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Clinical and Functional Outcomes of Posterior Wall Acetabular Fractures Fixed with Reconstruction Plates Augmented by Spring Plates or Screws: A Prospective Study at NITOR

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Abstract

Background: Posterior wall acetabular fractures are complex high-energy injuries that require stable fixation to restore hip congruity and prevent long-term disability. Comparative evidence on the use of reconstruction plates augmented with spring plates or screws remains limited in Bangladesh.

Aim of the study: This study aimed to evaluate the clinical, functional, and radiological outcomes of posterior wall acetabular fractures treated with reconstruction plates augmented by either spring plates or screws.

Methods: This prospective observational study was conducted at NITOR, Dhaka, from February 2024 to February 2026. A total of 25 patients aged 18–64 years with posterior wall acetabular fractures treated by ORIF through the Kocher-Langenbeck approach using reconstruction plates augmented by either spring plates or screws were included. Functional outcomes were assessed using the Harris Hip Score, VAS pain score, and hip range of motion, while radiological union and complications were evaluated during follow-up. Data were analyzed using SPSS version 26.0.

Results: The mean age of the patients was 37.8 ± 11.5 years, and 80.0% were male. Road traffic accident was the main cause of injury (76.0%), and isolated posterior wall fracture was the commonest pattern (72.0%). The mean Harris Hip Score improved from 56.8 ± 7.2 at 6 weeks to 86.7 ± 8.9 at final follow-up, while the VAS pain score decreased from 4.9 ± 1.2 to 1.6 ± 1.1. Overall, 76.0% achieved excellent or good functional outcomes, with similar results between the spring plate and screw augmentation groups (76.9% vs 75.0%; $P = 1.000$). Fracture union was achieved in 96.0%, with post-traumatic arthritis in 16.0%, heterotopic ossification in 20.0%, and no conversion to total hip arthroplasty.

Conclusion: Posterior wall acetabular fractures treated with reconstruction plates augmented by spring plates or screws showed satisfactory functional and radiological outcomes, with comparable results between fixation methods.

Keywords: Posterior wall acetabular fracture, reconstruction plate, spring plate, screw augmentation, Harris Hip Score

Introduction

Acetabular fractures are among the most challenging injuries encountered in orthopedic trauma surgery because of the complex anatomy of the hip joint, the need for accurate anatomical reduction, and the risk of long-term functional disability.[1] Posterior wall acetabular fractures are the most common subtype, accounting for approximately 25–30% of all acetabular fractures.[2] These injuries usually result from high-energy trauma, particularly road traffic accidents and dashboard injuries, where axial force transmitted through the femur impacts the posterior acetabular wall.[2,3] Posterior wall fractures are frequently associated with posterior hip dislocation, marginal impaction, intra-articular loose fragments, and cartilage injury, all of which may adversely affect hip stability and long-term outcome.[4]

Globally, the incidence of acetabular fractures has increased over recent decades because of rapid urbanization, increased motor vehicle use, and high-energy trauma exposure.[5] Young adult males are predominantly affected by occupational exposure and are more involved in road traffic accidents.[6] In South Asian countries, including Bangladesh, the burden of acetabular fractures is increasing because of rapid motorization, poor road safety measures, overcrowded traffic systems, and delayed trauma referral pathways.[7] NITOR, as the largest tertiary orthopedic referral center in Bangladesh, receives a substantial number of complex pelvic and acetabular injuries each year, with posterior wall fractures constituting a significant proportion of surgically managed acetabular trauma cases.

