IMMEDIATE FULL WEIGHT BEARING VERSUS PARTIAL WEIGHT BEARING AFTER STABLE INTERNAL FIXATION OF POSTERIOR WALL ACETABULAR FRACTURES: A COMARATIVE STUDY

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Introduction

Acetabular fractures are severe injuries requiring surgical intervention for hip joint stability and function. Posterior wall fractures constitute 40-50% of acetabular fractures. Optimal treatment involves open reduction and internal fixation (ORIF), aiming for precise reduction and stable fixation to enable early rehabilitation. Postoperative weight-bearing protocols remain debated, with varying practices from immediate full weight-bearing (FWB) to restricted partial weight-bearing (PWB). This study compares these protocols in terms of fracture healing, functional recovery, and complication rates.

Aim of the work

To compare the outcomes of immediate full weight-bearing versus partial weight-bearing after stable internal fixation of posterior wall acetabular fractures.

Patients and Methods

Study Design: Prospective randomized comparative study.

Population: 45 patients with posterior wall acetabular fractures treated at El-Hadra University Hospital. •Group A (FWB): 23 patients allowed weight-bearing as tolerated within 24-48 hours postoperatively. •Group B (PWB): 22 patients restricted to touch-down weight-bearing within 24-48 hours postoperatively.

Inclusion Criteria:

•Posterior wall acetabular fractures with stable fixation.

•Matta's criteria for anatomical reduction (residual displacement ≤ 1 mm).

•Follow-up for at least six months.

Exclusion Criteria:

•Complex fracture patterns.

•Significant comorbidities or associated fractures.

•Improper reduction or fixation.

Evaluation:

•Functional outcomes: Modified Merle d'Aubigné score.

•Radiological assessments: Fracture healing and fixation stability.

Results

Radiological Outcomes:

•Both groups achieved stable anatomical reductions (Matta's criteria).

•No significant difference in fracture healing rates at 6 months.

•One case of fixation failure observed in the PWB group.

Six months postoperatively, radiological assessments showed consistent fracture healing with similar outcomes between Group A and Group B . Both groups maintained joint congruency and fixation stability, apart from one fixation failure in Group B. Importantly, no statistically significant difference was observed in radiographic healing progression between the groups. Furthermore, no cases of heterotopic ossification or avascular necrosis were identified, reinforcing the effectiveness of both rehabilitation protocols in achieving stable fixation and favorable healing trajectories. Table (I)

Table (1): Comparison between the two studied groups according to failure of fixation (6 months)

Follow up (6 months)	FWB (n = 23)		TEO touch (n = 22)	
	No.	%	No.	%
Failed fixation				
No	23	100.0	21	95.5
Yes	0	0.0	1	4.5

Functional Outcomes: Group A, exhibiting a mean modified Merle d'Aubigne score (MMDS) of 16.02 ± 1.23, with most patients attaining scores categorized as "good" to "excellent." Group B exhibited a mean MMDS of 15.45 ± 2.01. The scores for Group B, while slightly lower than those of Group A, remained within the "good" range, with no significant difference observed ($p > 0.05$). Table (II)

Table (2): Comparison between the two studied groups according to functional outcome (≥6 months)

Follow up (>6 months)	FWB (n = 23)		TEO touch (n = 22)		Test of sig.	p
	No.	%	No.	%		
modified Merle d'Aubigne score						
Poor (3 - 12)	0	0.0	2	9.1	FET= 2.083	0.648
Moderate (13 - 14)	2	8.7	2	9.1		
Good (15 - 17)	18	78.3	15	68.2		
Excellent (18)	3	13.0	3	13.6		
Min. – Max.	14.0 – 18.0		11.0 – 18.0		t= 0.739	0.464
Mean ± SD.	16.04 ± 1.22		15.68 ± 1.99			
Median (IQR)	16.0 (15.0 – 17.0)		16.0 (15.0 – 17.0)			

Conclusion

Immediate full weight-bearing is a safe and effective protocol for stable posterior wall acetabular fractures, providing comparable outcomes to partial weight-bearing. Early mobilization facilitates functional recovery without compromising fracture healing or fixation stability. Further research is needed to refine postoperative rehabilitation strategies.