

## CASE REPORTS

# Giant cell tumour of the neck of femur treated by total hip replacement

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A 49-year old accountant presented with a two-week history of left hip pain which came on after tripping and falling in his bathroom. He had no other significant past medical history. He was initially treated with simple analgesics by his local doctor. Due to continuing pain on weight bearing an x-ray was taken 2 weeks after the fall showed a large lytic lesion involving the head and neck region of the femur (figures 1a and 1 b). Routine blood tests including FBC, ESR, and bone chemistry were normal. A chest x-ray was normal. Based on the x-ray appearance a giant cell tumour was suspected as the diagnosis. A CT scan of the lesion (figure 2) was done which confirmed a large lytic lesion of the head and neck region of the femur, the extent of which was far greater than appreciated on plain x-rays. During the CT scan, a guided needle biopsy was performed. Blood stained fluid was aspirated. The aspirate was sent for cytology but was not diagnostic as it showed only fibrin with no malignant cells.

Based on the CT and x-ray findings, he underwent a wide excision of the lesion and reconstruction with a Charnley type total hip replacement. The wound healed satisfactorily (figure 3). On the third post-operative day the patient started mobilising with a frame. He was discharged on the 14th postoperative day mobilising with a single crutch.

Histology of the surgical specimen was consistent with the diagnosis of giant cell tumour.

### Introduction

Giant cell tumour of the bone is a relatively rare benign tumour whose true incidence and patho-aetiology are not fully established. The tumour is usually located in the epi-metaphysis of the long bones, predominantly in the distal femur, proximal tibia and distal radius with 50% occurring around the knee joint. The age group at presentation is commonly between 20 and 50 years with the peak in the 30 to 40 year age group. Although benign, the tumour is locally aggressive with tendency for local recurrence after excision. A very small proportion of giant cell tumours can have malignant cells in the lesion. Irradiation of the tumour has been associated with malignant transformation and must be avoided. Rarely the giant cell tumour can metastasise and still maintain the 'benign' histological pattern in the metastases.

The proximal femur is an uncommon location for the occurrence of Giant Cell Tumour. The incidence at this site has been reported as less than 4%.<sup>1,2</sup> Treatment of a locally aggressive giant cell tumour of the neck of femur is difficult because of the location and the high local recurrence.

### Discussion

#### Pathology

Giant cell tumour has a typical appearance of multi nucleated giant cells diffusely distributed on a background of mononuclear cells. Some giant cells resemble osteoclasts and indeed this tumour is often called an osteoclastoma. Mitotic figures are

common in the mononuclear cell population. It is a locally aggressive tumour with a high recurrence rate if not completely excised.

The local recurrence rate is correlated to the Enneking surgical staging and the type of surgical excision undertaken. The rate of local recurrence rates after intralesional excision are quoted in the literature as ranging from 29% to 75%. Recurrence rates after wide excision range from 0% to 6%.<sup>3,4</sup> Surgical stage of disease is correlated to the incidence of local recurrence (Stage 1, 0%; Stage 2, 53%; Stage 3, 70%). Phenol cauterisation after curetting out the lesion and packing with bone cement has been shown to decrease the incidence of local recurrence.<sup>5</sup>

#### Treatment methods

The aim of treatment is to excise the tumour completely. Minimise the risk of local recurrence; and maintain functional capacity. The reconstruction of the hip joint following excision for tumours is essential for maintenance of stability and normalisation of gait patterns. Because the tumour is usually located in the neck and at the juxta-articular region of the bone, reconstruction of the defect to preserve the head of the femur is difficult. The treatment options available for such a lesion are excision arthroplasty (Girdlestone procedure); intralesional curetting and bone grafting or packing with bone cement; excision and reconstruction with cortical cancellous bone graft and internal fixation; hemiarthroplasty; and total hip replacement.

#### Girdlestone Procedure

Excision arthroplasty in the form of a Girdle stone procedure results in a functional disability that may not be acceptable to some patients.

