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Case Report

Restoring a near anatomical hip joint in an 18 year old neglected hip fracture dislocation – A rare case report

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ABSTRACT

Background: Long standing neglected traumatic hip fracture dislocation is a rare clinical condition. Obliteration of the native acetabulum, soft tissue contractures, loss of femoral head congruity and associated hip fractures make this condition challenging to treat.

Case Report: We discuss a case of a middle-aged male presenting to us with pain, shortening and inability to bear weight on left lower limb for last 15 years. Clinical examination revealed an adduction deformity over the left hip, a globular swelling in the left gluteal region and a fixed equinus deformity over left ankle. Movements at the left hip hinted at restricted internal rotation and flexion. Pelvis radiographs revealed a neglected posterior hip dislocation with ipsilateral femur neck non union. Patient underwent initial upper tibial traction for 8 weeks followed by a hybrid Total Hip Arthroplasty. Postoperatively intensive physiotherapy was continued and with correction of the ankle equinus patient was able to ambulate. On five years follow-up, the patient was mobilizing independently, pain-free with a mild short limb gait and some residual foot drop.

Conclusion: Treatment of neglected hip fracture dislocation can be challenging. Associated economic restraints may hinder clinicians from higher imaging and make the treatment even difficult. However, an anatomical reconstruction of hip by a total hip arthroplasty has yielded good functional outcomes in long standing neglected dislocations.⁷

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1. Introduction

Neglected traumatic dislocations of hip are rare in adults, especially in developed countries. However, in developing countries, unreduced traumatic dislocations are not uncommon.¹ Rural hospital setups with constraints on intensive imaging for polytrauma patients, higher patient load and limited health care providers often make the clinicians miss a concomitant hip dislocation in a multiply injured bed ridden patient.² In developing countries with most patients having an economical setback, making multiple visits to hospitals and getting the appropriate

treatment is often beyond their affordability. To add to this, most of these patients have a high pain tolerance, decreased cognitive ability to understand or communicate the pain and prefer traditional bone setters to a better health care facility in the hospitals.^{3,4} The seriousness of their disability is not comprehended and it makes a missed diagnosis of hip dislocation, turn into a chronic disabling neglected condition. Ideally, all dislocated hips should be treated as an emergency. Delayed treatments are often associated with complications such as secondary degenerative arthritis, ankylosis, sciatic nerve palsy and avascular necrosis of femoral head.⁵ The management of such neglected hip dislocation becomes difficult due to soft tissue contractures,

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adhesions, fibro fatty tissue filling of the acetabulum and presence of myositis ossificans.⁶ All these, make an early detection and prompt treatment mandatory for a good and satisfactory clinical outcome.⁶ Delayed presentations make the treatment algorithm challenging as the procedure to bring back the balance between the soft tissue component and the length of proximal femur to restore an anatomical hip joint is difficult and the status of the articular surface is questionable. This leaves no option, but head sacrificing procedures like a total hip arthroplasty (THA) along with soft tissue release and reconstruction to aid in restoring the lost functionality of the affected limb.

We report a case of a middle aged male, with an 18-year-old history of trauma who presented to us with a shortening, limp and localized pain over the left hip. Radiographs confirmed a posterior fracture dislocation of hip with a pseudo-acetabulum formation. Treatment was sequential, with an initial soft tissue stretching using an upper tibial skeletal traction followed by total hip arthroplasty after 2 months. Post-operatively, the patient had an improved functional outcome at the left hip and came for follow-up 5 years later, pain-free and walking independently.

2. Case Report

A 42-year-old male presented to us in the year 2015 with complaints of pain, limp, restricted mobility and inability to bear weight on the left hip for last 15 years. Patient gave a history of road traffic accident 18 years back (in the year 1998), when he slipped and fell off from a moving bus and sustained closed injury to left hip, open injury to left foot and ankle along with multiple abrasions and laceration over the extremities. Patient was initially admitted to a rural hospital where primary treatment was aimed towards the foot injury. Patient was bed ridden for days before being discharged. Following discharge, patient was unable to bear weight independently on left lower limb which he initially thought was due to the ankle trauma. Patient started walking with stick support, but continued to complain of a persistent pain over the left hip on ambulating. Patient made multiple trips to quacks and indigenous bone setters over the years but without any relief. However, due to the economic restraints and decreased social awareness, our patient did not consult any specialist till date. Patient did not give history of any other subsequent trauma or constitutional symptoms suggestive of an underlying infection or inflammatory condition.

