International Journal of Orthopaedics Sciences

E-ISSN: 2395-1958
P-ISSN: 2706-6630
Impact Factor (RJIF): 6.72
IJOS 2025; 11(4): 207-211

www.orthopaper.com
Received: 26-07-2025
Accepted: 31-08-2025

Kombate Noufanangue Kanfitine
Department of Orthopaedic Surgery and Traumatology, CHU-Campus, Lomé, Togo

James YE
Department of Orthopaedic Surgery and Traumatology, CHU-Campus, Lomé, Togo

Atana MJ
Department of Orthopaedic Surgery and Traumatology, CHU-Campus, Lomé, Togo

Koulekey DKY
Department of Orthopaedic Surgery and Traumatology, CHU-Campus, Lomé, Togo

Bignandi V
Department of Orthopaedic Surgery and Traumatology, CHU-Campus, Lomé, Togo

Bongoungou D
Department of Orthopaedic Surgery and Traumatology, CHU-Campus, Lomé, Togo

Walla A
Department of Orthopaedic Surgery and Traumatology, CHU-Campus, Lomé, Togo

Corresponding Author:
Kombate Noufanangue Kanfitine
Department of Orthopaedic Surgery and Traumatology, CHU-Campus, Lomé, Togo

Functional outcomes and prognosis of femoral neck fractures in elderly patients treated with intermediate hip arthroplasty.

Kombate Noufanangue Kanfitine, James YE, Atana MJ, Koulekey DKY, Bignandi V, Bongoungou D and Walla A

DOI: https://www.doi.org/10.22271/ortho.2025.v11.i4c.3852

Abstract
Introduction: Femoral neck fractures in elderly patients are serious due to their frequency and the morbidity and mortality they cause. The aim of this study was to evaluate the functional outcomes and prognosis.
Materials and Methods : This was a retrospective, observational and analytical study of 72 (76 hips) out of 84 cases of femoral neck fractures treated with intermediate prostheses in two hospitals in Togo between 2017 and 2024. The median age was 75 years (62-85) with a predominance of males (23 females and 49 males). The mean Parker score was 8.6 (9-5). Complications were recorded. The Postel Merle d'Aubigné and Harris scores were used to assess the condition of the hip. Patient and implant survival were analysed.
Results: 48 patients (52 hips) were reviewed at one year; 17 had died and 15 were lost to follow-up. Comorbidities found were diabetes (20.83%) and hypertension (48.61%). Garden type III and IV femoral neck fractures were the most common. The Moore approach was used in all patients. The stems were cemented in more than half of the cases. The PMA score was satisfactory; 4 patients presented with dislocation and 3 cases of periprosthetic fractures.
Conclusion: Intermediate hip replacement is a common procedure that produces satisfactory results and restores functional independence. The delay in treatment and comorbidities are risk factors for excess mortality.

Keywords: Neck fracture, femur, intermediate hip arthroplasty, results, prognosis

Introduction
Fractures of the femoral neck in elderly patients are serious due to their frequency and morbidity and mortality rates. They constitute a public health issue in most countries [1, 2] especially in low-income countries where treatment is still delayed due to structural difficulties. Delays in surgical treatment are one of the factors that can make the condition life-threatening for these patients, who are already weakened by comorbidities [3] . Treatment must be provided early in order to reduce mortality rates and pressure ulcer complications, in accordance with the recommendations of the French Society of Anaesthesia and Intensive Care [4] . Surgical treatment must be rapid. Intermediate hip arthroplasty have long been an effective alternative because they can be performed quickly with control of perioperative bleeding. However, mortality appears to be high in this elderly population after surgery. The objective of this study was to evaluate the functional outcomes and prognostic factors of elderly patients with femoral neck fractures treated with intermediate prostheses.

Patients and Methods
This was a retrospective, observational and analytical study of 72 (76 hips) cases of femoral neck fractures treated with intermediate prostheses in two hospitals in Togo between 2017 and 2024. The median age was 75 years (65-85) with a predominance of males (23 women and 49 men). Fourteen (20.83%) of the patients were diabetic and 34 (48.61%) were hypertensive; 42 (30.56%) had no comorbidities.
The mean Parker score [5] (Table I) was 8.6 (9-5).

