

## A study of neglected traumatic hip dislocation treated with total hip arthroplasty: The journey from miserable to a happy life

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### ABSTRACT

**Background and Objective:** Neglected hip dislocation results in avascular necrosis and arthritis. Therefore the objective of this study was to treat neglected traumatic hip dislocation by total hip arthroplasty and regain good functional activity.

**Methodology:** This was a retrospective study conducted in Department of Orthopaedics, Dr.Ruth KM Pfau Civil Hospital Karachi from August 2014 to November 2021. Eleven patients were selected. Each patient was assessed clinically and radiologically and was followed up for two years. Thompson & Epstein classification was used for dislocation. Total hip arthroplasty was done in all cases however bone cementing and graft were in accordance with the specific case. Harris hip scoring was performed before and after the surgery to assess functional activity.

**Results:** There were 10 male and 1 female patient with a mean age of  $42.7 \pm 10.1$  years. Patients suffering from a traumatic accident for 2-5 months were enrolled in this study. Out of 11 patients, 10 were presented with posterior and 1 patient with anterior dislocation. The average Harris hip score preoperatively was 10 and improved to an average of 89 post-operatively after two years of follow-up. All patients were treated to their satisfaction.

**Conclusion:** Arthroplasty is an efficient and excellent surgical procedure in neglected total hip dislocation.

**Key words:** Neglected hip dislocation, Arthroplasty, Hip replacement

## INTRODUCTION

Neglected traumatic hip dislocation (NTHD) is a rare condition but not uncommon in our part of the world. In developing countries, NTHD is prevalent at a higher frequency than in developed countries. The higher rate of accidents especially due to lack of safety precautions while driving a motor bike leads to polytrauma, more commonly involving the head and neck, which can distract the attention from hip dislocation.(1) Neglected traumatic hip dislocation always occurs as a consequence of lack of medical attention and improper care at the proper time. (2) Chronic dislocation is observed in those patients who have increased tolerance towards pain and decreased cognition for recognizing or in some cases verbalizing their feeling of pain. It is also more prevalent in those patients who have additional life-threatening injuries besides NTHD which are for them a more obvious reason for seeking medical attention. (3)

Most often, NTHD in our country is treated by a bone setter (Pehalwan) which is one of the major concerns, that delays the patients from reaching a hospital for standard care, besides that, religious beliefs, absurd pieces of advice, and lack of basic knowledge also play a major role for pushing the patient to prefer bonesetter treatment as the primary form of treatment. The treatment for NTHD becomes more cumbersome as the time passes by the view of the fact that the acetabulum starts filling with fibrous tissue inside the unreduced dislocations. (4)This further makes reduction nearly impossible through closed manipulation methods. (5) Neglected traumatic hip dislocation results in avascular necrosis and arthritis.(6) Total hip replacement is highly recommended in cases that have dislocated hip for a time period of more than three months. (7) Studies have shown that increased age, greater body weight in cases where BMI is above  $30\text{kg/m}^2$ , the head size of the femur and pathology of the lumbosacral area influences the total hip arthroplasty. (8-10)

Complete understanding of factors involved in its etiologic presentation and proper knowledge about available options for treatment is a mandatory approach for surgeons. There are different methods to treat NTHD like, girdle stone, arthrodesis, arthroplasty, etc. According to our knowledge and literature search, this is the 1<sup>st</sup> study on neglected traumatic hip dislocation and its treatment by arthroplasty.

## **METHODOLOGY**

We conducted a retrospective study at Dr Ruth KM Pfau Civil Hospital Karachi from August 2014 to November 2021. A total of 11 patients were enrolled in this study all of whom presented to us in the Out-Patient Department (OPD), ranging from age 34-to 58 years and having a common complaint of hip pain for 2-5 months. Out of 11 patients, 10 were presented with posterior, and 1 was presented with anterior dislocation. As NTHD is a rare clinical manifestation it took a great amount of time to collect sufficient data. The study was conducted after approval from the institutional review committee and informed written consent was taken from all the patients. The complete clinical history of each case was extracted based on a well-structured questionnaire that recorded their demographic, clinical history, type of hip dislocation (Thompson and Epstein classification), and the duration of NTHD. The complete radiological picture was assessed for each patient using different X-ray, MRI, and CT scan views.

Total hip arthroplasty with bone grafting was performed (standard protocol: the patient being in a lateral position under spinal or epidural anesthesia) in accordance with the patient's condition. During the pre-op examination, an average shortening of the affected limb was noticed to be around 6 cm with the true shortening being around 4cm.

Posterior dislocations were approached using the posterior Moor approach while anterior dislocation was explored using the lateral Hardinge approach.

In the majority of the cases, the head of the femur was lying in the false acetabulum and the true acetabulum was filled with fibrous tissue. After identification and exposure of the acetabulum under the image intensifier, all fibrous tissue was removed from the true acetabulum, and reaming was done. Any bone loss from the posterior acetabular wall was reconstructed by an autogenous bone graft from the femoral head with cortical screws and any deficit in the medial wall was reconstructed with impaction of cancellous graft and anti-protrusio cage.

After the acetabulum was prepared, the trial was done, and the cup was placed followed by the femoral preparation, trial, and insertion of the femoral component.

Hip stability was confirmed by abduction, flexion, adduction, and internal & external rotation at the hip joint. The wound was closed without the placement of a drain and physiotherapy was started on the 1<sup>st</sup> postoperative day according to the institutional protocol. Postoperative Harris Hip Scoring (HHS) was recorded on each follow-up. Data were analyzed through the statistical package of social sciences (SPSS) version 24.0 for quantitative and qualitative variables.



