

Neglected Posterior Hip Dislocation with Grade II Avascular Necrosis of Femoral Head Managed with Open Reduction and Staged Soft-tissue Release: A Case Report

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ABSTRACT

Neglected traumatic dislocation of the hip in adults is uncommon and presents significant challenges because of soft-tissue contracture and intra-articular changes. A 33-year-old male presented with persistent right hip pain and difficulty walking for eight months following a trivial fall that was initially neglected. Clinical examination revealed limb shortening with fixed deformity, while imaging confirmed chronic posterior hip dislocation with secondary changes in the femoral head. Management included open reduction, excision of intra-articular fibrofatty tissue, and core decompression. Persistent residual flexion deformity required staged sartorius tenotomy. Postoperative rehabilitation resulted in significant pain relief, improved range of motion, and satisfactory functional recovery. This case demonstrates that even delayed presentations of neglected posterior hip dislocation can be managed successfully with careful surgical planning, adequate soft-tissue release, and staged intervention when required.

Keywords: Contracture, Core decompression, Femur head necrosis, Hip instability

CASE REPORT

A 33-year-old male presented with pain in the right hip and difficulty walking for eight months. He sustained a slip and fall from a two-wheeler following which he developed immediate pain but did not seek medical attention and continued to ambulate with support. Over the subsequent months, he experienced persistent pain, limping, and progressive restriction of hip movements. An MRI performed approximately two months after the injury revealed right hip pathology, but the patient did not pursue orthopaedic treatment and continued to ambulate with support. Progressive pain, limping, and restriction of hip movement over the following months eventually led him to present to our institution.

On clinical examination at presentation, the patient had an antalgic gait. Examination of the right hip revealed approximately 5 cm shortening of the affected limb along with a fixed flexion deformity of 15 degrees. Hip movements were restricted and painful, and external rotation was absent. No distal neurovascular deficit was noted [Table/Fig-1a,b].

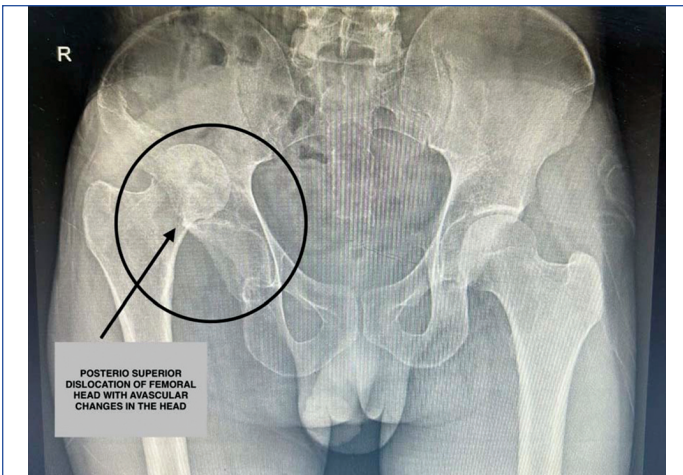
Plain radiographs showed features suggestive of neglected posterior dislocation of the right hip [Table/Fig-2]. MRI which was done was suggestive of altered signal intensity in the femoral head with Grade II avascular necrosis of femoral head (Ficat Arlet staging) [1] and cystic changes with intra-articular soft-tissue proliferation [Table/Fig-3]. Computed tomography was not performed as plain radiographs and MRI adequately demonstrated the chronic posterior dislocation and associated femoral head changes, and no associated acetabular or femoral head fracture was suspected that would have altered surgical planning. In view of the chronic presentation, the patient was planned for open reduction for relocation of hip. Preoperative laboratory investigation showed normal inflammatory markers and absence of clinical suspicion of infection.

Through a posterior approach, the gluteus maximus was split in line with its fibres. Intraoperatively, significant soft-tissue contracture was noted. The iliopsoas tendon was released, vastus lateralis fibres were dissected, and ligamentum teres was excised. Capsulotomy was performed to expose the joint. A hypertrophied pulvinar occupying the acetabulum was identified and excised. Additional soft-tissue

release was required to overcome contracture. Gradual traction with controlled manipulation enabled reduction of the femoral head into the acetabulum [Table/Fig-4]. Considering the delayed presentation and cystic changes in the femoral head associated with avascular necrosis, core decompression was performed. Preoperative



[Table/Fig-1a,b]: Preoperative clinical photograph showing shortening of the right lower limb with fixed flexion deformity at the hip.



[Table/Fig-2]: Preoperative radiograph (anteroposterior view of pelvis with both hips) demonstrating posterior dislocation of the right hip with superior displacement of the femoral head.