On clinical examination, patient had a short limb gait with the left lower limb being adducted, externally rotated and associated with a shortening of around 10 cms. The left anterior superior iliac spine was observed higher up and associated with a fixed equinus deformity at the left ankle. Left hip joint was tender on palpation with a globular mass felt in the gluteal region, suggesting of a posteriorly dislocated head. Bryant's triangle measurement revealed

an up-riding greater trochanter with grossly restricted abduction (0 to 20 degrees) and internal rotation (0 to 10 degrees) of the left hip.

Pelvis AP and frog leg lateral radiographs were taken at initial presentation which revealed a proximally migrated proximal femur of the left hip. Degenerative arthritic changes with loss of normal contour of the femoral head were noted. Head of the femur was dislocated out of the native acetabulum and was deep seated into a pseudo acetabulum created higher up in the left hemi pelvis, suggesting a long standing neglected posterior dislocation of hip (Figure 1). Alternate areas of lysis and sclerosis hinted at possible avascular necrosis of the head. Varus collapse of the head suggested an underlying non union of the femoral neck fracture as well. All routine blood counts and inflammatory markers (Erythrocyte sedimentation rate, C reactive protein) were within normal limits.

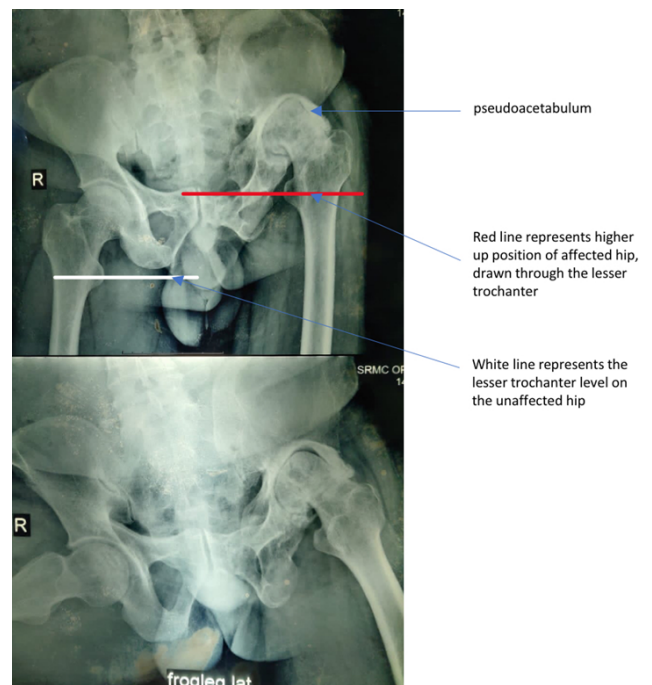


Fig. 1: Pelvis AP and frog leg lateral views depicting a neglected posterior dislocation of left hip with pseudo-acetabulum formation

Considering a significant shortening of the left hip in a setting of a long standing neglected hip dislocation, skeletal traction was considered necessary to stretch the soft tissues before a definitive procedure. An upper tibial skeletal traction was applied to left lower limb for a period of 2 months. Traction was started with 3 kg and incremented gradually up to 12 kg over the next 8 weeks. Radiological follow-up was done at regular intervals at 4 weeks and 8 weeks respectively which showed gradual descent of the proximal femur with increasing traction (Figures 2 and 3). Following 8 weeks of continued traction, the length of the left lower limb was found to improve by 5 cms. Patient

later underwent a total hip arthroplasty. Intra-operative, the native acetabulum had fibro fatty infiltration which was cleared and acetabular floor was found to be intact with a good bone stock. Acetabular shell was reconstructed with a cemented cup and a proximal fitting un-cemented femoral stem. Postoperatively, the patient complained of reduced sensation over the foot and was unable to extend the toes. Patient was started on continuous passive mobilization of the ankle. Patient was allowed to mobilize 10 days post surgery with walker support and was discharged on post-operative day 15 after staples removal. Throughout the post-operative period, ankle mobilization for the correction of the equinus deformity was continued. Post discharge patient was encouraged to continue the rehabilitation at home.