The primary goals of treatment in posterior wall acetabular fractures are restoration of hip joint congruity, stable internal fixation, prevention of post-traumatic arthritis, and early mobilization.[8] Open reduction and internal fixation (ORIF) through the Kocher-Langenbeck approach, remains the gold standard treatment for displaced posterior wall fractures.[3,8] Reconstruction plates are commonly used as buttress implants because of their adaptability to acetabular anatomy and ability to provide stable fixation.[9] However, fixation becomes technically difficult in comminuted posterior wall fractures or fractures with small peripheral fragments, where conventional screw fixation alone may not provide adequate stability.[10]

To address this challenge, augmentation techniques such as spring plates or supplementary screws have been increasingly used in conjunction with reconstruction plates.[11] Spring plates are particularly useful for stabilizing small osteochondral fragments and comminuted posterior wall components while minimizing the risk of intra-articular screw penetration.[12] Recent studies have reported satisfactory radiological union and favorable functional outcomes using spring plate augmentation in posterior wall acetabular fractures.[11,13] Similarly, screw augmentation techniques have also demonstrated acceptable fixation stability and clinical results.[14] Despite these advances, controversy still exists regarding the optimal augmentation method for posterior wall fractures, particularly in resource-limited trauma settings.

Most published studies evaluating fixation methods for posterior wall acetabular fractures originate from high-income countries, and comparative evidence from South Asian populations remains limited.[10,15] Furthermore, there is limited prospective data comparing functional and radiological outcomes between reconstruction plates augmented by spring plates and those augmented by screws in Bangladeshi patients. Variations in fracture pattern, surgical expertise, rehabilitation compliance, and delayed presentation may significantly influence treatment outcomes in this region. Therefore, the study aimed to evaluate the clinical, functional, and radiological outcomes of posterior wall acetabular fractures treated with reconstruction plates augmented by either spring plates or screws.

Methods

This prospective observational study was conducted at the National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR), Dhaka, Bangladesh, from February 2024 to February 2026. A total of 25 patients with posterior wall acetabular fractures who fulfilled the eligibility criteria were included in the study. Patients aged 18 to 64 years with radiologically confirmed posterior wall acetabular fractures and treated operatively with reconstruction plates augmented by either spring plates or screws were enrolled after obtaining informed written consent. Patients with pathological fractures, open acetabular fractures, previous surgery around the affected hip, associated femoral neck fracture, severe neurological impairment affecting functional assessment, or incomplete follow-up were excluded.

Detailed demographic, clinical, radiological, operative, and follow-up data were collected using a structured data collection sheet. Baseline variables included age, sex, residence, occupation, and comorbidities. Injury-related variables included mode of injury, side involved, associated hip dislocation, sciatic nerve injury, and associated injuries. Preoperative radiological assessment was performed using anteroposterior pelvic radiograph, Judet views, and CT scan with 3D reconstruction. Fracture pattern, marginal impaction, intra-articular loose fragments, femoral head subluxation, femoral head injury, and preoperative displacement were recorded.

All patients underwent open reduction and internal fixation through the Kocher-Langenbeck approach. Reconstruction plates were used as the primary fixation device, with augmentation by spring plates or screws based on fracture morphology, comminution, and intraoperative stability. Operative variables included time from injury to surgery, operative time, estimated blood loss, need for blood transfusion, use of bone grafts, and removal of intra-articular fragments.

Postoperative radiological assessment was performed to evaluate the quality of reduction, joint congruity, and implant position. Patients were followed up at scheduled intervals, and functional outcome was assessed using the Harris Hip Score, VAS pain score, and hip range of motion. Radiological union, loss of reduction, post-traumatic arthritis, heterotopic ossification, avascular necrosis, implant failure, reoperation, and other complications were recorded. Data were analyzed using appropriate descriptive and comparative statistics using SPSS (V. 26.0). A P-value <0.05 was considered statistically significant.

Results

Among the 25 patients, the mean age was 37.8 ± 11.5 years, with the highest proportion in the 31–40 years age group (8 patients, 32.0%). Most patients were male (20 patients, 80.0%) and rural residents (16 patients, 64.0%). The commonest occupational group was farmer/laborer, 8 patients (32.0%). Comorbidity was present in 6 patients (24.0%) [Table 1].