TECHNIQUE:

MRI both hip joints has been performed using T1, T2 and STIR coronal, PD-FS axial, coronal and sagittal and Mediac coronal sequences on 3T MRI machine.

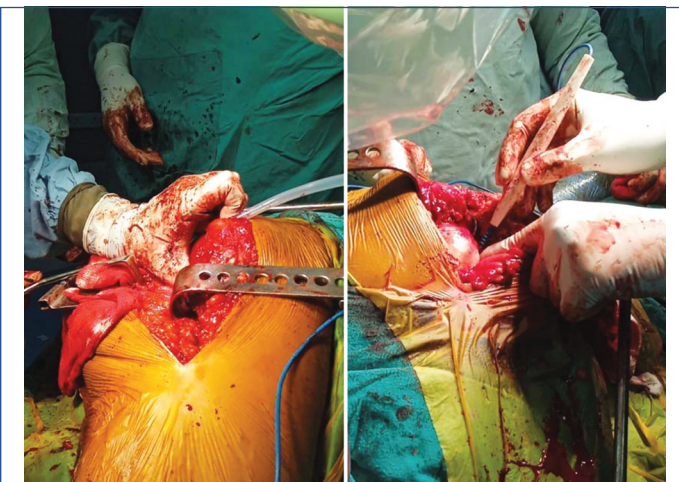
FINDINGS:

- Right femoral head is displaced superiorly and posteriorly and lies outside acetabular cavity, consistent with **chronic dislocation of hip**.
- There is a **peripherally enhancing loculated fluid collection** noted in right acetabular fossa, not showing diffusion restriction, in view of history of old trauma to right hip, likely represents **chronic collection**.
- Thickening of the synovial lining of the hip joint showing post-contrast enhancement noted suggestive of **synovitis**.
- There is **partial disruption of the ileo-femoral and complete disruption of pubofemoral ligament**.
- The ischiofemoral ligament appears stretched, without any disruption of fibres.
- Multiple, irregular, geographic areas (> 50% area) of altered signal intensity noted in right femoral head without contour flattening. These areas show hyperintensity with hypointense rim (double rim sign) in PD FS.
- PD FS/STIR hyperintensity noted in head of right femur suggestive of **marrow edema**.
- In view of history of trauma, these features represent **post traumatic osteonecrosis involving right femoral head (Ficat Arlet Grade II)**.
- Intrasubstance T2/PD FS hyperintensity seen involving the adjacent right gluteus maximus, gluteus medius and right iliacus with **atrophy** of adjacent muscles, suggestive of **muscular edema**.
- Left hip joints show normal joint space and articular margins.
- Left femoral head appear normal in size and contour bilaterally. No subarticular collapse is seen.
- Left femoral neck, greater and lesser trochanters appear normal.
- Visualized portions of urinary bladder and pelvic soft tissue planes appear normal.
- Bilateral sacroiliac joints appear normal. No joint space narrowing seen.
- Lower lumbar vertebrae appears normal with normal signal intensity in the intervertebral discs.

IMPRESSION:- MRI Pelvis And Both Hip Plain study reveals

- Postero superior dislocation of hip with **synovitis and chronic collection** in right acetabular fossa with **atrophy** of adjacent muscles and **muscular edema**.
- Post traumatic **osteonecrosis involving right femoral head (Ficat Arlet Grade II)**.
- Partial disruption of the ileo-femoral and complete disruption of pubofemoral ligament.

[Table/Fig-3]: Preoperative MRI of the pelvis showing altered signal intensity in the right femoral head with cystic changes, Ficat Arlet Grade II osteonecrosis and intra-articular soft-tissue proliferation suggestive of chronic pathology.



[Table/Fig-4]: Intraoperative photographs demonstrating surgical exposure and soft-tissue release.



[Table/Fig-5]: a) Intraoperative fluoroscopic image showing placement of guidewires in the femoral head for core decompression; b) Intraoperative Image showing three guide wires inserted in femoral head for core decompression.



[Table/Fig-6]: Plain radiograph showing proximal tibial skeletal traction applied to correct flexion deformity of right hip post open reduction.

infection work-up, including complete blood count, erythrocyte sedimentation rate, and C-reactive protein levels, was within normal limits, and there was no clinical suspicion of infection; therefore, hip aspiration was not considered necessary. Under C-arm fluoroscopic guidance, three guidewires were inserted from the lateral cortex into the necrotic area of the femoral head, followed by creation of multiple 6.5 mm drill tracts for core decompression [Table/Fig-5a,b].