#### Intralesional Curetting And Cancellous Bone Grafting Or Packing With Bone Cement

Curettage and bone grafting or packing with bone cement without additional internal fixation may not provide adequate stability at the neck of femur to withstand the large shear type mechanical forces that are transmitted in this region.

#### Curettage, Vascularised Bone Grafting And / Or Internal Fixation

Use of a large vascularized bone graft from the iliac crest to reconstruct the defect after extensive excision has been reported. Applying such microsurgical reconstructive techniques allows a more aggressive excision of the lesion. Yip and Leung have reported a recurrence rate of 4.5% using this method.<sup>6</sup>

In the young patient, intralesional excision / curettage, bone grafting and internal stabilisation with devices such as dynamic hip screw has been advocated by some authors. This being an attempt to preserve the patient's head of femur. Total hip replacement in a young patient is seen risky due to the high probability of early revision surgery. Sim and Lang reported the

case of a 20-year-old man with an unusually large giant-cell tumour of the proximal right femur complicated by a transcervical fracture.<sup>7</sup> In view of the patient's age, curettage and bone grafting and stabilization with a dynamic hip screw combined with valgus osteotomy, was preferred to total hip replacement.

### **Hemiarthroplasty**

This method would be suitable only in elderly low demand patients. Most patients with giant cell tumours are relatively young and therefore this method is not ideal as results of hemiarthroplasty in young patients are poor.<sup>8</sup>

### **Total Hip Replacement**

Current evidence suggests that results of total hip replacement in the young patient are becoming more and more encouraging. The reconstruction by total hip replacement following excision for tumours is essential for maintenance of joint stability and a normal of gait pattern. A cemented prosthesis has the added beneficial local cauterising effect of bone cement to reduce the incidence of local recurrence.

In this particular case, the age of the patient; the sedentary nature of his job; the anticipated reconstructive difficulties if the head of femur was to be preserved (due to the size of the lesion); the relatively higher risk of local recurrence after intralesional excision and the desire to maintain a stable joint; favoured a wide excision followed by a total hip replacement as the treatment of choice.

### **Reference**

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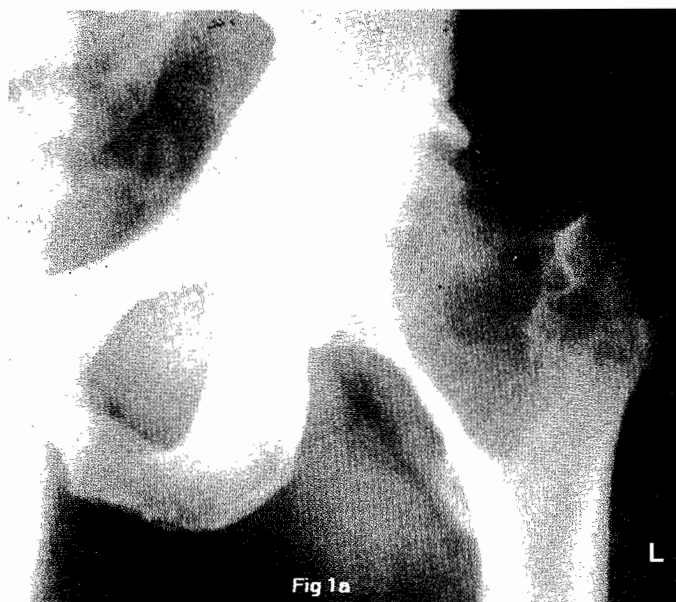