**Fig # I:X-ray of 3 months old right posterior hip dislocation**



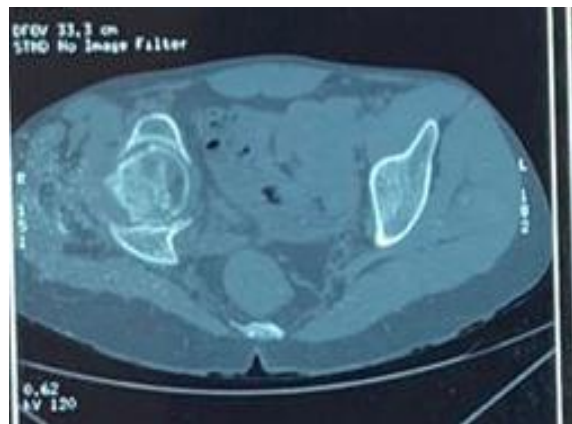
**Fig # II:Ct scan right hip posterior dislocation**



**Fig # III:14 months postoperative x-ray showing BG, Screws &uncemented THA**



**Fig # IV:5 months old central right hip dislocation**



**Fig # V:CT scan right hip**



**Fig # VI:Immediate postoperative x-ray showing BG, anti protrusion cage, cemented dual mobility cup, and non-cemented femoral component**



**Fig # VI:Postoperative x-rays at 12 months**

## RESULTS

There were 10(90.9%) males and 1(9.1%) female(Table 1). The majority of the patients were injured due to road traffic accidents and treated by local bonesetters for 2 to 3 months.The majority of the males were motorbike riders and were hit by a car or bus while the female had an accident while crossing the road. One case was a young malewho fell from a tree and was suffering from pain in his hip for the last 4 months. The mean age of patients was  $42.7\pm 10.1$  years. All ofthe patients had a similar history of walking with support/stick after the initial incidence and never recovered after injury.According to Thompson Epstein Classification, type I means dislocation of hip (DOH) with or without a minor fracture, type II means DOH with a single large posterior acetabular fracture, type III is DOH with comminution of the acetabular ring, type IV is DOH with fracture of acetabular floor and type V means DOH with fracture of the femoral head

The Thompson Epstein classification showed the first eight cases as I, II, III, III, III, I, V, V respectively while the 28-year-old man was classified as IV. Two cases of 52 and 58 years (both Type V) also required cage and cementing with THA (Table 2).

All of the cases were managed through total hip arthroplastywith or without abone graft.

The average,HHS pre-operatively was 10 and it improved to 40 postoperative within 6 weeks and up to 58 within 3 months in 72.3% patients, 72 within 6 months in 90.9% patients, 79 within 9 months, 81 within 1 year, and 89 (2 years) postoperatively (Table 3).

**Table 1: Distribution of gender and age among cases**

Variable		Mean $\pm$ SD n(%)
Age (Years)		44.62 $\pm$ 8.9
Neglected (months)		3.0 $\pm$ 0.75
Gender	Male	10(90.9%)
	Female	1(9.1%)

**Table 2: Thompson and Epstein Classification with ages of cases and their management protocol**

Ascending ages (years)	Thompson Epstein Grade	Management
28	IV	Dual mobility THA + BG
34, 51	I	Dual mobility THA
35	II	THA
38-49	III	Dual mobility THA + BG
52, 58	V	Cage + BG, Cemented dual mobility cup & non-cemented femoral component

**Table 3: Follow-up of cases in terms of Harris Hip Score**

Period	Good (80-89)	Fair (70-79)	Poor (<70)	Bad (40-60)	Worst (10)
At preoperative	-	-	-	-	11 (100%)
Within 6 weeks	-	-	-	11 (100%)	-
At 3 months	-	-	3(27.2%)	8 (72.3%)	-
At 6-9 months	-	10 (90.9%)	1 (9.02%)	-	-
At 9 months	-	11 (100%)	-	-	-
At 1 year	11 (100%)	-	-	-	-
At 2 years	11 (100%)	-	-	-	-



## DISCUSSION

Total hip arthroplasty is a common procedure performed routinely all over the world approximately 235,000 hip arthroplasties are performed in the United States every year.(11) Hip dislocation is an emergency and should be addressed immediately (at least within 6 hours), as delay in reporting can lead to arthritis and avascular necrosis at the hip joint. (12) A delay of even three months may make every other surgical treatment option obsolete leaving total hip arthroplasty as the best surgical intervention. Other surgical options which have been reported previously are hemiarthroplasty or girdle stone procedures. (13) In the present study, cases are represented with neglected posterior and anterior dislocation in adults which is itself a rare event. (14)

The current study adopted a two-years follow-up of all eleven cases which is a unique strategy to be reported in a single study. No original articles on adults NTHD have been documented earlier, however, after an extended literature review, we came across one study over viewing 18 children which had posterior hip displacement and used the open reduction method. (15) Total hip arthroplasty has shown promising results in the neglected hip dislocation as observed in the present study. (16) The application of cemented cups is considered a good option for better quality preservation of bone and decreased chances of failure in osteoporosis. (17) The transfer of gluteus maximus muscle in cases where the abductor's muscle is incompletely destroyed is also an advisable option. (18)

Different studies also highlighted cases, where the bone was fragmentized into small parts and fixation through plate or screw had no advantage. Previous research has also given encouraging remarks in the treatment of bone deficiency in femur proximity by using "Wagner SL revision stem" with bone graft impaction. (19)

In our study, there was a visible improvement of HHS from the preoperative to the post-operative stage after THA in neglected hip dislocations.

## CONCLUSION

Surgeons could encounter a rare and very difficult situation of neglected traumatic hip dislocation in their clinical practice. Hip arthroplasty is an efficient and reliable method for securing complex neglected hip dislocations. The functional hip score takes time to improve but gives good quality of life and happiness to the patient and family.

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