Table 1: Distribution according to Parker score

	Parker score	Number (n)	Percentage
Independent	9	44	61. 11
Semi-independent	6 - 9	23	31. 94
Dependent	< 6	5	06, 94

Femoral neck fractures were classified according to Garden [6], Type I and II fractures, femoral neck fractures in arthritic hips were excluded, as were patients lost to follow-up and unusable records (Fig. 1).

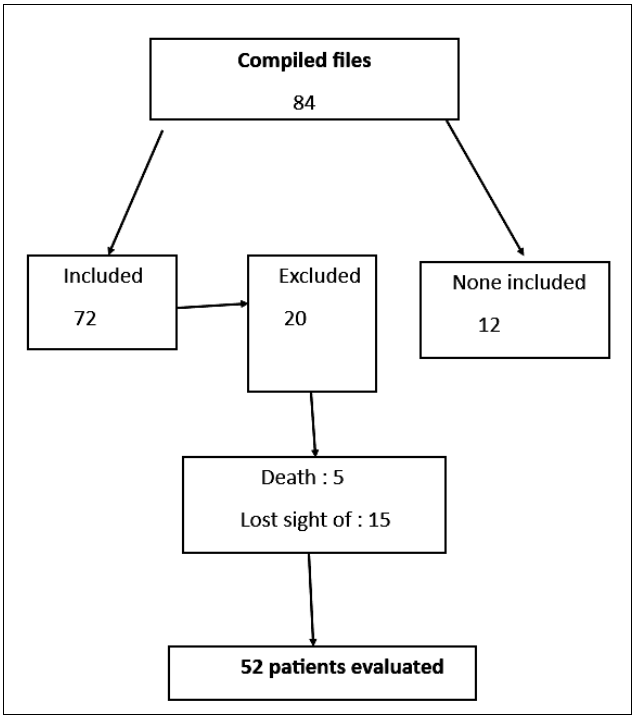

Fig 1: Flow chart of patient inclusion in the series

Complications were recorded. The Postel Merle d'Aubigné score was used to assess hip condition. Patient and implant survival were analysed. Data were analysed using SPSS software version 19.0.

Results

The average follow-up period was 1.5 years (2-5). The mechanisms that caused these femoral neck fractures were mainly mechanical falls in 64 (89%) cases and traffic accidents in 8 (11%) cases.

Garden IV fractures (Fig. 2) were the most common, accounting for 33 (63.46%) cases, followed by type III fractures in 19 (36.52%) cases.

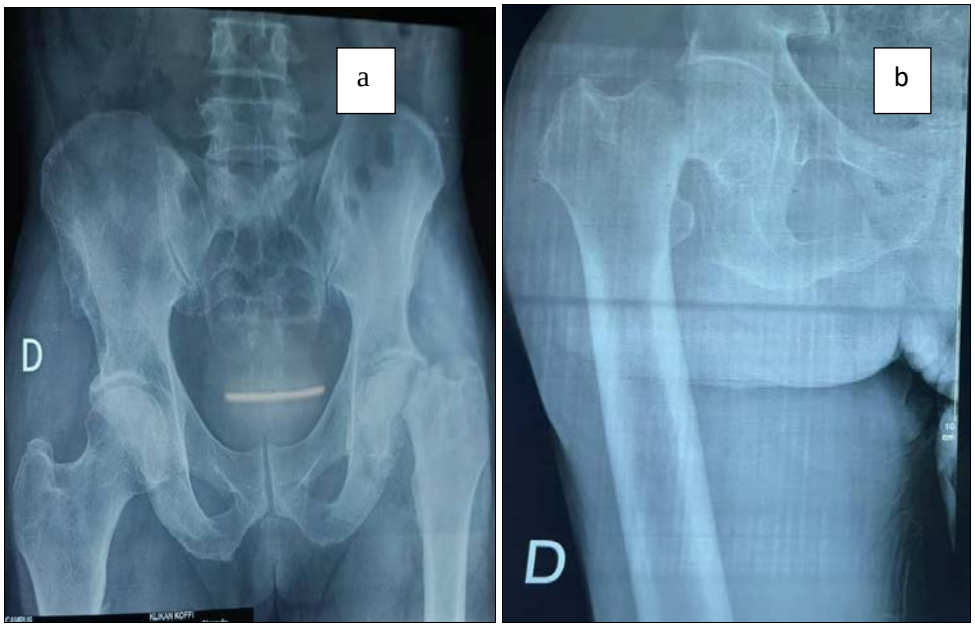

Fig 2: X-ray showing a) Garden fracture type III; b) Garden type

The surgical procedure was performed using Moore's posterolateral approach in all patients. The delay in treatment ranged from 5 to 22 days, with an average delay of 11 days.

