

Challenges of Total Arthroplasty for Neglected Fracture-Dislocations of the Hip

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Abstract

This study examined neglected hip fracture-dislocations in developing countries, focusing on five cases in Dakar. The research adopted a prospective method, assessing epidemiological, clinical, radiological, and therapeutic aspects, utilizing the Postel Merle d'Aubigné scoring system for functional assessment. Results demonstrated that total joint replacement surgery, predominantly following traffic accidents, significantly improved mobility and reduced limb length disparity, with most patients achieving independent walking post-operation. The study concludes that early diagnosis and total hip arthroplasty are critical for optimal outcomes.

Keywords

Arthroplasty, Hip, Neglected Fracture-Luxation

1. Introduction

Traumatic fracture-dislocation of the hip is an uncommon and severe injury. It is considered to be neglected if it is not diagnosed and treated within three months of the accident [1]. This condition is more common in resource-constrained countries, where access to healthcare facilities is difficult. It progresses to aseptic necrosis of the femoral head [2], making treatment difficult.

This study aimed to examine the epidemiological, anatomopathological and therapeutic characteristics of neglected fracture-dislocation of the hip in the orthopaedic trauma department of Principal Hospital in Dakar.

2. Methods

We conducted a prospective study in the orthopaedic department of Principal Hospital, in Dakar, over 4 years from 2017 to 2021, including 5 patients received

for a neglected unreduced hip fracture-dislocation. We included all patients with hip dislocation fractures never reduced within more than 3 months. We excluded all patients with previously reduced dislocations. We studied the results according to epidemiological, clinical, radiological and therapeutic aspects. We adopted the Postel Merle d'Aubigné (PMA) functional scoring system for functional assessment.

3. Results

Our series included 5 patients with neglected hip fracture-dislocation.

The mean age of our patients was 44 years, with extremes of 31 and 60 years. All were male.

The aetiology was dominated by road traffic accidents (4 out of 5 cases) and 1 case of a fall from a high place.

The average time for consultation and treatment was approximately 4 months (**Table 1**).

The causes of negligence were due to recourse to marabouts or traditional practitioners in 4 patients and to diagnostic wandering in 1 patient who had an associated cranioencephalic trauma which led to long-term hospitalisation in an intensive care unit for a coma.

The anatomopathological lesions were mainly high posterior dislocations associated with fractures of the posterior wall or roof of the acetabulum in 4 patients (**Figures 1-4**) and 1 case of protrusive dislocation associated with a fracture of the base of the acetabulum (**Figure 5**). CT scans were routinely performed in all patients for assessment of acetabular lesions and surgical planning.

Clinically, all patients had unequal lengths of the lower limbs, with an average

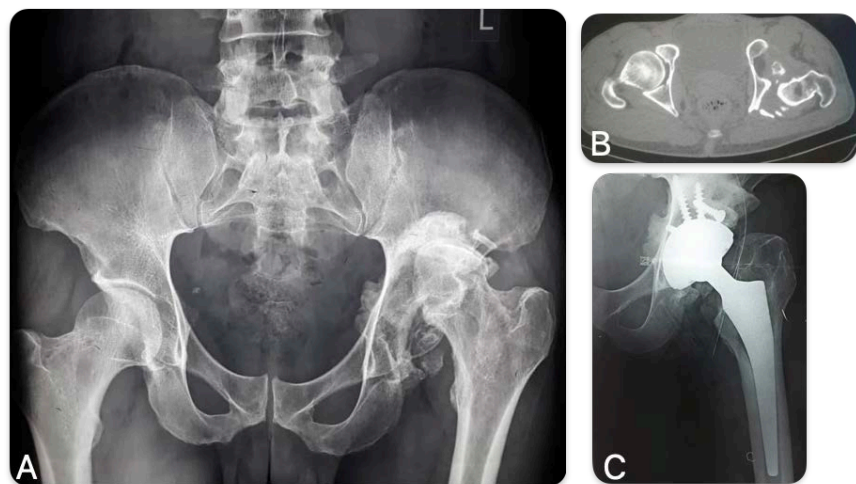


Figure 1. (A): initial radiological image showing the high posterior dislocation associated with a fracture of the roof and the posterior wall of the acetabulum; (B): initial CT image confirming the dislocation and fracture of the posterior wall of the acetabulum; (C): post-operative radiological control showing total hip prosthesis with screwed bone graft from the posterior wall.



