

## Case Report

### Interesting Polytrauma Cases Managed at R L Jalappa Hospital and Research Centre, Kolar - Traumatic Hip Dislocations

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#### ABSTRACT

*Traumatic hip dislocations are extremely rare occurrences. About 50 cases have been reported so far in the world literature. However with increase in the speeding road traffic accidents [RTA] one should be aware of the same and promptly treat them.*

*Here we report four patients who sustained traumatic hip dislocations following RTA. In the first case, patient also had fractures of superior and inferior pubic ramii, closed fracture of left tibia, closed fracture of right femur and open type- 2 fracture of right tibia. He was resuscitated in the emergency room and closed reduction of both hips and IM nailing of right femur was done followed by IM nailing of both tibiae. The patient was non weight bearing for about 6 months. The first patient was followed up for about 4 years and is asymptomatic with union of all fractures. The other three patients had only hip dislocation and was managed on similar lines and six month follow up has shown no secondary changes in the hip joints.*

**Key words:** Hip dislocations, Anterior dislocation, Posterior dislocation, IM nailing

#### INTRODUCTION

Traumatic hip dislocations are very uncommon injuries. Traumatic dislocation of the hip accounts for only 2-5 % of all dislocations.<sup>[1]</sup> About 50 cases have been reported so far. RTA account for vast majority of dislocations. Because of high force dissipation in these accidents, hip dislocations are also associated

with abdominal trauma and other extremity injuries. Lower extremity injuries associated with hip dislocations distract the clinician in this emergency situation.

Here we report four cases, with traumatic hip dislocations and lower extremity fractures who were admitted and treated in our hospital.

#### CASE 1

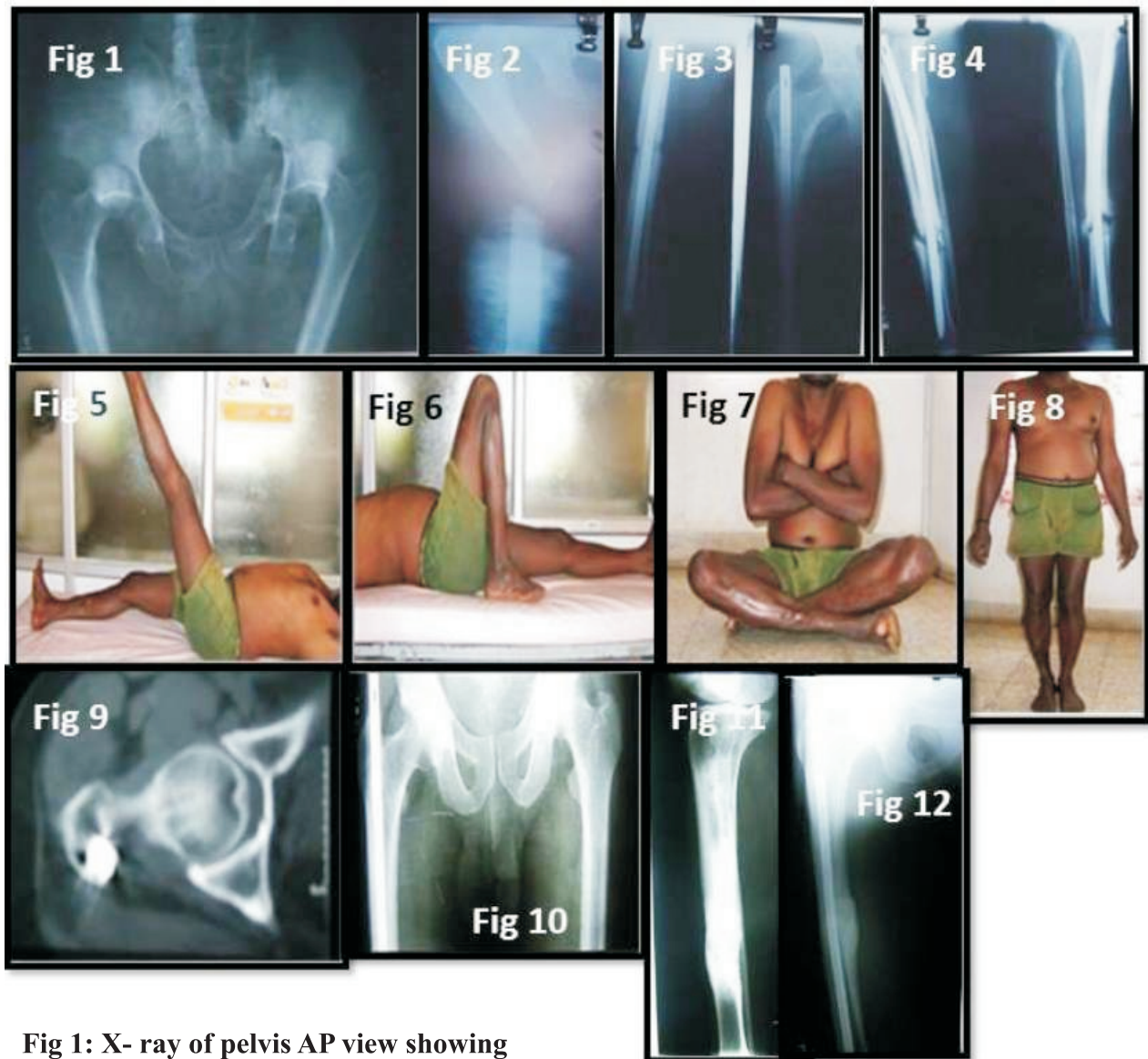
A 25 years old young male was brought to the casualty after a RTA. He was traveling in a crowded tempo which collided head on with a speeding lorry. On examination, in the casualty, patient was conscious, hypotensive with a rapid pulse rate. No signs of head injury were present. He was unable to lie down comfortably on the