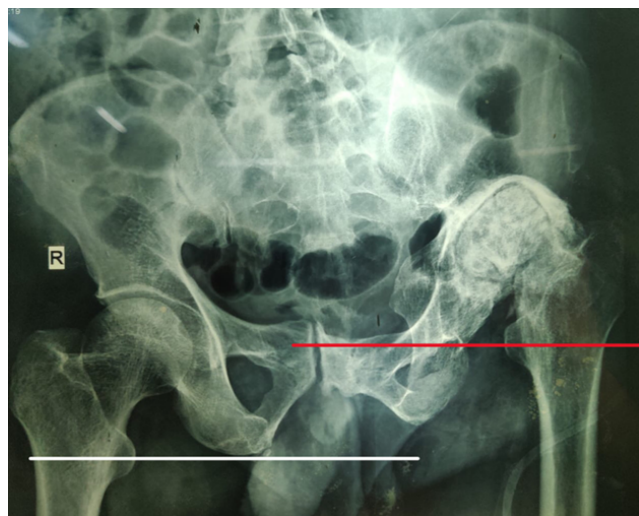


Fig. 2: Pelvis AP x-ray taken 4 weeks post application of skeletal traction, showing gradual correction of pelvic obliquity and mild distraction at femur neck nonunion site

Patient was on regular follow-up for the initial 6 months, where he visited us at regular interval of 2 months. The sensations on the dorsum of the foot improved over the next 2 months following surgery. Active physiotherapy was started for the equinus deformity over the left ankle post-operatively, which was seen to improve in the subsequent follow-up visits. Patient presented to us 5 years later, ambulating pain-free, independently, with some amount of residual foot drop and a short limb gait with an associated shortening of 1 cm. On functional analysis, patient had a significant good range of movements at left hip yielding a Harris Hip score of 82 from a preoperative score of 46 at initial presentation (Figure 4). Left hip recorded good range of movements- flexion 0 to 80 degrees, abduction 0 to 50 degrees, adduction 0 to 30 degrees and almost full internal (0 to 40 degrees)/external (0 to 50 degrees) rotations. Radiological analysis at 5 years follow-up showed satisfactory implant positioning. (Figure 5).

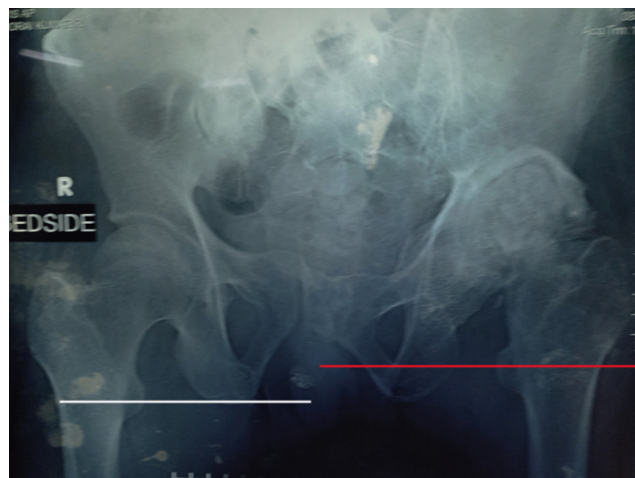


Fig. 3: Pelvis AP x-ray taken 8 weeks post application of skeletal traction showing further correction of pelvic obliquity with gradual descent of proximal femur complex