In 36 (69.23%) cases, the femoral stems were uncemented (Fig. 3).

Fig 3: X-ray showing an uncemented intermediate hip arthroplasty

Functional outcomes were rated as excellent to good in 77.30% of cases according to the Postel Merle d'Aubigné rating scale (Fig. 4).

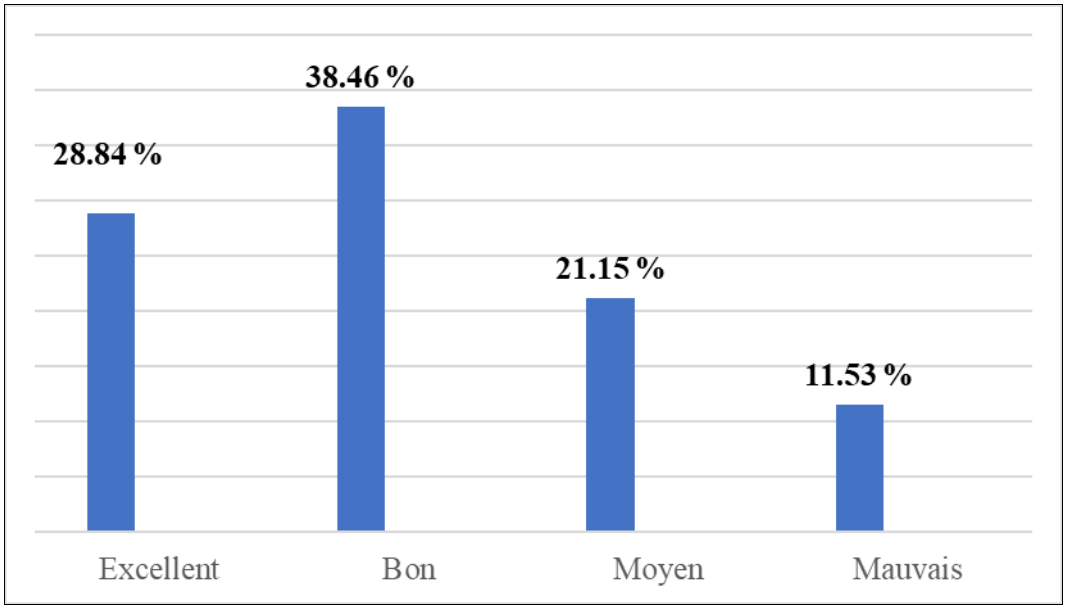

Fig 4 : Functional results according to Postel Merle d'Aubigné

No thromboembolic events were reported. However, five deaths were reported by the parents interviewed. Two patients presented with anterior and posterior prosthetic dislocation, respectively, following surgery (Fig. 5); one case of surgical site infection and three cases of periprosthetic fracture.