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**Fig 1: X- ray of pelvis AP view showing bilateral HIP Dislocation**

**Fig 2 : X-ray of Tibia showing Fracture of Tibia with V-NAIL insitu**

**Fig 3 : X ray of right femur AP view showing fracture midshaft of femur**

**Fig 4 : X-ray of right femur showing Fracture femur with K-NAIL insitu**

**Fig 5 & 6 : Post operatively picture showing 80° SLRT & Flexion at the hip & knee joint**

**Fig 7 & 8 : Post operatively picture showing bilateral flexion with external rotation with nil limb length discrepancy**

**Fig 9 & 10 : X-ray of signs of complete union of tibia and femur with implant insitu**

**Fig 11 : X-ray of pelvis ap view showing no signs of AVN**

**Fig 12 : CT Scan showing no evidence of AVN**

examination table and was arching his back. Fracture of the right femur [closed], an open fracture of right tibia and fracture of left tibia were evident. There were no distal neurovascular deficits. His spine, chest, and abdomen were non-tender. Both the gluteal regions were prominent and tender.

Emergency resuscitation of the patient with two units of whole blood, oxygen and intravenous fluids were done in the casualty. Radiographic examination revealed bilateral posterior hip dislocations, fractures of superior and inferior pubic rami [Fig 1], displaced bilateral fractures tibia and displaced fractures of right femur mid-third shaft [Fig 2]. Ultrasound abdomen was normal.

The patient underwent emergency surgery within six hours after trauma. Closed reduction for both the hips was done manually. First, the left hip and then the right hip were reduced by positioning the patient in left lateral position by traction on the right thigh and gluteal push. The left hip was reduced by positioning the patient on his back by Bigelow's method. Right femur fracture was stabilized with a K Nail [Fig 3]. The right leg wound was debrided and calcaneal pin traction was applied to the right heel. Both the lower limbs were stabilized in the Thomas splints.

