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Case Report

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Subtrochanteric femur fracture with pre-existing ipsilateral hip arthritis treated with long stem total hip arthroplasty: a case report

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ABSTRACT

High velocity trauma involving fractures of lower limbs is one of the most common causes of morbidities in young and working population in developing countries. Amongst these injuries, subtrochanteric femur fractures are the one that cause significant impact on the lifestyle. The strong deforming forces across the fracture makes it difficult to achieve the reduction. The entire outcome depends on the adequate reduction and the stable fixation of the fracture. The longer duration required for the recovery causes significant morbidity and imparts financial burden on the families. Additionally, the presence of hip arthritis worsens the situation and limits the use of implants like intra-medullary nails. Arthroplasty has been defined in the literature for such situations. Arthroplasty remains one of the good options in such patients that address both fracture as well as arthritis providing a stable, mobile and painless hip. Here, we report a case of hip arthritis with subtrochanteric femur fracture treated with total hip arthroplasty.

Keywords: Subtrochanteric femur fracture, Hip arthritis, Long stem total hip arthroplasty

INTRODUCTION

Subtrochanteric femur fractures are extremely challenging injuries for orthopaedic surgeons as these are known to add morbidities to general population sustaining these injuries.[1,2] The deforming forces on both, the proximal and distal fragments make it difficult to obtain and maintain reduction during surgery till healing. The entire outcome depends on the adequate reduction and the stable fixation of fracture.[3,4] However, subtrochanteric fractures with pre-existing ipsilateral hip arthritis are rare.[5] Treatment options to these injuries are either total hip arthroplasty with longer stem or intra-medullary nailing. We operated one such case with total hip arthroplasty with a long stem.

CASE REPORT

A 59 year old male with history of road traffic accident came to emergency setup with complaints of pain over left hip and thigh. Subsequent clinical examination revealed tenderness over left hip and proximal thigh with externally rotated foot. Radiographs showed spiral oblique subtrochanteric femur fracture extending to proximal femur shaft. Also, patient had bilateral hip arthritis with femoral head collapse and acetabular sclerosis signifying higher grade (Ficat and Arlet grade 4).[6]

Plan

Considering the nature of fracture and the arthritis, total hip arthroplasty with a long stem was planned.

Surgical procedure

After explaining the procedure to the patient, the written informed consent was obtained. Patient was taken in lateral position under combined spinal-epidural anaesthesia. Fracture was opened with standard lateral approach to femur. Fracture was reduced anatomically with clamps and reduction was secured with SS wires.

The incision was extended proximally and the hip joint opened with posterolateral approach. Neck cut was taken 1 cm proximal to lesser trochanter. Acetabulum was prepared and the cup was positioned with 45 degrees of inclination and 15 degrees of anti-version approximately.

The femoral canal was prepared gently while maintaining the anatomic reduction. The long cementless Wagner stem was inserted and hip reduced and stability assessed.

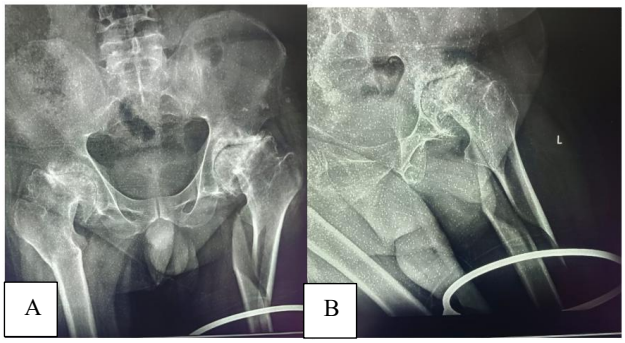

Figure 1 (A and B): Pre op x-ray.

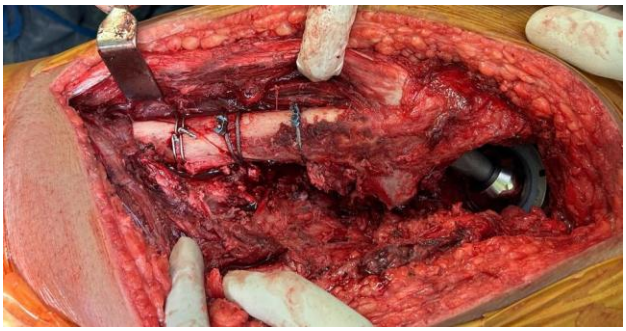

Figure 2: Intra operative image showing anatomic fracture reduction with reduction of hip after implant placement.