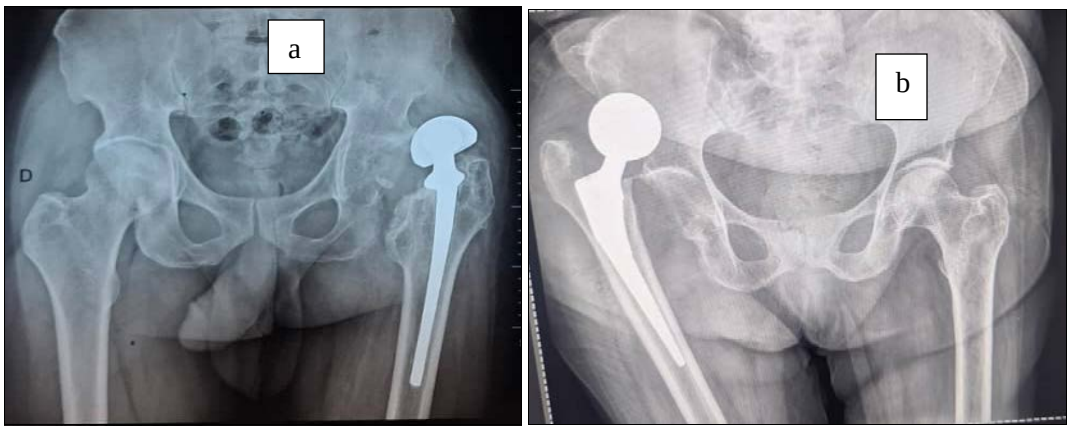

Fig 5 (a, b) : a) Anterior dislocation; b) posterior dislocation

Discussion

Fractures of the femoral neck in elderly people are a cause of excess mortality. This mortality varies between 14-30% depending on the authors. According to Poulain S *et al.* [7] , it represented 18.2% in one year and 17.14% in Nyholm's series [8] in the first three months. The average age in our series was 75 years, ranging from 65 to 85 years, consistent with the literature, which reports an average age between 70 and 90 years. We observed a predominance of males in our series, in contrast to others [2, 3, 7]. These complications are related to pre-existing factors: pressure ulcer syndrome, chronic medical conditions and certain incidents related to the surgical procedure. In our series, the observed mortality rate was 3.2%, found in patients with heart disease. The causes were not clarified. Although delayed, this observed mortality was not early.

There seems to be a consensus for rapid treatment within 48 to 72 hours. This timeframe would reduce the risk of mortality [9, 10, 11] . Some authors find no significant correlation between patients who underwent early surgery and those whose treatment was delayed [12] , Measures must be taken to reduce morbidity and mortality: prevention of pressure sores and malnutrition, and restoration of homeostasis. Parker *et al.* [13] reported two factors likely to increase the risk of mortality: the surgeon's experience and the time to surgery. The low coverage of universal health insurance for disadvantaged sections of the population and pre-existing conditions were obstacles to the early management of patients in our study.

In our series, as in most authors, the Garden classification was used. Garden type III and IV fractures were consistent with some authors (Table 2).

Table 2: Distribution of fractures according to Garden classification

	Garden III et IV
Ehlinger M *et al* [14]	100%
Poulain S. *et al* [7]	87. 2%
Ying S *et al* [15]	98
Our series	100%

All our patients underwent surgery using Moore's posterolateral approach.

Table 3: Comparison of infection rates by series

	Number (n)	Infection rate (%)
Lortat-Jacob *et al* [16]	04 (132)	03, 03
Plaweski S *et al* [17]	02 (90)	02, 22
Poulain *et al* [7]	02 (122)	01,63
Our series	01 (54)	01, 92

This surgical approach accounts for more than two-thirds of cases in most series. It really depends only on the preference or habit of the surgeon.

After surgery, infection is the most serious complication following arthroplasty, particularly in elderly patients. It varies from 1 to 5.6% depending on the series (Table 3).

The rate of infectious complications in our series is lower, as in Poulain's series, despite a smaller sample size.

However, the dislocation rate in our series appears to be higher than in other series, ranging from 1 to 2.5% (Table 4).

This may be linked either to a lack of osseointegration of the implant, or to excessive anteversion of the stem, or to migration of the stem, especially as the implants were not cemented (Fig. 5). Adrien B. *et al* reported 5 cases of anterosuperior dislocation and 3 cases of periprosthetic fractures in their series, representing 8.7% of cases. The cases of dislocation in our series involved cemented implants. Charles D. *et al* reported a 10-year survival rate of 84% [18]. These mechanical complications were more prevalent in uncemented implants. These authors recommend cemented implants, which would reduce periprosthetic fractures.

Apart from these complications, the functional results are satisfactory for the vast majority of authors in terms of objective and subjective assessment [12, 13, 14, 19] .

The absence of pain is the main condition for patient satisfaction; it promotes rapid recovery of function and activities. The PMA score in our study is satisfactory and similar to other series (Table 4). We conclude from this study that intermediate arthroplasty, when performed according to the rules, restores function and allows a rapid return to activities, thereby improving the quality of life of elderly people.

Table 4: Comparison of functional results according to series

	Number (n)	PMA (%)
Lortat-Jacob *et al* [16]	185	87
Plaweski S *et al* [17]	92	77
Sharma V, *et al* [20]	32	74
Our series	52	68

Conclusion

Femoral neck fractures are common and serious due to their morbidity and mortality rates in the elderly population. Risk factors are related to surgery, delay in treatment and comorbidities. Intermediate arthroplasty appears to be an alternative for restoring function and quality of life.

Prevention remains the best treatment for femoral neck fractures in elderly patients. It must take into account the risk of mechanical falls and the treatment of osteoporosis.