During post-operative period the patient developed mild ARDS symptoms [drop in oxygen levels to 86% associated with cough]. However he recovered from it within a few days in critical care unit. He was given another three units of blood transfusion.

At the second stage surgery after two weeks, IM nailing of both tibiae were done by

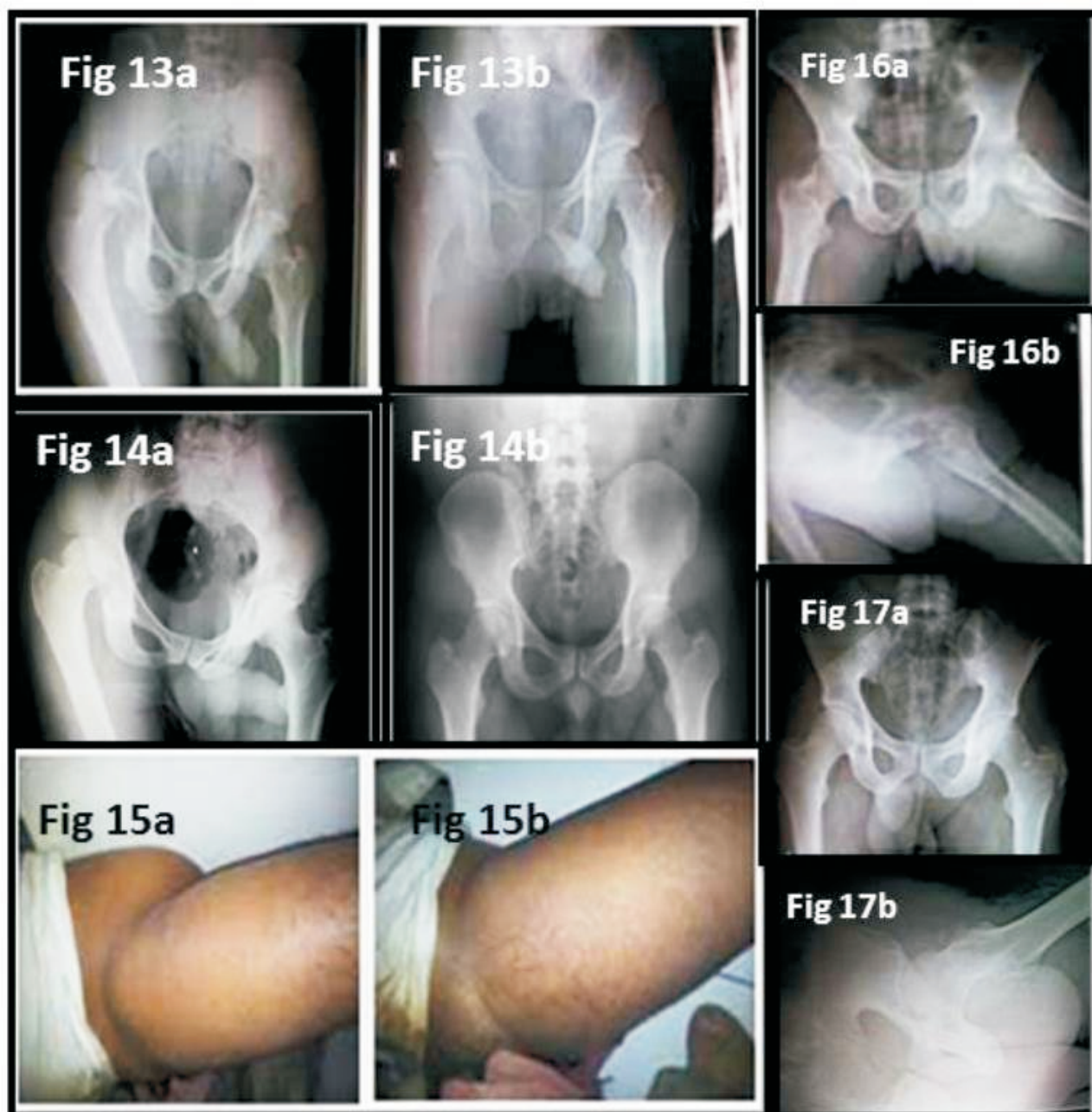
closed methods using image intensifier. V nails were used for the tibial fractures. Skin grafting of raw area over the right leg [Fig 4] was done. The patient was non-ambulatory for three months but passive mobilization of all joints was done. With radiological union of all the fractures he was permitted weight bearing protected with bilateral axillary crutches.