Post-operatively, assisted partial weight bearing was allowed from the next day.

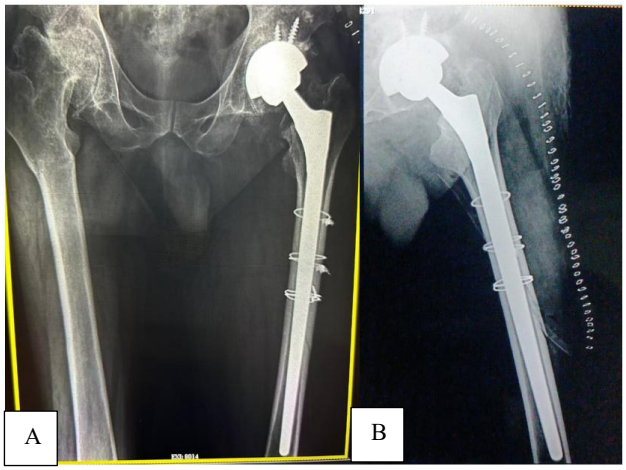

Figure 3 (A and B): Immediate post op x-ray.

Patient was in regular follow up and was advised serial x rays and examined clinic ally for reduced pain, range of motion and his daily activities were noted.

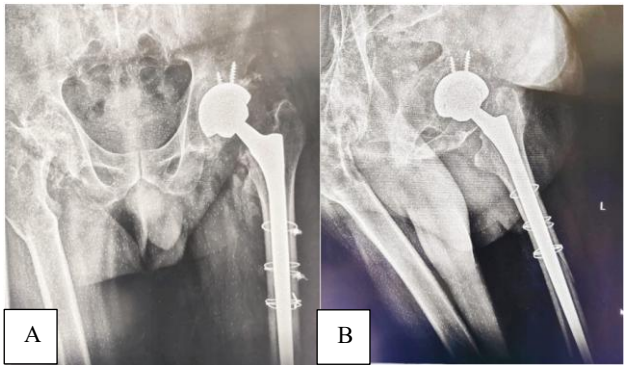

Figure 4 (A and B): Post op 3 month x ray.

DISCUSSION

Subtrochanteric femur fractures are result of high energy trauma and are associated with soft tissue injuries. Additional ipsilateral hip arthritis poses a great deal of difficulty in planning and executing the surgery. The goal of operative treatment in this case is to give a stable, mobile and painless hip to patient. The option of surgical procedure is controversial with paucity of literature.

Osteosynthesis with intra-medullary nail can be considered in younger individuals when the symptoms of arthritis are mild without significant radiological head collapse. Arthroplasty in these cases may lead to higher morbidity attributed to the extensile exposures and the need for revision surgery.[7]

However, in elderly, total hip arthroplasty is the reserved option in pertrochanteric femur fractures considering the limited healing capacity and as a salvage procedure for failed fixation.[8,9]

THA is also justifiable in elderly individuals as it promotes the early mobilization thereby decreasing the potential risks of deep vein thrombosis, bed sores, pulmonary infection, pulmonary embolism.[10]

In this case, the problem of arthritis would not be addressed with osteosynthesis. Additionally, there were technical difficulties in using a long proximal femur nail with respect to entry point due to distorted anatomy. So, we decided to proceed with total hip arthroplasty with a long stem.

Wagner stem has been used since long in the complex and revision hip arthroplasty cases. The fluted tapered end of the stem gets fixed in the distal portion of the femur providing adequate stability.

Tsakotos et al dealt with a similar case and attempted to address the two comorbidities in the single surgery.[11]

Deleanu et al in their study of combined bilateral femur head osteonecrosis and pertrochanteric fracture treated with total hip arthroplasty, concluded that a modular femoral component could address the issue of stability and could be a viable solution for acetabular or femur head pathologies as well.[12]

Iga et al attempted to fix the similar fracture with long proximal femur nail.[13]

In our case, we decided to proceed with arthroplasty. At the end of 3 months, the fracture was uniting well with reduced pain and better hip range of motion.

CONCLUSION

Arthroplasty for a subtrochanteric femur fracture with pre-existing ipsilateral hip arthritis is a good option for treatment as it addresses both the problems in a single surgery. The immediate post operative mobilisation allows the patient with faster recovery and lesser co- morbidities. However, the treatment should be individualized considering the degree of hip arthritis, age and patient's functional demands.

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