Fig. 4: Functional outcome assessment done at 5 years follow-up

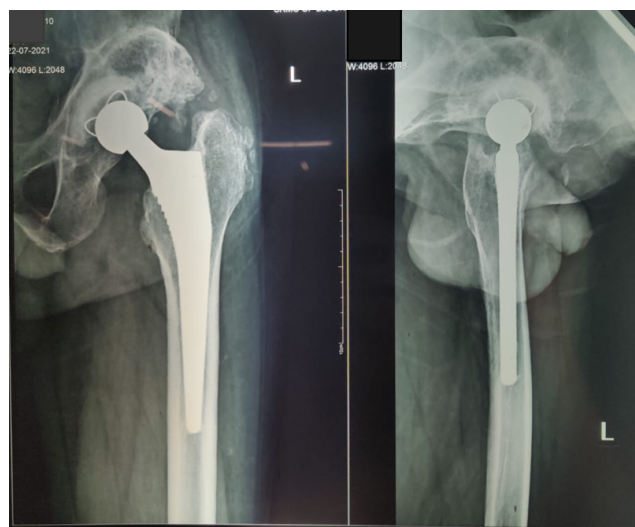


Fig. 5: Postoperative left hip AP and Lateral X-rays taken at 5 years follow-up

3. Discussion

Neglected dislocation of hip in developing countries is mainly precipitated by the unwillingness of the patients to look after appropriate medical care, who have more belief in traditional healers instead.⁴ Numerous treatment options have been mentioned for treatment of neglected hip dislocations including- sub-trochanteric osteotomy, Girdlestone procedure, hip arthrodesis, hemiarthroplasty and total hip replacement.⁷ Among all these procedures mentioned, total hip replacement is still considered the best option for treatment of neglected hip dislocations.⁸ Our case is quite an extreme scenario wherein the hip had been dislocated and neglected for last 18 years, and was eventually managed by a hybrid total hip replacement.

Long standing neglected hip dislocation with duration more than 15 years is scantily reported in literature. Patel et al. presented a case of 30 years old male who presented with pain having a history of trauma 15 years back.⁹ Radiographs showed a neglected obturator dislocation of hip with a pseudo-acetabulum formation. Patient was managed by uncemented total hip arthroplasty and on 2 years follow-up patient was walking unaided without pain. Purvance et al. reported a case of 45 year old female who came with a neglected posterior hip dislocation of 30 years.⁴ Patient had a shortening of around 5 cms and radiographs showed persistent dislocation with pseudo-acetabulum formation. She underwent femoral neck osteotomy followed by skeletal traction for next 8 weeks, before a constrained total hip replacement as definitive procedure. Post procedure patient recorded excellent functional outcome on follow-up.

The case we have discussed here is unique. The patient presented to us with exaggerated external rotation which is quite contrary to how a posterior hip dislocation presents. Radiographic evaluation revealed an underlying femoral neck fracture nonunion with osteonecrotic change of the ipsilateral femoral head. Associated proximal femur fracture had masked the internal rotation deformity, which is generally associated with posterior hip dislocations. Although the primary pathology is the posterior hip dislocation but associated secondary components in the form of an underlying femoral neck nonunion with avascular changes in the head, makes such a presentation quite rare and challenging to treat. To add to the difficulty, economic constraints of the patient prevented us from intensive preoperative imaging (Computed Tomography/Magnetic Resonance Imaging) as well. However, all the routine blood investigations suggestive of infection, tuberculosis or any inflammatory arthritis turned in negative and were ruled out. In our patient, the left hemi-pelvis had a prominent pseudo-acetabulum formation, a classical finding usually associated with chronic neglected hip dislocations. Long standing dislocations with significant shortening are associated with soft tissue contractures around the hip. Acute correction

of these may lead to traction neuropraxia of the sciatic nerve. Gupta et al¹⁰ described the use of skeletal traction in neglected hip dislocations, and elaborated on the reduction maneuver which included gradual reduction in traction and abducting the limb. This rationalized us to put our patient on an upper tibial skeletal traction for a period of 8 weeks to gradually stretch out the soft tissues before undergoing total hip replacement. The underlying proximal femur fracture in the neck did not necessitate any additional femoral osteotomy prior to traction application. Post traction radiographs showed significant descent of the proximal femur and thereby stretching out the soft tissues in the vicinity. Our patient underwent a hybrid THA with a cemented acetabular cup and proximal press fit stem. In an ideal scenario, hip arthroplasty in young adults warrants use of uncemented acetabular cups for better longevity of the construct but in developing countries with economically restrained population uncemented cups are frequently used. Postoperatively, patient had weakness of the extensor of the toes which spontaneously resolved over the next few weeks. However, persisting equinus deformity prevented us to assess for any foot drop in the immediate post-operative period. Passive mobilization of the ankle joint was started as a post-operative rehabilitation and was continued even after discharge from the hospital.

4. Conclusion

Long standing hip fracture dislocations are rare to encounter in the advanced and modern field of medicine. In economically restrained population, treatments of these complicated injuries become even more challenging due to limited resources. Soft tissue contractures and limb shortening is a critical factor to deal with, often making the reconstruction difficult. Conducting a secondary survey is absolutely important in all polytrauma patients to avoid missing the diagnosis of missed hip dislocation in first place itself. However, an anatomical reconstruction of hip by a total hip arthroplasty has yielded good functional outcomes in long standing neglected dislocations.

5. Patient Consent

An informed consent was taken from the patient.

6. Source of Funding

None.

7. Conflict of Interest

None.


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