Road traffic accidents were the leading cause of injury, accounting for 76.0% (19 patients). The right side was more commonly affected in 15 patients (60.0%). Associated hip dislocation was present in 12 patients (48.0%), mostly posterior dislocation (11 patients, 44.0% of total cases). Sciatic nerve injury was observed in 3 patients (12.0%), while associated injuries were present in 9 patients (36.0%) [Table 2].

The most common fracture pattern was an isolated posterior wall fracture in 18 patients (72.0%). Marginal impaction was present in 10 patients (40.0%), and intra-articular loose fragments were found in 8 patients (32.0%). Femoral head subluxation was present in 6 patients (24.0%), while femoral head injury was noted in 4 patients (16.0%). The mean preoperative displacement was 8.2 ± 2.6 mm, and 25 patients (100.0%) underwent a CT scan with 3D reconstruction [Table 3].

Table 1: Baseline demographic characteristics of the study patients (*N* = 25)

Variables	Category	*n* (%)
Age (years)	18–30 years	7 (28.0)
	31–40 years	8 (32.0)
	41–50 years	6 (24.0)
	51–64 years	4 (16.0)
	Mean ± SD	37.8 ± 11.5
Sex	Male	20 (80.0)
	Female	5 (20.0)
Residence	Urban	9 (36.0)
	Rural	16 (64.0)
Occupation	Service holder	5 (20.0)
	Businessman	4 (16.0)
	Farmer/laborer	8 (32.0)
	Driver	5 (20.0)
	Student/others	3 (12.0)
Comorbidity	Present	6 (24.0)
	Absent	19 (76.0)

Table 2: Injury-related characteristics of the study patients (*N* = 25)

Variables	Category	*n* (%)
Mode of injury	Road traffic accident	19 (76.0)
	Fall from height	5 (20.0)
	Physical assault	1 (4.0)
Side of injury	Right	15 (60.0)
	Left	10 (40.0)
Associated hip dislocation	Present	12 (48.0)
	Absent	13 (52.0)
Type of dislocation	Posterior	11 (44.0)
	Central	1 (4.0)
	None	13 (52.0)
Sciatic nerve injury	Present	3 (12.0)
	Absent	22 (88.0)
Associated injuries	Present	9 (36.0)
	Absent	16 (64.0)

The mean time from injury to surgery was 8.6 ± 3.1 days. All patients were operated through the Kocher-Langenbeck approach (25 patients, 100.0%). The mean operative time was

Table 3: Preoperative radiological characteristics (*N* = 25)

Variables	Category	*n* (%)
Fracture pattern	Isolated posterior wall	18 (72.0)
	Posterior column with posterior wall	4 (16.0)
	Transverse with posterior wall	3 (12.0)
Marginal impaction	Present	10 (40.0)
	Absent	15 (60.0)
Intra-articular loose fragment	Present	8 (32.0)
	Absent	17 (68.0)
Femoral head subluxation	Present	6 (24.0)
	Absent	19 (76.0)
Femoral head injury	Present	4 (16.0)
	Absent	21 (84.0)
Preoperative displacement, mm	Mean ± SD	8.2 ± 2.6
CT scan with 3D reconstruction	Done	25 (100.0)

124.8 ± 24.6 minutes, and the mean estimated blood loss was 589.2 ± 168.4 ml. Blood transfusion was required in 14 patients (56.0%). Compared with screw augmentation, the spring plate group had slightly longer operative time (132.5 ± 23.2 vs 116.5 ± 22.8 minutes) and greater blood loss (630.0 ± 165.0 vs 545.0 ± 160.0 ml), but these differences were not statistically significant [Table 4].

Functional recovery improved progressively over time. The mean Harris Hip Score increased from 56.8 ± 7.2 at 6 weeks to 86.7 ± 8.9 at final follow-up. Pain also decreased, with VAS score improving from 4.9 ± 1.2 to 1.6 ± 1.1. Hip flexion increased from 70.4 ± 12.8° at 6 weeks to 102.8 ± 15.2° at final follow-up [Table 5].