Fig 1a

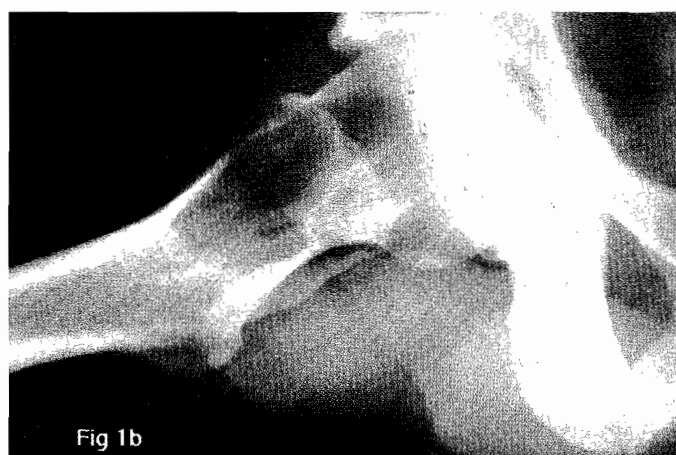


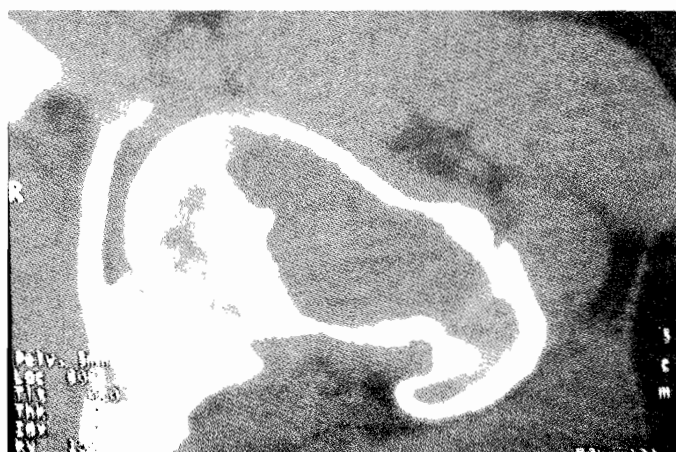
Fig 1b

### **Figure 1a; 1b**

Antero-posterior and lateral x-rays of the left hip showing a well defined lytic lesion in the region of the femoral head and neck.

