lytic lesion in left fibula

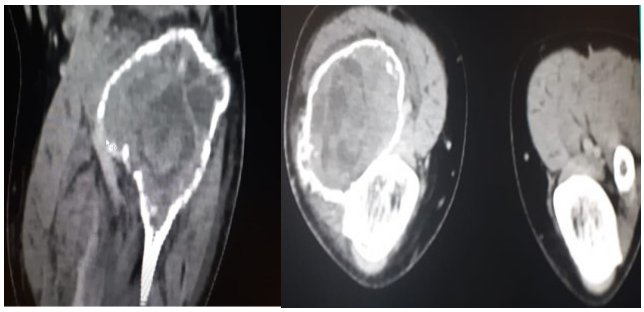

Fig 2: MRI shows lytic lesion over subarticular region with internal septation having a "bubbly" appearance involving left fibula with mass effect on lateral tibial plateau.

Fig 3: PET CT scan revealed expansile lytic lesion involving left fibular epiphysis with nodular peripheral hyper metabolism

Surgical procedure

After valid surgical consent, a lazy S incision measuring 15 cm made on lateral aspect of upper third left leg. [Fig 4.1-4.4] Common peroneal nerve visualized and appeared to be unaffected by the mass. En bloc resection of tumor mass with distal 3cm clearance and primary closure was done. After excision of fibula, biceps femoris tendon and lateral collateral ligament were re-attached to the tibia with anchor sutures. Intraoperatively tibia appeared to be normal without involvement of lateral tibial plateau which did not correlate with MRI findings. Histopathological examination of the excised mass revealed GCT of proximal fibula with secondary ABC changes and the margins appeared tumor free.

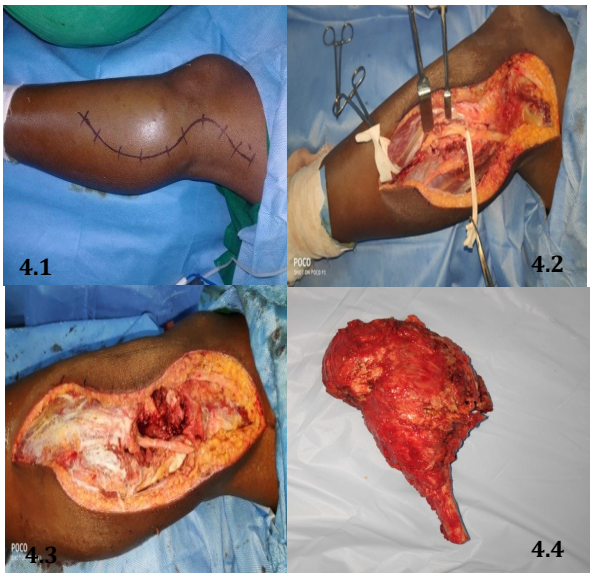

Fig 4.1 shows lazy S incision.
Fig 4.2 shows intra op securement of common fibular nerve.
Fig 4.3 shows intra op image after removal of enbloc
Fig 4.4 shows enbloc excision specimen

Histopathology

Section studied showed round to polygonal tumor cells with multiple round nuclei indicative of multinucleated giant cell with secondary cystic changes filled with blood i.e., secondary Aneurysmal Bone Cyst changes. No atypical mitotic figures/ No nuclear pleomorphism was seen. [Fig 5]

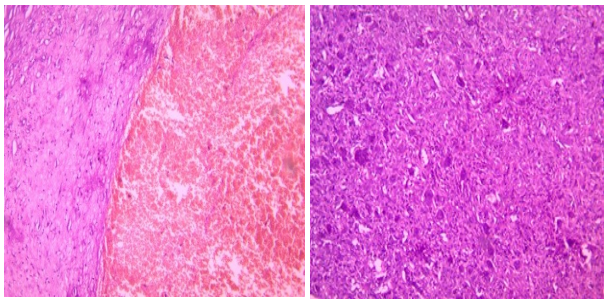

Fig 5: H&E Stain. X100 microscopy shows multinucleated giant cells with blood filled cysts

Post operatively patient did not complaint of pain. Post operative x-rays shows tumour free fibula with suture anchors. [Fig 6] Patient was unable to dorsiflex at his ankle with loss of sensation over dorsum of foot. Patient was put on long knee brace and non-weight bearing ambulation for 6 weeks. Patient was started on physiotherapy in form of TENS and ankle ROM exercises. Nerve Conduction studies were suggestive of Neuropraxia of common peroneal nerve.

Fig 6: immediate post op x rays revealing no lesion at proximal fibula of left leg

Follow up

Patient was on regular follow up and physiotherapy. During follow up recovery of the common peroneal nerve neuropraxia was observed. 6 monthly follow up x ray revealed no recurrence of tumor. [Fig 7]

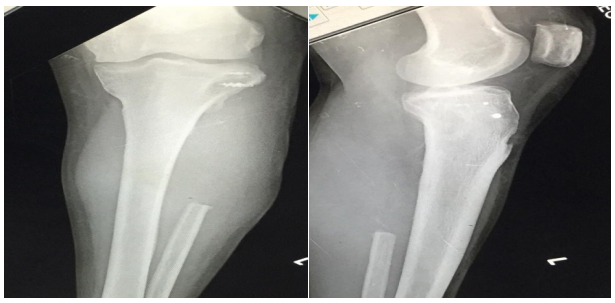

Fig 7: six months follow up x-rays shows fibula is free of tumour recurrence

Discussion

Giant cell tumor presents as a locally aggressive tumor of long bone with higher recurrence rate of 12-65% after curettage when compared with En Bloc resection of 0-12%. GCT affecting extremities has higher recurrence rate compared to conventional site.[6] GCT are managed satisfactorily by curettage, chemical/thermal cautery and bone grafting.[7]

As many studies are suggestive of En Bloc resection for GCT of fibular head common peroneal nerve neuropraxias are most commonly encountered post resection. In our case also despite all necessary precaution patient still developed neuropraxia of common peroneal nerve. After physiotherapy with TENS, patient recovered from common peroneal nerve neuropraxia and had regained complete ankle range of motion without any sensory deficits. After 6 months follow up no neurological deficits were observed. No recurrence of tumor which was evidenced by X-Rays. GCT of proximal fibula requires a wide local excision including proximal tibio-fibular joint in view of local recurrence and malignant transformation.[8]

Conclusion

GCT of fibular head is a very rare presentation in young male without involvement of common peroneal nerve. The treatment of choice being En Bloc resection which decreases recurrence rates when compared to curettage or along with adjuvant therapies.

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