# Traumatic dislocation of the hip joint - pattern and management in a Tropical African Population.

***T. O. Alonge, S. O. Ogunlade and O. E. Idowu**

*Division of Orthopaedics and Trauma,*
*Department of Surgery, College of Medicine, University of Ibadan*
*and*
*University College Hospital, Ibadan, Nigeria.*

**Summary**

**Traumatic dislocation of the hip is an orthopaedic emergency for which early reduction is indicated. This article describe our experience of the pattern and choice of management of traumatic dislocation of the hip joint in a tropical African population. Majority of the dislocation (87%) were Thompson and Epstein's grades I and II which were easily managed by closed reduction following the administration of titrated intravenous analgesic and intravenous diazepam. This treatment option is cheap and readily administrable to avoid undue delays in the management of this orthopaedic emergency. All the close reduction were carried out in the accident and emergency room except for one patient with bilateral posterior hip dislocation who had his reduction on the ward. Early diagnosis and treatment of traumatic hip dislocation are essential to reduce the morbidities that are commonly associated with delay in reduction.**

**Key words:** ***Hip, Dislocation, Associated injuries.***

**Résumé**

La dislocation traumatique de la hanche est une orthopédique d'urgence pour laquelle une réduction précoce est recommandée. Cet exposé décrit notre expérience sur le modèle et le choix de la gestion de la dislocation traumatique de l' articulation de la hanche dans une population tropicale africaine.

Le plus grand nombre des dislocations (87%) étaient Thompson et Epstein classes I & II qui étaient facilement gérées à travers une réduction fermée après les médicaments des analgésiques intraveineuses et diazépam intraveineux titrés. Ce type de traitement est au bon marché et facilement administré tout en empêchant un retard injustifiable dans la gestion de cet orthopédique d'urgence.

Toutes les réductions fermées ont été effectuées dans la salle d'accident et d'urgence sauf celle d'une patient avec une dislocation postérieure bilatérale de la hanche qui avait eu sa réduction opérée dans la salle d'hôpital.

Un diagnostic et un traitement précoce de la dislocation traumatique de la hanche sont indispensables pour abaisser les morbidités habituellement associées avec les retards dans la réduction.

## Introduction

Traumatic hip dislocation is relatively uncommon because of the depth of the acetabular cavity and the strong support afforded to the joint by its ligament and muscles[1]. In the hip joint, the femoral head articulates with the lunate surface of the acetabulum . The articular surface are reciprocally curved but neither co-extensive nor completely congruent assuming a close pack position in full extension, with slight abduction and medial rotation[2]. The position of the femoral head in relation to the acetabulum and the vector force at the time of impact determines the type of injury produced[3]. Thus, a force applied in the long axis of the femoral shaft may dislocate the head over the posterior lip of the acetabulum. Such a violent force is usually provided more commonly, in a car or a motorcycle accident in which, for example, the driver's or passenger's knee is driven violently against the dashboard or back rest, or by a weight falling on the back of a person in the stooping position. A delay in the reduction of a dislocated hip joint may lead to avascular necrosis of the femoral neck, degenerative arthritis or ankylosis of the hip joint[4-6]. Unfortunately, even with prompt reduction, these complications for example osteoarthritis can still occur[7], therefore traumatic hip dislocation is an orthopaedic emergency and reduction must be carried out as soon as possible The aim of this study was to evacuate the pattern of presentation, and management of traumatic hip dislocations as seen in a tertiary teaching hospital of a tropical African population.

## Patients and Method

The study was carried out at the University College Hospital, Ibadan, Nigeria - a large 800 bedded University Teaching Hospital in Southwestern Nigeria. A retrospective review of the hospital trauma registry was undertaken to identify cases of traumatic dislocation of the hip joints seen and managed from 1st of September 1995 to 31st of August 2000.

Information retrieved from each patient's clinical records included demographic data, mechanism and time of injury, associated bony or soft tissue injury, time and type of reduction (closed manipulation or open reduction) and redislocation rate. The posterior dislocations were classified according to the criteria of Thompson and Epstein[3] (Table 1) and the anterior dislocations were classified according to the position assumed by the femoral head[3].

## Results

Thirty-two patients with hip dislocation were treated at the University College Hospital (UCH), Ibadan, Nigeria, during the five-year period under review. Twenty-six of these patients were males while six patients were females. The mean age was 30.8 years (range 18-69 years). Single joint dislocation was present in 93.8% of cases, the right accounting for 60% of these (Table 2). Posterior dislocation was present in 87% of the total cases reviewed, while central dislocation accounted for 6.5% and anterior dislocation for 6.45%. Majority of the posterior dislocations were grade 1 (60.7%) while grade II accounted for 21.4% of the total cases of posterior dislocation reviewed. All of the dislocations were the result of road traffic accidents.