### **Figure 2**

CT scan image showing the extent of the lesion



**Figure 3a; 3b**  
Antero-posterior and lateral x-rays of the hip following total hip replacement.

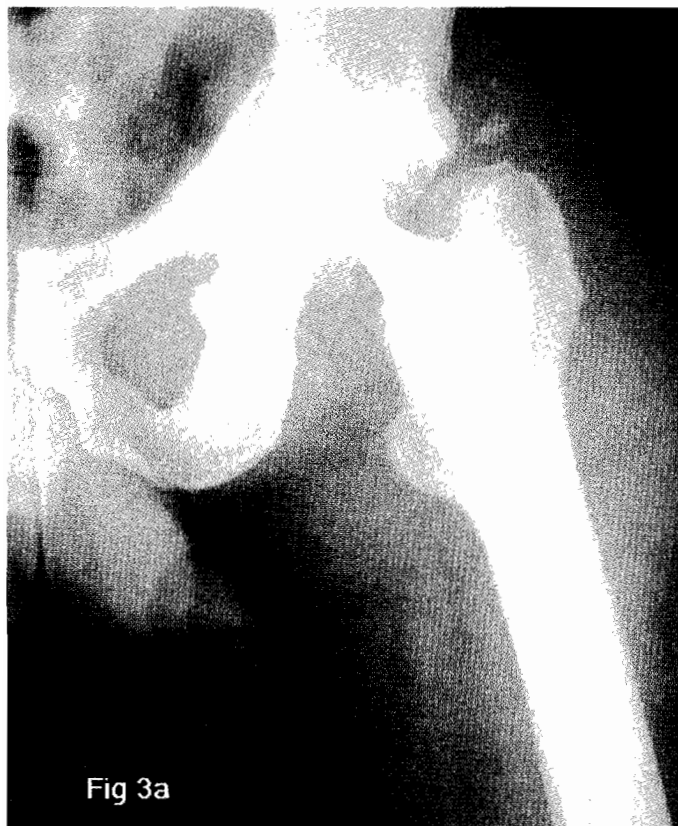


Fig 3a

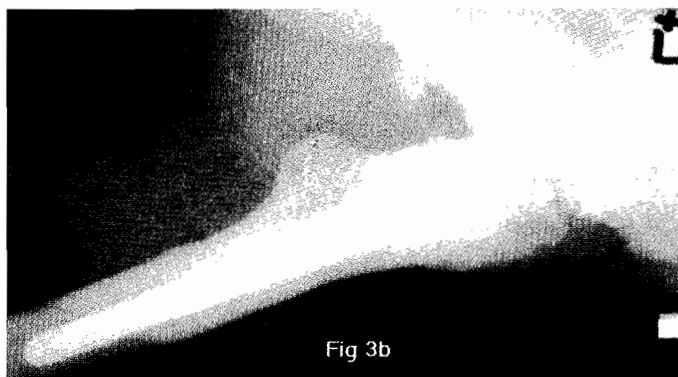


Fig 3b

## Paraduodenal hernias

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**CASE 1:** C.M. 23 Years old female, Presented with abdominal pains and vomiting for a period of 2 months. She gave a history abdominal distension after eating which would gradually settle. She denied being constipated. Barium follow-through showed gastric stasis and a slow passage through the mid-gut. An elective operation revealed that the small bowel was in a sac of peritoneum within the peritoneal cavity below the transverse colon. The sac was opened and excised to free the small bowel trapped within.

**CASE 2:** L.M. 6 Years old female, Presented with a four days history of abdominal pains, constipation and vomiting. On examination she was dehydrated, had a distended, tense abdomen with visible bowel loops in the epigastrium. High pitched bowel sounds with a succussion splash were heard. Rectal exam was unremarkable.

emergency laparotomy showed a malrotation of both small and large bowels. A right paraduodenal hernia with an ischemic loop of bowel near the ilealcaecal junction was also noted. Operation included mobilization, release of mal-rotation and resection of the non-viable bowel.

### PARA-DUODENAL HERNIAS (PDH)

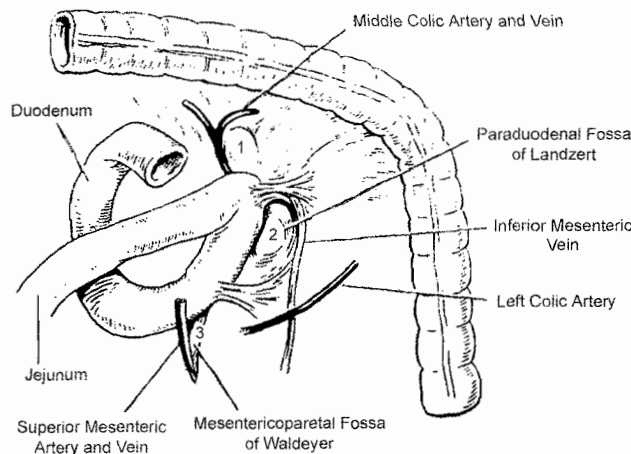
#### Incidence

Accounts for 0.2 - 0.9 % of all small bowel obstructions with a mortality of around 20%. Males are affected three times often than females<sup>1</sup>.

#### Aetiology

Paraduodenal hernias are an uncommon congenital cause of small bowel obstruction. There are three types as characterized by Wilworth et al., I, left; II, right; and III, transverse. They are classified in order of frequency as Left PDH accounting for approximately 75% and 25%. transverse hernias are exceedingly very rare<sup>2</sup>.

**Fig 1. Sites for PDHs. 1 & 3 are sites for right PDHs. 2 is for left PDH.**



In 1923 Andrews proposed that these hernias were the result of errors of mid-gut rotation occurring between the 5th and 11th weeks of gestation in which the gut undergoes counterclockwise rotation bringing the mesentery in contact with the posterior abdominal wall