At final follow-up, 8 patients (32.0%) had an excellent outcome, and 11 patients (44.0%) had a good outcome. Overall, 19 patients (76.0%) achieved an excellent or good functional outcome. Excellent/good outcomes were almost identical between the spring plate and screw augmentation groups (76.9% vs 75.0%), with no statistically significant difference ($P = 1.000$) [Table 6].

Fracture union was achieved in 24 patients (96.0%), with only 1 patient (4.0%) showing delayed union. The mean time to union was 14.8 ± 2.5 weeks. Post-traumatic arthritis occurred in 4 patients (16.0%), heterotopic ossification in 5 patients (20.0%), and avascular necrosis in 1 patient (4.0%). Overall, complications were present in 10 patients (40.0%), while 15 patients (60.0%) had none. No patient required conversion to total hip arthroplasty [Table 7].

Discussion

This prospective study demonstrated favourable early clinical and radiological outcomes after operative fixation of posterior wall acetabular fractures using reconstruction plates augmented by either spring plates or screws. The study population was predominantly young and male, with a mean age of 37.8 ± 11.5 years, male predominance of 80.0%, and road traffic accident as the main injury mechanism in 76.0%, a pattern consistent with acetabular fracture epidemiology reported from South Asian and

Table 4: Operative characteristics and fixation method

Variables	Total (*n* = 25)	Spring plate (*n* = 13)	Screw augmentation (*n* = 12)	*P*-value
Time from injury to surgery (days)	8.6 ± 3.1	8.8 ± 3.0	8.4 ± 3.3	0.755
Kocher-Langenbeck approach	25 (100.0)	13 (100.0)	12 (100.0)	1
Operative time (minutes)	124.8 ± 24.6	132.5 ± 23.2	116.5 ± 22.8	0.096
Estimated blood loss (ml)	589.2 ± 168.4	630.0 ± 165.0	545.0 ± 160.0	0.204
Blood transfusion required	14 (56.0)	8 (61.5)	6 (50.0)	0.695
Bone graft used	6 (24.0)	5 (38.5)	1 (8.3)	0.16
Intra-articular fragment removed	8 (32.0)	5 (38.5)	3 (25.0)	0.673

Table 5: Functional outcome during follow-up

Follow-up period	Harris Hip Score	VAS pain score	Hip flexion (Degree)
6 weeks	56.8 ± 7.2	4.9 ± 1.2	70.4 ± 12.8
3 months	72.4 ± 8.1	3.2 ± 1.1	86.6 ± 13.5
6 months	82.3 ± 8.7	2.1 ± 1.0	97.8 ± 14.1
12 months/final follow-up	86.7 ± 8.9	1.6 ± 1.1	102.8 ± 15.2

Table 6: Comparison of final outcome between spring plate and screw augmentation groups

Variables	Category	Total (*n* = 25)	Spring plate (*n* = 13)	Screw augmentation (*n* = 12)	*P*-value
Harris Hip Score grade	Excellent	8 (32.0)	5 (38.5)	3 (25.0)	0.907
	Good	11 (44.0)	5 (38.5)	6 (50.0)	
	Fair	4 (16.0)	2 (15.4)	2 (16.7)	
	Poor	2 (8.0)	1 (7.7)	1 (8.3)	
Outcome category	Excellent/good	19 (76.0)	10 (76.9)	9 (75.0)	1
	Fair/poor	6 (24.0)	3 (23.1)	3 (25.0)	

Table 7: Final radiological outcome and complications

Variables	Category	*n* (%)
Fracture union	United	24 (96.0)
	Delayed union	1 (4.0)
	Nonunion	0 (0.0)
Time to union (weeks)	Mean ± SD	14.8 ± 2.5
Loss of reduction	Present	1 (4.0)
	Absent	24 (96.0)
Post-traumatic arthritis	Present	4 (16.0)
	Absent	21 (84.0)
Heterotopic ossification	Present	5 (20.0)
	Absent	20 (80.0)
Avascular necrosis of femoral head	Present	1 (4.0)
	Absent	24 (96.0)
Implant loosening/ breakage	Present	1 (4.0)
	Absent	24 (96.0)
Reoperation required	Yes	1 (4.0)
	No	24 (96.0)
Conversion to total hip arthroplasty	Yes	0 (0.0)
	No	25 (100.0)
Overall complication	Present	10 (40.0)
	Absent	15 (60.0)