Figure 2. (A): initial radiological image showing the high posterior dislocation associated with a fracture of the posterior wall of the acetabulum; (B): initial CT image confirming the dislocation and fracture of the posterior wall of the acetabulum; (C): post-operative radiological control showing total hip prosthesis with screwed bone graft from the posterior wall.

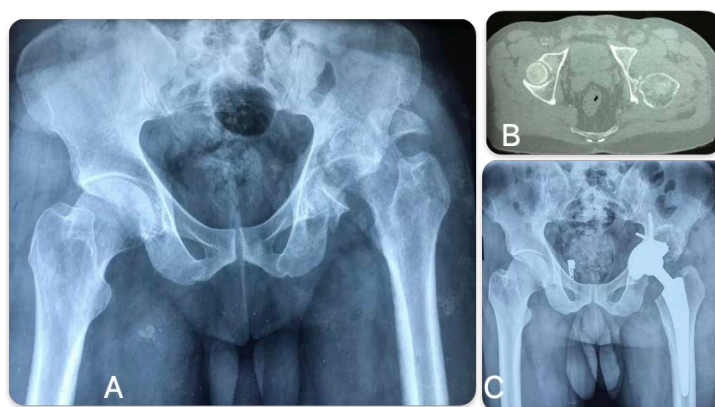


Figure 3. (A): initial radiological image showing the high posterior dislocation associated with a fracture of the posterior wall of the acetabulum; (B): initial CT image confirming the dislocation and fracture of the posterior wall of the acetabulum; (C): post-operative radiological control showing total hip prosthesis with screwed bone graft from the posterior wall.

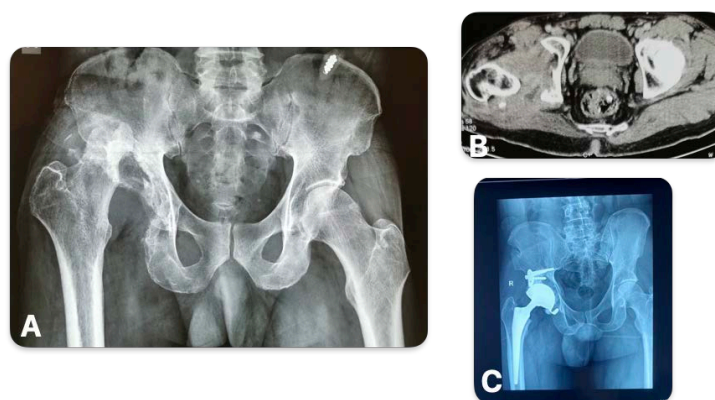


Figure 4. (A): initial radiological image showing the high posterior dislocation associated with a fracture of the roof and the posterior wall of the acetabulum; (B): initial CT image confirming the dislocation and fracture of the posterior wall of the acetabulum; (C): post-operative radiological control showing total hip prosthesis with reconstruction of the acetabulum using a Kerboull cross.