Postoperatively, proximal tibial skeletal traction was applied for 10 days [Table/Fig-6]. Following reduction, the hip was found to be

stable throughout the functional range of motion on intraoperative assessment. No significant labral injury requiring intervention was identified, and capsular repair was not performed because adequate stability was achieved after reduction. Despite successful reduction, a residual flexion deformity of 10 degrees persisted, although the limb length discrepancy was corrected.

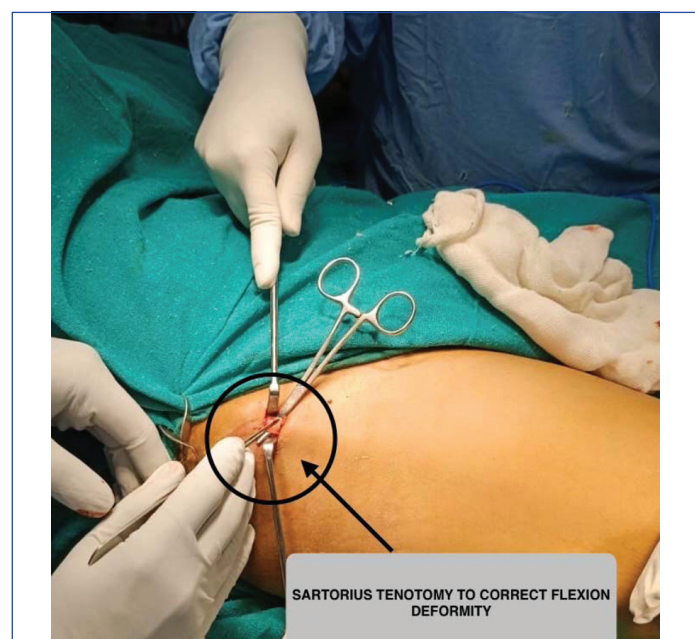
A sartorius tenotomy was performed 10 days following initial procedure under spinal anaesthesia to address the flexion deformity, following

which skeletal traction was discontinued [Table/Fig-7]. Postoperative radiograph demonstrated concentric reduction of the femoral head within the acetabulum [Table/Fig-8]. Clinically, no residual deformity was observed, and both lower limbs were equal in length [Table/Fig-9a,b]. The patient was mobilised with partial weight bearing using walker support one week after the secondary procedure [Table/Fig-10]. At three-month follow-up, the patient reported significant reduction in pain with a Visual Analogue Scale (VAS) score of 2/10. Hip flexion improved from fixed deformity preoperatively to 0-110 degrees, and independent ambulation was achieved without residual deformity. Functional outcome assessment using the Harris Hip Score demonstrated a score of 86, suggestive of good functional recovery.

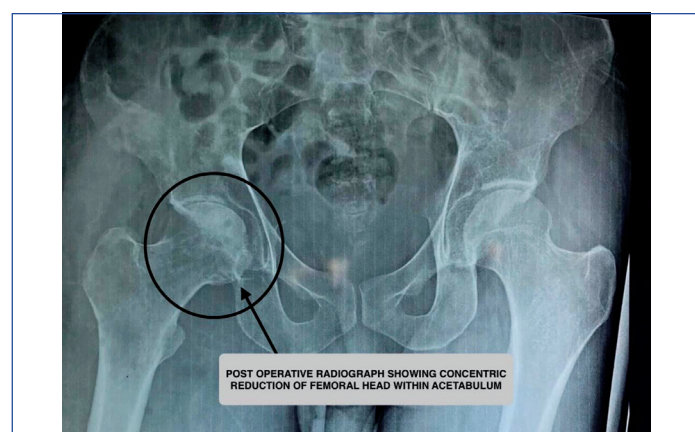
DISCUSSION

Neglected traumatic dislocation of the hip has become relatively uncommon because most patients now receive early imaging and emergency orthopaedic care following trauma. Delayed presentation, however, may still be encountered in individuals who initially neglect symptoms or continue ambulating despite persistent pain after injury [2]. Posterior hip dislocation is the most frequent type of traumatic hip dislocation and is usually associated with high-energy mechanisms [3,4].

Chronic unreduced dislocations are difficult to manage because prolonged displacement leads to soft-tissue shortening, capsular fibrosis, and formation of fibrofatty tissue within the acetabulum [5]. Brav EA reported unsatisfactory outcomes in longstanding unreduced hip dislocations and stressed the importance of timely



[Table/Fig-7]: Intraoperative photograph showing sartorius tenotomy to correct persistent flexion deformity.



[Table/Fig-8]: Postoperative radiograph showing concentric reduction of the femoral head within the acetabulum.