other trauma-centre series.[16–20] Nearly half of the patients had associated hip dislocation (48.0%), while marginal impaction and intra-articular loose fragments were present in 40.0% and 32.0%, respectively, indicating that this cohort represented a clinically relevant group with posterior wall injury rather than simple low-energy fractures.

Functional recovery was progressive and clinically meaningful. The mean Harris Hip Score improved from 56.8 ± 7.2 at 6 weeks to 86.7 ± 8.9 at final follow-up, while VAS pain decreased from 4.9 ± 1.2 to 1.6 ± 1.1, and hip flexion improved from 70.4 ± 12.8° to 102.8 ± 15.2°. The final excellent/good outcome rate was 76.0%, which is comparable to Fakru et al., who reported a mean HHS of 86.6 and satisfactory outcome in 76.7% of surgically stabilized acetabular fractures,[16] and slightly higher than Huda et al., who reported a mean HHS of 80.96 ± 8.9 in displaced acetabular fractures.[17] A similar agreement is seen with Anizar-Faizi et al., who reported that 66.7% achieved excellent/good HHS results after surgery,[19] and with Iqbal et al., who also showed acceptable functional and radiological outcomes after acetabular fracture fixation in a tertiary hospital setting.[18]

The spring plate subgroup had an excellent/good outcome rate of 76.9%, nearly identical to the screw augmentation group (75.0%), with no statistically significant difference. This supports the view that spring plates are useful adjuncts mainly when fracture morphology requires buttressing of small rim or comminuted periarticular fragments, rather than being universally superior to screw augmentation. De Mauro et al. reported a mean modified HHS of 84.9 ± 6.5 in 46 comminuted posterior wall fractures treated with spring plates, close to the present mean final HHS of 86.7 ± 8.9.[21] Ibrahim et al. similarly reported a mean mHHS of 86 in 24 patients treated with spring plate and reconstruction plate fixation.[13] Aguilar et al. reported excellent 12-month outcomes in 95.8% of isolated posterior wall fractures fixed with spring plates through a rotator-sparing posterolateral approach, a higher proportion than in the present study, possibly due to differences in case selection, soft-tissue preservation, and fracture complexity.[22]

Radiological healing was encouraging, with union in 96.0%, delayed union in only 4.0%, loss of reduction in 4.0%, and no nonunion. These findings are consistent with the principle emphasized in multiple studies that stable fixation and anatomical reduction are key determinants of outcome.[23–25] Cho et al. reported anatomical reduction in 18 of 23 comminuted posterior wall fractures using fragment-specific 2.7 mm variable-angle locking plates,[23] while Firoozabadi et al. found that all 72 posterior wall fractures treated without screws through the wall fragment-maintained reduction, with 92% reduced within 2 mm.[24] Dadura et al. also showed that anatomical reconstruction was associated with higher HHS and Merle d'Aubigné scores, reinforcing the clinical importance of reduction quality.[25]

The complication profile was acceptable but not negligible. Post-traumatic arthritis occurred in 16.0%, heterotopic ossification in 20.0%, AVN in 4.0%, implant loosening/breakage in 4.0%, and reoperation in 4.0%, with no conversion to total hip arthroplasty. The arthritis rate is very similar to that of De Mauro et al., who reported post-traumatic osteoarthritis in 15.2%,[21] while Ibrahim et al. reported mild arthritis in 12.5%, two AVN cases, and two THR conversions.[23] The absence of THR conversion in the present study is favourable, though longer follow-up is required because arthritis and femoral head necrosis may evolve late. Aguilar et al. noted that unsatisfactory outcomes after acetabular ORIF may include AVN, heterotopic ossification, infection, sciatic nerve injury, and post-traumatic osteoarthritis, with osteoarthritis reported across a wide range in the literature.[22]

