



ORIGINAL ARTICLE

Functional outcome of posterior lip acetabular fracture and hip dislocation fixed with reconstruction plate.

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ABSTRACT... Objective: To determine the functional outcome of posterior lip acetabular fracture and hip dislocation fixed with reconstruction plate. **Study Design:** Descriptive Case Series study. **Setting:** Department of Orthopaedic, Dr Ruth K. M. Pfau Civil Hospital Karachi. **Period:** August 2014 to December 2020. **Material & Methods:** 36 patients were included in the study. Age between 18 years to 60 years. All patients fixed with reconstruction plate. Harris hip score assessed at follow up till 12 months. Harris hip score above 90 was considered as excellent, between 70–89 as good and below 70 as poor. **Results:** The mean age of the patients was 43.67 ± 11.56 years. Majority of the patients were males ($n=29$, 80.6%). Good functional outcome was found in ($n=15$, 41.7%) of the patients, excellent in 8 (22.2%) and poor in 13 (36.1%) patients. Satisfactory outcome was found in 23 (63.9%) patients. A significant association of satisfactory outcome was found with age (p -value < 0.001). Avascular necrosis 7, infection 5 and arthritis in 6 patients noted. One patient had associated sciatic nerve palsy, three had head of femur fracture and 1 with ipsilateral midshaft femur fracture. **Conclusion:** For posterior hip dislocation with lip fracture we suggest emergency reduction and timely fixation of posterior lip fracture can improve the clinical outcome of patient and even complications happen in future it preserve the bone stock for the future arthroplasty procedure.

Key words: Functional Outcome, Hip Dislocation, Post Lip Acetabular Fracture, Reconstruction Plate.

INTRODUCTION

Acetabular fractures are increasing as result of high velocity trauma with bimodal age distribution.^{1,2} 80.5 % injuries are due to motor vehicle accidents and 10.7% due to fall.³

Acetabular fractures are serious injuries and often associated with high velocity trauma and in osteoporotic bone low velocity trauma is sufficient for fracture.^{4,5}

Posterior wall fractures are common and comprise approximately 24 % to 25 % of all acetabular fractures sec all acetabulum fractures.^{1,6,7}

Treatment of acetabulum fracture changed over last 4 decades from conservative to surgical fixation.⁸ Surgical treatments for acetabular fractures is difficult and technically demanding.⁹

Approach depends upon fracture type from single approach to double. Kocher Lange back approach for posterior lip and column fracture and transverse fracture and ilioinguinal approach for anterior lip, anterior column and bi-columnar fracture. Recently modified ilioinguinal approach in combined surgical exposures may archive less complications and good functional outcomes in the management of acetabulum fractures involving two columns.¹⁰⁻¹¹

Fracture type, age, and gender are prognostic factors for the surgical outcome after ORIF of high energy acetabular fractures.¹²

MATERIAL & METHODS

This Descriptive Case series study conducted at department of orthopaedic, Dr Ruth K. M. Pfau Civil Hospital Karachi from August 2014 to December 2020.

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36 patients were included in the study. All patients of either gender having age range 18 years to 60 years presented with posterior lip acetabular fracture with hip. From 18 years to 60 years with both gender and fracture duration less than or equal to 4 weeks. On admission all patient's hip dislocations reduced in emergency and placed on skeletal traction till definitive treatment. All patients operated through Kocker Langenback approach and fixed with reconstruction plate. At each follow up visit, every patient was examined and assessed for functional outcome based upon Harris Hip Score. Final outcome was assessed at the end of twelve months postoperatively. Harris hip score above 90 was considered as excellent, between 70–89 as good and below 70 as poor.

This study was conducted after approval of ethical committee of department of orthopaedic surgery Dow University of health sciences/Dr Ruth K.M. Pfau civil hospital Karachi. Patient was consented for procedure and risk and benefits explained to patient. Demographics including age, sex, duration of fracture, mechanism of injury, comorbid obtained. All patients admitted through emergency and outpatient department. All patients presented at emergency, hip dislocation was reduced as soon, and traction applied till definitive fixation with reconstruction plate. Followed by CT scan with 3D reconstruction done in all patients. Experienced surgeon with ample experience in acetabulum fracture fixation will operate patient. Posterior Kocher Langenback approach used in all patients for fixation. Patients followed at 2, 4 and 6 weeks follow-up than every 3 monthly for atleast one year. At each follow up visit, assessed for functional outcome regarding hip function based upon Harris Hip Score. Harris hip score above 90 was considered as excellent, between 70–89 as good and below 70 as poor. Good to excellent outcome was considered as satisfactory functional outcome.