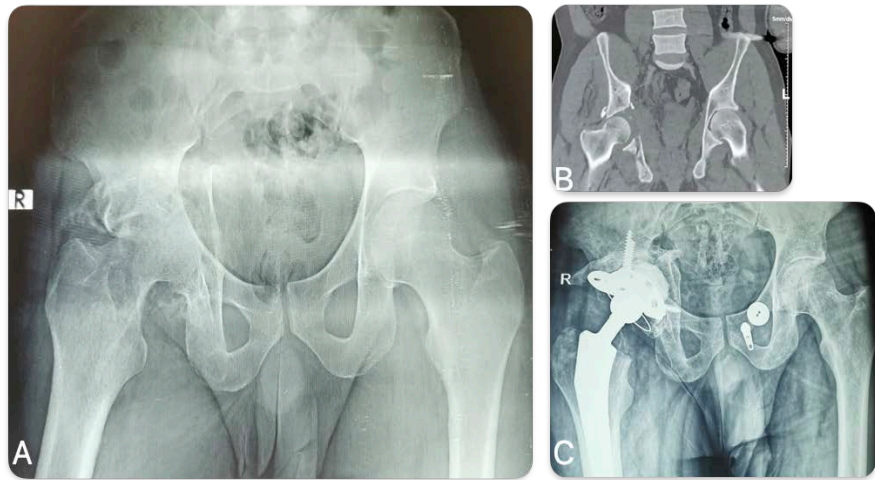


Figure 5. (A): initial radiological image showing the protrusive dislocation associated with a fracture of the bottom of the acetabulum; (B): initial CT image confirming the dislocation and fracture of the bottom of the acetabulum; (C): post-operative radiological control showing total hip prosthesis with reconstruction of the acetabulum using a support ring.

Table 1. Distribution of patients according to consultation timelimit.

| Patients | 1 | 2 | 3 | 4 | 5 |
|----------------------------------|---|---|---|---|---|
| Consultation time limit (months) | 9 | 3 | 4 | 3 | 3 |

of 2.6 cm and extremes of 1 and 4 cm. Two patients had sciatic nerve palsy.

Functional assessment was performed according to the Postel Merle d’Aubigné (PMA) score, which showed an average of 5.6 with extremes of 5 and 7.

All patients underwent total joint replacement surgery. Moore’s posterolateral approach was used. Reconstruction of the acetabulum was necessary in all patients and was performed using:

- A cortico-cancellous graft was harvested from the femoral head on the posterior wall to cover the acetabulum in 3 patients (patients 1, 2 and 3).
- A Kerboul cross in 1 patient (patient 4).
- And a support ring in 1 patient (patient 5).

Intraoperative reduction was difficult due to the age of the dislocation and retraction of the soft tissues. It required extensive release of the gluteus medius muscle in 2 patients.

Inequality in the length of the lower limbs was corrected intraoperatively in all patients.

After 6 months, the results were satisfactory, with all patients walking independently without canes. One of the two patients with sciatic involvement had recovered sensibility. A clear functional improvement was observed, with an average PMA score of 15. Individual patient results before and after surgery are detailed in the **Table 2**.

Table 2. Comparative pre- and post-operative results for each patient.

| | PMA | | Lower limb length inequality | | Sciatica damage | |
|-----------|--------|---------|------------------------------|---------|-----------------|------------------|
| | Pre-op | post-op | Pre-op | post-op | Pre-op | post-op |
| Patient 1 | 5 | 16 | 1 | 0 | No | no |
| Patient 2 | 7 | 15 | 3 | 0 | Yes | sensitf recovery |
| Patient 3 | 4 | 13 | 3 | 0 | No | no |
| Patient 4 | 6 | 16 | 4 | 0 | No | no |
| Patient 5 | 6 | 15 | 2 | 0 | Yes | yes |

4. Discussion

A hip dislocation is considered to be neglected when it goes beyond 3 months without reduction [1]. The paucity of publications in the literature confirms the rare nature of this traumatological entity. It is the prerogative of the young and active subject during a violent trauma, where the dislocation often goes unnoticed in the context of severe polytrauma [3]. However, in our context, this carelessness is due to the use of traditional treatments. Traditional practitioners are frequently requested to treat trauma. Approximately 80% or more of rural populations in developing countries rely on this medicine, even though it can lead to significant sequelae [4]. These sequelae are linked to a failure to recognise dislocation, which is accompanied by several anatomy-physiological disorders, with almost constant necrosis of the femoral head [2].

Total hip arthroplasty has been the recommended treatment for these lesions [5]. There is no place for hip arthrodesis or simple open reduction.