Overall, the findings suggest that reconstruction plate fixation augmented by either spring plates or screws can achieve good early functional recovery and high union rates in posterior wall acetabular fractures when CT-based planning, Kocher-Langenbeck exposure, stable fixation, and supervised rehabilitation are applied. The clinical implication is that implant selection should be individualized: screws may be adequate for larger reducible fragments, whereas spring plates are particularly valuable for comminuted, marginal, or small rim fragments where screw penetration risk is higher.

Limitations of the Study

The study was limited by its small sample size, single-centre design, short follow-up period, and non-randomized selection of fixation method. Therefore, the findings may have limited generalizability and may not fully detect late complications such as arthritis, avascular necrosis, or need for total hip arthroplasty.

Conclusion

This study showed that posterior wall acetabular fractures treated with reconstruction plates augmented by spring plates or screws achieved satisfactory functional and radiological outcomes. Most patients had excellent or good functional recovery, high fracture union, reduced pain, and improved hip movement. Both fixation methods yielded comparable outcomes, suggesting that augmentation should be selected based on fracture pattern and intraoperative stability.

Recommendations

Early CT-based assessment and timely operative fixation are recommended for posterior wall acetabular fractures. Reconstruction plate augmentation with spring plates or screws should be selected based on fracture morphology and intraoperative stability. Regular long-term follow-up is needed to monitor arthritis, avascular necrosis, and implant-related complications. Larger multicentre studies are recommended to confirm these findings.

References

1. Kelly J, Ladurner A, Rickman M. Surgical management of acetabular fractures–a contemporary literature review. Injury 2020 Oct 1;51(10):2267–77.
2. Chaudhry Y, Abate N, Harvi J, Desai S, Shah MP. Posterior wall acetabular fractures: current concepts review. J Am Osteopath Acad Orthop [Internet] 2024 Aug 22 [cited 2026 May 17];8(2). Available from: https://aoao.org/2024/08/22/posterior-wall-acetabular-fractures-current-concepts-review/ doi:https://www.doi.org/10.70709/3nr1p1s29m.
3. Kumar D, Kushwaha NS, Tiwari PG, Sharma Y, Srivastava RN, Sharma V. Outcome of acetabulum fractures treated with open reduction and internal fixation through Kocher-Langenbeck approach: a retrospective study. J Clin Orthop Trauma 2021 Dec 1;23:101599.
4. Giannoudis PV, Grotz MR, Papakostidis C, Dinopoulos H. Operative treatment of displaced fractures of the acetabulum: a meta-analysis. J Bone Joint Surg Br 2005 Jan 1;87(1):2–9.

5. Rommens PM, Schwab R, Handrich K, Arand C, Wagner D, Hofmann A. Open reduction and internal fixation of acetabular fractures in patients of old age. Int Orthop 2020 Oct;44(10):2123–30.

6. Shon HC, Lim EJ, Yang JY, Min CH. Outcomes of surgical treatment of acetabular fractures with a minimum of 1-year follow-up. Clin Orthop Surg 2024 Oct 11;16(6):871.

7. Ali R, Zaighum M, Aziz S, Ashraf N, Shah SM, Khatoom MA, et al. Clinical and functional outcome of acetabular fracture fixation: 5-year follow up retrospective cohort study. J Pak Orthop Assoc 2024 Jun 30;36(02).

8. Matta JM. Fractures of the acetabulum: accuracy of reduction and clinical results in patients managed operatively within three weeks after the injury. JBJS 1996 Nov 1;78(11):1632–45.

9. Suzuki T, Smith WR, Stahel PF, Morgan SJ, Baron AJ, Hak DJ. Technical problems and complications in the removal of the less invasive stabilization system. J Orthop Trauma 2010 Jun 1;24(6):369–73.