Data were analyzed on SPSS version 22. Age, duration of fracture and Harris hip score was computed as Mean \pm SD. Gender, mechanism of injury, comorbid, associated injuries,

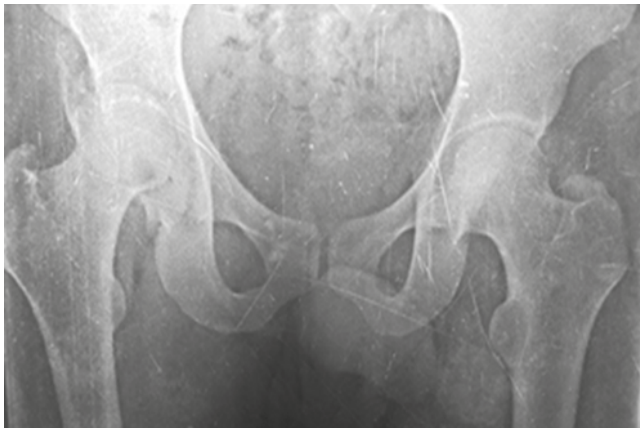
functional outcome as excellent, good, poor and satisfactory functional outcome was computed as frequencies and percentages. Post stratification, Chi square test was applied taken p value ≤ 0.05 as significant.

RESULTS

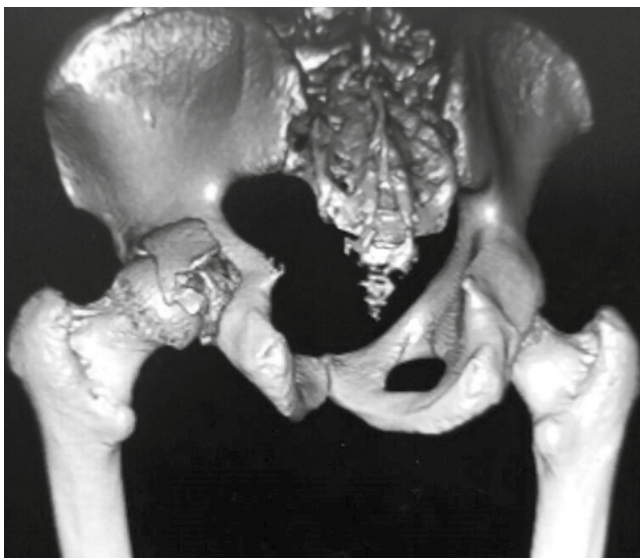
The mean age of the patients was 43.67 ± 11.56 years. Majority of the patients were males ($n=29$, 80.6%) were males and 7 (19.4%) were females. There were 19 (52.8%) patients with ≤ 45 years and 17 (47.2%) patients with >45 years of age. Majority of the patients were males ($n=29$, 80.6%). The mean duration of fracture was 2.31 ± 1.06 weeks. There were 23 (63.9%) patients with ≤ 2 weeks of duration and 13 (36.1%) patients with >2 weeks of duration of fracture. Good functional outcome was found in majority ($n=15$, 41.7%) of the patients, excellent in 8 (22.2%) and poor in 13 (36.1%) patients. Satisfactory outcome was found in 23 (63.9%) patients. A significant association of satisfactory outcome was found with age (p-value <0.001). Avascular necrosis in 7 patients, infection in 5 patients and arthritis in 6 patients noted with clinically and radiologically assessed at follow up. One patient had associated sciatic nerve palsy, three had head of femur fracture and 1 with ipsilateral midshaft femur fracture.



(Picture-1. a) Posterior hip dislocation with lip fracture.



b) After close reduction, but joint incongruent and unstable clinically.



(c) Ct scan with 3 D Reconstruction after hip reduction.



d) Postoperative fixation with lag screw and reconstruction plate.