Anatomopathological changes to the femoral head and periarticular muscles make surgery difficult. Retraction of the gluteus medius makes reduction manoeuvres difficult, sometimes requiring tenotomy of the retracted muscles (hamstrings and rectus femoris), trochanterotomy or femoral shortening osteotomy by analogy with the surgical treatment of congenital dislocation of the hip [6].

Reconstruction of the acetabulum may be necessary in cases where the posterior wall is deficient. Hansen [7] used a cortico-cancellous graft to reconstruct the acetabulum. We have used this method in acetabular fractures that did not completely interfere with the congruency of the acetabular cavity.

However, in cases of significant acetabular remodelling, acetabular reconstruction was carried out using either a Kerboull cross or a support ring.

Sciatic nerve involvement is a risk described in 0% to 20% of cases [8]. However, the risk of iatrogenic injury exists in prosthetic surgery due to changes in anatomical landmarks and fibrosis near the acetabulum, sometimes enveloping the nerve. Locating the nerve is of vital importance to avoid damaging it intra-operatively.

The functional results, which were assessed using the Postel Merle d'Aubigné

functional score with an average of 15, were similar to those found in the literature [9].

Overall results were good in all series.

5. Conclusion

Neglected hip fracture-dislocations are severe injuries, which can only be prevented by early diagnosis, and total hip arthroplasty is the treatment of choice if patients are to be rapidly reintegrated into society.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Khan, K.M., Bhatti, A. and Rasheed, K. (2013) Total Hip Arthroplasty in a 6-Month-Old Acetabulum Fracture-Dislocation of the Hip: An 8-Year Follow-Up. *Journal of Pakistan Medical Association*, **63**, 772-774.
- [2] Mitchell, M.D., Kundel, H.L., et al. (1986) Avascular Necrosis of the Hip: Comparison of MR, CT, and Scintigraphy. *American Journal of Roentgenology*, **147**, 67-71. <https://doi.org/10.2214/ajr.147.1.67>
- [3] Nixon, J.R. (1976) Late Open Reduction of Traumatic Dislocation of the Hip. *The Journal of Bone and Joint Surgery*, **58**, 41-43. <https://doi.org/10.1302/0301-620X.58B1.1270494>
- [4] Clemens, J.D., Chuong, J.J. and Feinstein, A.F. (1983) The BCG Controversy. A Methodological and Statistical Reappraisal. *JAMA*, **249**, 2362-2369. <https://doi.org/10.1001/jama.1983.03330410048027>
- [5] Garret, J.C., Epstein, H.C., Harris, W.H., Harvey, J.P.Jr. and Niclè, V.L. (1979) Treatment of Unreduced Traumatic Posterior Dislocations of the Hip. *Journal of Bone and Joint Surgery*, **61**, 2-6. <https://doi.org/10.2106/00004623-197961010-00002>
- [6] El Ibrahimy, A., Shimi, M., Daoudi, A. and Elmriini, A. (2011) Une luxation traumatique négligée de la hanche traitée par arthroplastie totale de la hanche. *Médecine du Maghreb*, **185**, 34-36.
- [7] Hansen, E., Shearer, D. and Ries, M.D. (2011) Does a Cemented Cage Improve Revision THA for Severe Acetabular Defects? *Clinical Orthopaedics and Related Research*, **469**, 494-502. <https://doi.org/10.1007/s11999-010-1546-7>
- [8] Bensaad, S., Hammou, N., Mechchat, A., El Ibrahimy, A., Shimi, M. and Elmriini, A. (2015) Luxation traumatique négligée de la hanche traitée par arthroplastie totale de la hanche: à propos de 2 cas. *The Pan African Medical Journal*, **20**, 313. <https://doi.org/10.11604/pamj.2015.20.313.4325>
- [9] Abdelillah, R., Najib, A., Daoudi, A. and Yacoubi, H. (2015) Luxation traumatique invétérée de la hanche. *The Pan African Medical Journal*, **22**, 100. <https://doi.org/10.11604/pamj.2015.22.100.7238>