10. Chuang CH, Chuang HC, Wang JH, Yang JM, Wu PT, Hu MH, et al. Anatomical posterior acetabular plate versus conventional reconstruction plates for acetabular posterior wall fractures: a comparative study. J Clin Med 2024 Sep 9;13(17):5341.

11. Elmadag M, Guzel Y, Aksoy Y, Arazi M. Surgical treatment of displaced acetabular fractures using a modified Stoppa approach. Orthopedics 2016 Mar 1;39(2): e340–5.

12. Shibata R, Takeda S, Takahashi H, Mitsuya S, Matsumoto K, Kobayashi M, et al. Outcomes of spring-locking plate fixation method using locking mesh plate/box plate for posterior wall fractures of the acetabulum: a retrospective single-centre study. Injury 2024 Feb 1;55(2):111172.

13. Ibrahim MA, Elgahel MM, Gouda SA, Hassaan MM, Khired ZA, Aljonaid M, et al. Modified one third tubular plate (spring plate) augmented with reconstruction plates for treatment of comminuted posterior wall acetabular fractures, Short to midterm outcomes of 24 patients. Orthop Rev 2024 May 13;16:116902.

14. Moed BR, Carr SE, Gruson KI, Watson JT, Craig JG. Computed tomographic assessment of fractures of the posterior wall of the acetabulum after operative treatment. JBJS 2003 Mar 1;85(3):512–22.

15. Firoozabadi R, Hamilton B, Toogood P, Shearer D. Risk factors for conversion to total hip arthroplasty after acetabular fractures involving the posterior wall. J Orthop Trauma 2018 Dec 1;32(12):607–11.

16. Fakru NH, Faisham WI, Hadizie D, Yahaya S. Functional outcome of surgical stabilisation of acetabular fractures. Malays Orthop J 2021 Jul;15(2):129.

17. Huda N, Islam MS, Bishnoi S, Utsav K. Factors affecting the functional outcome of surgically managed displaced acetabular fractures. Int J Burns Trauma 2021 Apr 15;11(2):105.

18. Iqbal F, Taufiq I, Najjad MK, Khan N, Zia OB. Fucntional and radiological outcome of surgical management of acetabular fractures in tertiary care hospital. Hip & pelvis 2016 Dec 28;28(4):217.

19. Anizar-Faizi A, Hisam A, Sudhagar KP, Moganadass M, Suresh C. Outcome of surgical treatment for displaced acetabular fractures. Malays Orthop J 2014 Nov;8(3):1.

20. Sahu RL. Outcome of surgical treatment for displaced acetabular fractures: a prospective study. Rev Bras Ortop Engl Ed 2018 Jul 1;53(4):482–8.

21. De Mauro D, Rovere G, Are L, Smakaj A, Aprato A, Mezzadri U, et al. Spring plates as a valid additional fixation in comminuted posterior wall acetabular fractures: a retrospective multicenter study. J Clin Med 2023 Jan 11;12(2):576.

22. Aguilar JR, Ortega LA, Reatiga I. Clinical and functional outcomes of posterior wall fractures of the acetabulum fixed with spring plates by a posterolateral rotator-sparing approach. Injury 2021 Oct 1;52(10):2978–85.

23. Cho JW, Chung HJ, Kim BS, Yeo DH, Song JH, Oh CW, et al. Fragment specific fixation technique using 2.7 mm VA LCP for comminuted posterior wall acetabular fractures: a novel surgical technique. Arch Orthop Trauma Surg 2019 Nov;139(11):1587–97.

24. Firoozabadi R, Chen EY, Elhaddad M, Tornetta III P. Isolated buttress plating of posterior wall acetabular fractures: is it sufficient?. Arch Bone Jt Surg 2020 Jul;8(4):511.

25. Dadura E, Truszczyńska-Baszak A, Szydłowski D. Radiological and functional assessment of treatment outcomes in patients after open reduction with internal fixation (ORIF) of acetabular fractures. Int J Environ Res Public Health 2022 Jan 24;19(3):1277.

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