He developed localized osteomyelitis of right tibia which was debrided accompanied by removal of nail. He was followed up for over 4 years and is symptom free now. He has full range of movements at hip, knee and ankle joints [Fig 5, 6, 7, 8] with no leg length discrepancy. X rays show full radiological union of tibia and femur [Fig 11 & 12] and no evidence of vascular necrosis [AVN] in x ray of pelvis CT scan [Fig 11 & 12]. He is also able to do moderate physical [Fig 9 & 10] activities.

#### **CASES 2, 3 & 4:**

Mass causality arriving at our emergency department with a family traveling in a car hit against the lorry with three of its members presenting with dislocation of hip; two posterior [Fig 13 & 14] and other sustained anterior type [Fig 15, 16, 17]. At admission, they were resuscitated in accordance with ATLS protocol and on secondary survey we found with only dislocations. To highlight, one member had brief history of concussion with no indication of head injury and other came on stretcher in prone position with reluctance to turn supine due to pain and deformity of limb. Their general vitals were stable and were started on analgesic and intravenous fluid. There were no external injuries other than ecchymosis over the groin





**Fig 13 a, b : X-ray of pelvis showing posterior dislocation & post reduction**

**Fig 16 a, b : X-ray of pelvis showing anterior dislocation**

**Fig 14 a, b : X-ray of pelvis showing posterior dislocation & post reduction**

**Fig 17 a, b : X-ray of pelvis showing post reduction**

**Fig 15 a, b : Clinical pictures of anterior dislocation hip showing globular swelling in groin area**

area in patient with anterior dislocation of hip. Ipsilateral knee and ankle joints were normal.

They were shifted for X-ray and under intravenous diazepam, attempted closed reduction by Bieglow maneuver for two patients with posterior dislocations. Initially there was resistance to reduce anterior dislocation, but on second attempt we were successful. Post reduction X-rays were obtained for confirmation of concentric reduction [Fig 13-17] with no fresh fractures. In case of anterior dislocation, pre-reduction X-rays showed small committed fracture of greater trochanter this did not get displaced further. Also hips were examined for stability by flexing and axial force at 30° and 45° positions. So also the sciatic stress test and femoral nerve appeared intact with no associated vascular compromise.

Later patients were shifted to ward with skin traction of seven kg and was maintained for same for next two weeks on water bed. During this period patients were gradually mobilized within the pain limits and were discharged. None of them developed secondary complications due to recumbent position. All these patients were reviewed in our outpatient department at the end of 3 months and were planned for graded weight bearing programme with the help of walker. The repeat initial check X-ray showed no further changes in head. They were advised for MRI at a later stage. The patient with greater trochanter fracture had persisting mild pain with limited abduction strength.

## **DISCUSSION**

Dislocations and fracture dislocations of hip are true orthopedic emergencies Hip

dislocations are generally produced by high energy trauma. Motor vehicles accidents remain the most common mechanism of hip dislocations. Posterior hip dislocations are more common than anterior. They result from a posteriorly directed force to a flexed knee and hip. Posterior hip dislocations present as hip flexion, adduction, internal rotation and a shortened extremity.