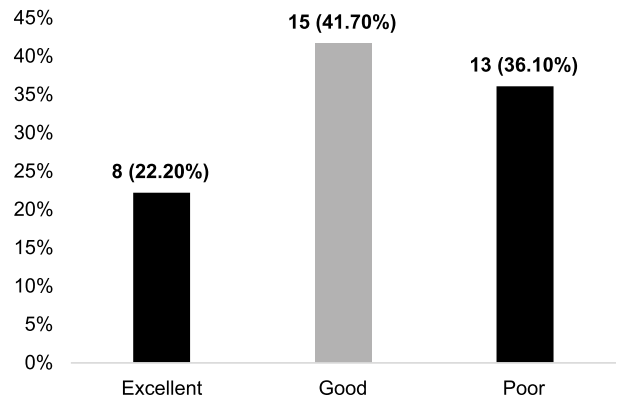


Figure-1. Functional outcome of the patients (n=36).

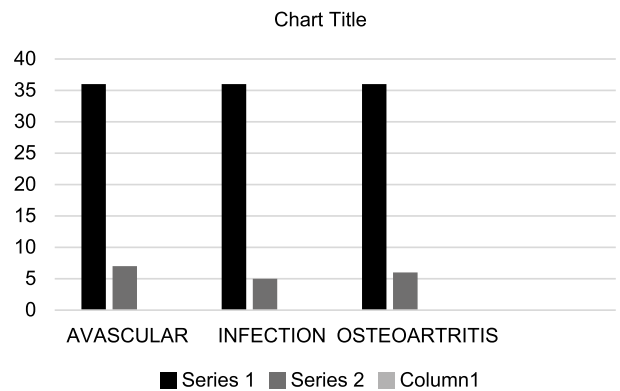


Figure-2. Postoperative complication.

DISCUSSION

Open reduction and internal fixation (ORIF) became the standard treatment of displaced acetabular fracture after the report of Letournel and Judet who proposed that ORIF restores the articular congruency and provide better outcome than conservative treatment.¹³

Judet et al; mentioned three types of posterior wall fracture depends on fracture comminution. These are type 1, Large posterior wall fragment, type2, comminuted posterior wall type 3, any of type with depressed impaction of cancellous area at fracture.¹⁴

Retrospective study conducted in 128 patients treated in 17 years, mentioned that marginal impaction and postoperative >2mm displacement are factors leading to arthritis, these patients with 50 plus age should be treated with total hip replacement. Patients with isolated posterior wall

have good outcome.¹⁵

Hundred patients with posterior wall fracture treated with open reduction and internal fixation and assessed with clinical outcome was excellent in 55, good in 25, good in 9 and poor in ten patients while radiologically excellent in 81, good in five fair in four and poor in ten patients. Old age, comorbidities, delay in surgery are factors responsible for unfavorable results.¹⁶

These injuries are high velocity trauma so have associated injuries. Knee ligamentous injuries are around 89 % reported by Schmidt. 15% sciatic nerve injury (Peroneal).¹⁷

19 patients with posterior wall fracture and hip dislocation in 8 years, clinically and radiologically assessed for fixation showing good outcome?¹⁸

94 patients with unstable hip dislocation and associated posterior wall fracture, 92 reduced anatomically and imperfect in 2 patients. Postoperative CT scan showed incongruity more than 2mm in 59 patients and more in 44 patients. One patient developed infection, DVT developed in 7, redo for errant screw. Excellent results shown in 36%, good in 52%, fair in 2% and poor in nine 10%.¹⁹

121 patients with posterior wall fracture with 53 months' mean follow up showed 95% anatomically reduced and 5% showed satisfactory results. Associated bony and nerve injuries affect the outcome of patient.²⁰

Avascular necrosis noted in 33.3% of 18 patients. Hip reduced earlier have less chances of avascular necrosis than in delayed reduced.²¹

Retrospective study of 25 patients showed excellent results in ten, good in eight, fair in five and poor in three. Morel Lavelle lesion in one, heterotopic ossification in two, three patients in osteonecrosis. Sciatic nerve transient palsy recovered after 6 weeks.²²

CONCLUSION

In posterior wall fracture with hip dislocation,

earlier reduction of hip and fixation provide excellent to good results. Associated injuries are common that must be addressed properly to improve the outcome and counselling related to avascular necrosis and arthritis must be done. Posterior wall reconstruction provides additional benefit of bone preservation for future joint replacement.






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3	Bakht Hussain	Data Interpretation.	
4	Vijay Golani	Drafting.	
5	Javed Hussain Khaskheli	Data Collection.	
6	Agha Muhammd Younis	Drafting.	