Isolated injuries (traumatic hip dislocation alone) were seen in 31.2%, whereas associated injuries were seen in 68.8%. The commonest associated injury was fracture of the posterior wall of the acetabulum (27.3%). Other associated bony injuries included pelvic fracture, femoral, tibia, fibula and clavicular fractures. Associated soft tissue injuries included abrasions, lacerations, avulsion injuries and urethral rupture. No case of sciatic nerve palsy was seen (Tables 3a & 3b).

All the hip dislocations except one were managed successfully in the accident and emergency room or on the ward by closed reduction after the administration of intravenous analgesic (opiod preferably, but most cases were managed with diluted and titrated intravenous pentazocine) along with intravenous diazepam. The one exception was a posterior dislocation in which there was associated fracture of the ipsilateral acetabulum, femur and the tibia and fibula all of which precluded closed reduction. This patient was managed by open reduction after plating the ipsilateral femoral

* *Correspondence*

fracture. Gross delay in reduction (>24 hours) was present in six (18.8%) patients and was mainly due to late presentation from the referral centers. Following reduction, the patients were managed on continuous skin traction for six weeks. Re-dislocation occurred in one patient during positioning of the patient for a check radiograph and this was successfully reduced on the ward following administration of intravenous diazepam.

**Table 1 Thompson and Epstein classification of posterior dislocation of the hip**

| | |
|---|---|
| **Grade I** | A dislocation with or without minor acetabular rim fracture |
| **Grade II** | A dislocation with a large single fracture of the posterior acetabular rim |
| **Grade III** | A dislocation with a communited fracture of the acetabular rim, with or without a major fragment |
| **Grade IV** | A dislocation with a fracture of the acetabular rim and floor |
| **Grade V** | A dislocation combined with a fracture of the neck or head of the femur. |

**Table 2 The pattern of dislocation**

| Side | | Anterior | Dislocation posterior | Central |
|---|---|---|---|---|
| Right | Male (n=14) | 1 | 12 | 1 |
| | Female (n=4) | 1 | 3 | - |
| Left | Male (n=10) | - | 10 | - |
| | Female (n=2) | - | 1 | 1 |
| Bilateral | Male (n=2) | - | 2 | - |
| | Female (n=0) | - | - | - |
| Total | | 2 (6.5%) | 28 (87%) | 2 (6.5%) |

**Table 3a Associated injuries n=22 (68.8%)**

| Injuries | Percent |
|---|---|
| Single fracture of acetabular rim (6) | 27.3 |
| Comminuted fracture of the acetabular rim (3) | 13.6 |
| Comminuted fracture of the acetabular floor (4) | 18.2 |
| Soft tissue injury (5) | 22.7 |
| Lacerations (3) | 13.6 |
| Abrasions (5) | 22.7 |
| Pelvic fracture (3) | 13.6 |
| Urethral rupture (1) | 4.5 |
| Clavicular fracture (2) | 9.1 |
| Ipsilateral femoral and Tibial/Fibular fracture (1) | 4.5 |

**Table 3b Distribution of associated injuries.**

| Associated injuries | Percent |
|---|---|
| Acetabular fractures | 59.1 |
| Soft tissue | 22.7 |
| Pelvic | 13.6 |
| Clavicular fracture | 9.1 |
| Urethral rupture | 4.5 |
| Ipsilateral femoral and Tibial/Fibular fracture | 4.5 |