Conflict of interest: None

References

1. Gullberg B, Johnell O, Kanis JA. World-wide projections for hip fracture. Osteoporos Int. 1997;7(5):407-413.
2. Bellamy L, Reyre H, Eyrolle L, *et al*. Femoral neck fracture: a public health issue. Le Prat Anesth Reanim. 2010;15(3):146-150.
3. Delaveau A, Saint Genez F, Gayet LE, *et al*. Impact of delay in surgery on management of fractures of the upper end of the femur in orthopaedic geriatric care. 2019;105(5):624-628.
   (Journal name missing in original—please supply if available)
4. Aubrun F, Baillard C, Beuscart JB, *et al*. Recommendations on anaesthesia for elderly patients: the example of fractures of the upper femur. Anaesthesia. 2019;5(2):122-138.
5. Parker MJ, Johansen A. Hip fracture. BMJ. 2006;333(7575):27-30.
6. Garden RS. Stability and union in subcapital fracture of the femur. J Bone Joint Surg Br. 1964;46:630-647.
7. Poulain S, Baueur T, Bégué T, Hardy P. Morbidity, mortality and autonomy of patients operated on with intermediate prostheses for true cervical fractures. Rev Chir Orthop Reparatrice Appar Mot. 2005;95(5):423-431.
8. Nyholm AM, Gromov K, Palm H, *et al*. Time to surgery is associated with 30-day and 90-day mortality after proximal femoral fracture: a retrospective observational study. J Bone Joint Surg Am. 2015;97(16):1933-1939.

9. Klestil T, Röder C, Stotter C, *et al*. Impact of timing of surgery in elderly hip fracture patients: a systematic review and meta-analysis. Sci Rep. 2018;8(1):13933.
10. Pincus D, Ravi B, Wasserstein D, *et al*. Association between wait time and 30-day mortality in adults undergoing hip fracture surgery. JAMA. 2017;318(20):1994-2003.
11. Weller I, Wai EK, Jaglal S, *et al*. Effect of hospital type and surgical delay on mortality after hip fracture surgery. J Bone Joint Surg Am. 2005;87(3):6-13.
12. Amouri SH, Boucherara A, Chemoun B, Bendifellah A, Yakoubi M. Influence of surgical delay on one-year mortality in elderly patients with femoral neck fractures. Rev Med Algérienne. 2022;39(6):64-68.
13. Parker MJ, Pryor GA. Timing of surgery for proximal femoral fractures. J Bone Joint Surg Br. 1992;74(2):203-205.
14. Elhinger M, Moser T, Adam P, *et al*. Early prediction of femoral head necrosis after neck fracture. 2011;97(1):79-88.
(Journal name missing — please provide if needed)
15. Ying S, Yanhui L, Yaning Z, *et al*. Risk prediction models of mortality after hip fracture surgery in older individuals: a systematic review. Curr Med Res Opin. 2024;40(3):1-??.
DOI: 10.1080/03007995.2024.2307346
(Please confirm page numbers—they were not included in the source)
16. Loctat-Jacob A, Desplaces N, Gaudias J, *et al*. Secondary infection of joint prostheses: diagnostic criteria, treatment and prevention. Rev Chir Orthop. 2022;88(1):51-61.
17. Plaweski S, Merloz PH, Barth Y, Tonetti J, Faure C, Martinez T. Uncemented intermediate hip prosthesis in femoral neck fractures in the elderly. Rev Chir Orthop. 2000;86(Suppl II):S??-S??.
(Supplement lacks page numbers—please provide if available)
18. Charles D, Olivier R, Grégory N, *et al*. Intermediate hip prostheses and coxarthrosis: results after 20 years of follow-up. Rev Chir Orthop Reparatrice Appar Mot. 2007;93(7):53-??.
(Page range incomplete in original)
19. Adrien B, Martz P, Labattut L, Karp LS. Treatment of intracapsular fractures of the femoral neck using cementless double mobility arthroplasty. J Orthop Traumatol Surg Res. 2015;101(7):S21-S28.
20. Sharma V, Awatshi B, Kumar K, Kohli N, Katoch P. Outcome analysis of hemiarthroplasty vs total hip replacement in displaced femoral neck fractures in the elderly. J Clin Diagn Res. 2016;10(5):RC11-RC13.

How to Cite This Article
Kombate NK, James YE, Atana MJ, Koulekey DKY, Bignandi V, Bongoungou D, Walla A. Functional outcomes and prognosis of femoral neck fractures in elderly patients treated with intermediate hip arthroplasty. International Journal of Orthopaedics Sciences. 2025;11(4):207-211