[Table/Fig-9]: a) Postoperative clinical photograph demonstrating equal limb lengths in lower limbs; b) Postoperative clinical photograph demonstrating no residual deformity in right hip.



[Table/Fig-10]: Postoperative photograph showing partial weight bearing mobilisation with walker.

reduction to restore joint congruity [6]. Garrett JC et al., later observed that neglected posterior dislocations often require open reduction because of mechanical obstruction and adaptive soft-tissue contracture around the joint [7]. Canale ST and Manugian AH similarly described irreducibility in delayed cases due to fibrosis and soft-tissue interposition within the acetabulum [8]. Epstein HC also emphasised the importance of clearing intra-articular obstacles while managing chronic posterior fracture-dislocations of the hip [5].

In the present patient, reduction could not be achieved without extensive soft-tissue release because of significant contracture and

hypertrophied pulvinar tissue occupying the acetabulum. Sequential release of the iliopsoas tendon, capsulotomy, and excision of ligamentum teres gradually improved femoral head mobility and enabled concentric reduction. Long-term follow-up studies by Sahin V et al., demonstrated that although surgical treatment in neglected dislocations can provide useful functional recovery, delayed management increases the likelihood of stiffness, avascular necrosis, and secondary degenerative changes [9].

Avascular necrosis of the femoral head remains a major concern in delayed hip dislocation, particularly when reduction is performed several months after injury [3,8]. MRI in the present case demonstrated Grade II avascular necrosis with associated cystic changes. Ficat RP highlighted the progressive nature of femoral head osteonecrosis and the importance of intervention before structural collapse develops [1]. Mont MA and Hungerford DS further proposed that core decompression may reduce intraosseous pressure and improve femoral head circulation in selected patients with early osteonecrosis [10]. The literature specifically describing simultaneous open reduction and core decompression for neglected posterior hip dislocation with early avascular necrosis is limited. In the present case, both procedures were performed during the same surgical setting because open reduction was necessary to restore joint congruity, while MRI demonstrated Ficat-Arlet Grade II osteonecrosis without femoral head collapse. Given the patient's young age and preserved femoral head architecture, a joint-preserving strategy was preferred with the aim of addressing both the mechanical pathology and early vascular compromise concurrently. Based on these findings and the delayed presentation, core decompression using multiple fluoroscopy-guided drill tracts was performed in the present case.

Although reduction was successfully achieved, residual flexion deformity persisted postoperatively because of longstanding musculotendinous tightness. A staged sartorius tenotomy was therefore undertaken, following which deformity correction and limb alignment improved considerably. Similar staged soft-tissue procedures have been reported in chronic neglected dislocations to facilitate rehabilitation and improve postoperative mobility [7].

Early mobilisation played an important role in postoperative recovery in the present patient. At three-month follow-up, there was substantial pain relief, improved hip range of motion, correction of limb length discrepancy, and independent ambulation with satisfactory functional recovery. Hougaard K and Thomsen PB also reported better functional outcomes in patients who achieved

stable reduction followed by early rehabilitation [4]. Nevertheless, the follow-up duration in the present report remains limited, and progression of avascular necrosis or secondary osteoarthritic changes cannot yet be ruled out. Longer-term clinical and radiological surveillance, including serial radiographs and MRI evaluation, would be valuable for assessing femoral head viability and long-term joint preservation.

CONCLUSION(S)

Neglected posterior dislocation of the hip remains a challenging condition due to soft-tissue contracture, bony obstruction, and the potential risk of femoral head compromise. This case highlights that even in delayed presentations, satisfactory anatomical reduction and functional recovery can be achieved with a carefully planned surgical approach. Adequate soft-tissue release and clearance of intra-articular pathology are critical for successful reduction. Adjunctive procedures such as core decompression may be considered in selected cases, particularly when there is concern regarding femoral head viability.

Residual deformities should be anticipated and addressed in a staged manner when necessary. In this case, staged intervention was essential in achieving complete correction of deformity and restoration of function. Overall, a structured and adaptable surgical strategy, combined with early rehabilitation, can lead to favourable outcomes even in long-standing neglected hip dislocations.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]

- Plagiarism X-checker: Apr 25, 2026
- Manual Googling: May 30, 2026
- iThenticate Software: Jun 02, 2026 (1%)

ETYMOLOGY: Author Origin

EMENDATIONS: 7

AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: **Apr 04, 2026**
Date of Peer Review: **May 02, 2026**
Date of Acceptance: **Jun 04, 2026**
Date of Publishing: **Aug 01, 2026**