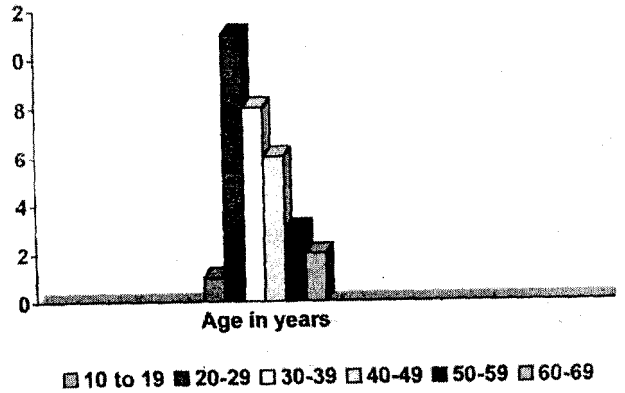


Fig. 1 *Age distribution of patients.*

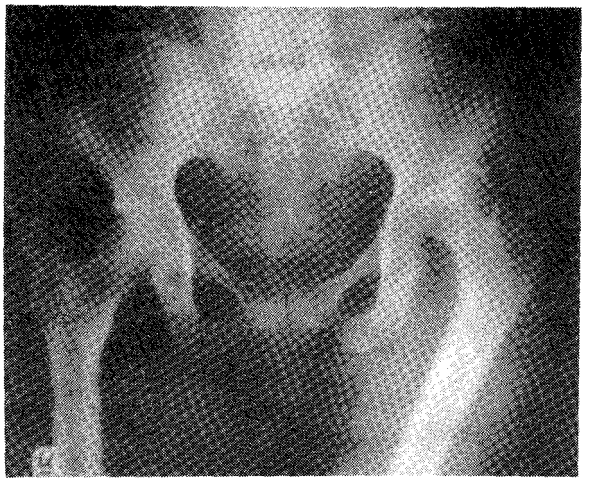

Fig. 2a *Posterior dislocation left hip (pre-reduction)*

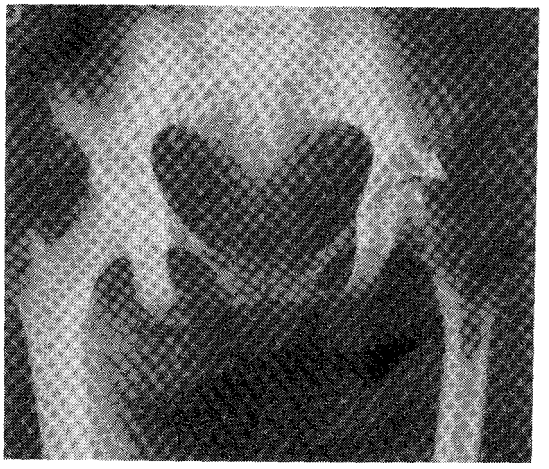

Fig. 2b *Posterior dislocation left hip (post-reduction)*

## Discussion

The long-term prognosis of traumatic dislocation of the hip depends on the severity of the trauma, the time interval between the injury and reduction (which should be less than six hours), and the development of avascular necrosis of the femoral head[8]. In adults, late unreduced traumatic posterior dislocation of the hip is usually the result of a motor-vehicular accident in which coma, fracture of the ipsilateral femur or tibia, dislocation or fracture of the contralateral hip masks the presence of a dislocation[4,9-10]. Four out of every five (80%) traumatic hip dislocation are posterior[9]. It may occur with or without fracture of the acetabulum. This injury is most common during the active years of life (Figure 1) and is usually the result of severe trauma unless there is a pre-existing disease of the femoral head, acetabulum, or the neuromuscular system.

The commonest type of dislocation in our review was posterior in 87% of cases (Figure 2) and this is in keeping with the findings of other workers in the developed countries[12]. Anterior hip dislocations are uncommon and, according to epstein, they constitute 12% of traumatic hip dislocations[12]. In our series, we found only 65% of anterior dislocations, but this may be due to the number of cases being reviewed. The physician must have a high index of suspicion that posterior dislocation of the hip may be present in a poly-traumatized patient because other life threatening conditions may be present that may divert his attention. Classically the affected limb is shorter, flexed, adducted and internally rotated at the hip.

Hak and Goulet noted an associated injury incidence of 95% in their series[13]. However, in our study, we noted an associated injury incidence of 68.8%. In Hak and Goulet series, 45% of the patients (who had road traffic accidents leading on to the posterior

hip dislocation) were restrained with seat belts. Hence, higher forces were probably involved in the mechanism of injury and thus account for the higher incidence of associated injuries in their series. In our environment, seat belts are hardly worn by motorist and thus a relatively lower force generated following road traffic accidents may lead to hip dislocation with a relatively lower associated injuries.

Most dislocations were reduced by close manipulation following the administration of intravenous analgesic and diazepam as opposed to general anaesthesia which is readily provided in the developed countries even at short notice. Our modality of management was adopted because of the delay in securing theatre spaces, shortage of anesthetists and the reluctance of the Nigerian patient to accept general anaesthesia. An open reduction is indicated only when close reduction has failed, or when non-concentric reduction has been achieved, indicating that a loose body or soft tissue is trapped within the joint. Close reduction was not possible in only one patient in this series due to associated ipsilateral fractures of the lower limb bones. This patient had open reduction of the hip dislocation during the plating of the femoral fracture. The longer the hip remains dislocated, the more likely is the risk of complications, including avascular necrosis of the femoral head and post-traumatic arthritis. A number of authors have called attention to the apparent relationship between the development of avascular necrosis of the femoral head, the violence of the injury, and the development of osteoarthrosis in later life[10,14]. Avascular necrosis of the femoral head can develop as late as two years after the dislocation, although cases have been reported to occur as late as five years after injury[15]. Delay in reduction was present in six (18.8%) of our cases and this was due to late presentations. This delay can be avoided if the diagnosis were promptly made by the attending physician and reduction or referral made immediately. The follow up of the patients in this series was difficult because majority of them did not turn up after the first visit at the surgical outpatient clinic. None of the patients attended the outpatient clinic after six months following discharge from the wards. Therefore, the incidence of avascular necrosis could not be ascertained in these patients because of the drop out rate from poor follow up.

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