Anterior hip dislocation [10%] present with hip extension, abduction and external rotation along with shortening of limb. If they present as isolated injury, they are easily recognized. Diagnosis of simultaneous bilateral traumatic hip dislocations may be missed in 50% of cases on first evaluation and may not become obvious for an extended period.<sup>[1]</sup> Upto 50% of patients suffers fracture elsewhere at the time of dislocation.<sup>[2]</sup> Dislocations of hip are easily missed when associated with ipsilateral extremity fractures as they obscure the clinical deformity associated with hip dislocations.<sup>[3, 4]</sup> Careful physical examination and detailed X- ray assessment of extent of bony injury with CT examination of joints are essential.

Aseptic necrosis after posterior hip dislocations is a well recognized complication. Incidence varies from 6% - 40%.<sup>[5]</sup> Incidence of AVN has been directly related to the time the hip remains dislocated.<sup>[6]</sup> Hougaard and Thomsen reported significant reduction of incidence of AVN if reduction is performed in less than 6 hours.<sup>[7]</sup> Brav reported an increased incidence when primary reduction was delayed by more than 12 hours after injury. Stewart and Milford reported AVN changes at an average of 17-18 months after reduction.

The type of dislocation is based on the position of the limb at the time of injury. Posterior traumatic hip dislocations occur when the force acts with adduction, internal rotation, and some degree of flexion of the hip. The incidence of this injury has increased in recent decades because of high-velocity motor vehicle use.<sup>[8]</sup> Injuries in which the front seat passengers are involved in a head-on collision that drives the dashboard into their lower extremities are known as DASHBOARD INJURIES. In anterior traumatic dislocation, the force acts in abduction, external rotation and flexed position of limb.<sup>[9]</sup> Our patient has been bearing weight for 4 years now and is asymptomatic with no X-ray changes.

Associated injuries include those directly related to the hip dislocation and those due to the traumatic incident itself. Ipsilateral injuries that commonly occur include femoral head, neck, or shaft fractures; acetabular fractures; pelvic fractures; sciatic nerve injury; knee injuries; and foot and ankle injuries.<sup>[10,11,12]</sup> Knee injuries, including patellar fractures, ligament ruptures and dislocations are usually posterior due to direct trauma to the knee. In rare instances, an anterior dislocation injures the femoral vessels. Intra-abdominal, head and chest trauma have also been widely reported.

A sciatic stretch test may be used to predict whether future symptoms of damage to the sciatic nerve may occur. This is performed after a successful reduction in patients with no symptoms of neurological dysfunction. The test is performed by positioning patient supine on a stretcher. Have the patient actively flex the relocated hip to a comfortable 90° of flexion and

passively extend the knee with gentle force.

If the passive knee extension produces pain in the sciatic distribution of the same leg, damage to the sciatic nerve may have occurred; symptoms of this injury are more likely to reveal themselves in the future. The patient should be counseled that paresthesia or neurapraxia may occur in the future weeks or months. If neurological symptoms persist, surgical nerve exploration may be performed several weeks after the injury. Emergency nerve exploration is usually not indicated if successful concentric closed reduction can be achieved and maintained in a simple traumatic dislocation. However, if no neurological deficit is apparent at the time of the injury, and such symptoms do appear several days to weeks later, they may be signs of nerve dysfunction attributable to heterotopic ossification or scar tissue formation and may indicate the need for surgical neurolysis as soon as possible.<sup>[9]</sup>

Dreinhaffer and colleagues in a long term follow up study of 50 patients with posterior dislocation of hip reported that although early reduction is important, it does not prevent long term complications.<sup>[13]</sup>

## **CONCLUSION**

Traumatic hip dislocations are extremely rare injuries. Associated fractures should be carefully ascertained by thorough X-ray examinations. Reduction of hip dislocations should be promptly performed within 6-8 hours and stabilization of limb fractures should follow if the facilities and general condition of the patients permits. The patient should be followed regularly with radiographs so that complications

are detected early by the surgeon.

Here we report these four cases managed in a staged manner using available resources at the time of arrival and achieved a good result in patients with polytrauma. Priority was given to reduction of the dislocated hips and then stabilization of the fractures.

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