ORIGINAL PAPER/PŮVODNÍ PRÁCE

Comparison of Clinical and Radiological Outcomes of Four Different Proximal Femoral Nailing Systems in the Treatment of Intertrochanteric Fractures

Srovnání klinických a radiologických výsledků čtyř různých systémů hřebování proximálního femuru při léčbě nestabilních intertrochanterických zlomenin

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ABSTRACT

Purpose of the study

This study aimed to compare the clinical and radiological outcomes of four different proximal femoral nailing systems—Proximal Femoral Nail Antirotation (PFNA), Dynamic Locked Trochanteric (DLT) nail, Intertan, and Talon Distalfix—used in the surgical treatment of intertrochanteric femoral fractures. The goal was to evaluate the differences between systems both statistically and in terms of clinical relevance.

Material and methods

A retrospective analysis was conducted on 309 patients who underwent PFN procedures between January 2015 and December 2019. Patients were categorized into four groups based on the type of nail used. Parameters assessed included operative time, intraoperative blood loss, fluoroscopy time, fracture union time, Harris Hip Score, WOMAC score, reduction quality, and complication rates. Additionally, Minimal Clinically Important Difference (MCID) values were calculated to assess the clinical significance of any observed differences.

Results

The Talon Distalfix group demonstrated significantly lower operative time, blood loss, and fluoroscopy duration (all $p < 0.001$). Since these differences exceeded MCID thresholds, they were considered not only statistically significant but also clinically meaningful. No significant differences were observed among the groups in terms of functional outcomes (Harris Hip Score, WOMAC score), fracture union time, or reduction quality. The overall complication rate was 22.9%, with screw cut-out being the most common complication (14.2%). Complication rates did not differ significantly between the groups.

Conclusions

The Talon Distalfix nail was found to offer both statistically and clinically significant advantages in terms of shorter operative time, reduced blood loss, and less fluoroscopy exposure. While functional outcomes and complication rates were similar across all groups, the findings suggest that implant design may play a decisive role in intraoperative parameters.

Key words: Intertrochanteric fracture, PFNA, DLT, Intertan, Talon Distalfix, MCID, proximal femoral nail.

INTRODUCTION

Hip fractures remain a significant public health concern, particularly in the elderly population, as they are associated with increased morbidity and mortality. In developed countries, the incidence of hip fractures in individuals over the age of 65 is projected to rise by approximately 2% each year, with estimates suggesting a doubling of cases by 2050 (5, 7).

Intertrochanteric femoral fractures account for roughly 45% of all hip fractures and represent one of the most common fracture types among the elderly (26). The primary goal in managing these fractures is to achieve stable fixation that enables early mobilization while minimizing complications (2, 27).

Today, proximal femoral nail (PFN) have become one of the most widely used implant systems in the surgical treatment of intertrochanteric fractures. Compared to dynamic hip screw (DHS) systems, PFN offer superior biomechanical stability, allow for minimally invasive application, and enable earlier weight-bearing—factors that have contributed to their widespread adoption (4, 12, 20). This broad use has led to the development of various PFN designs, including the Proximal Femoral Nail Antirotation (PFNA), Intertan nail, Dynamic Locked Trochanteric (DLT) nail, Gamma nail, and Profin nail (8, 10, 18, 25).

The Talon Distalfix nail distinguishes itself from conventional systems through its deployable "talon" components, which provide fixation in both the medullary canal and femoral neck. Notably, this design eliminates the need for a distal cortical locking screw, potentially reducing operative time and fluoroscopy exposure. However, there is a scarcity of clinical and radiological studies evaluating the efficacy of this novel design, and existing data are based on limited sample sizes (1). Comparative studies involving large cohorts that objectively evaluate the outcomes of Talon nails against conventional PFN systems are lacking in the current literature (1, 2, 20).

The aim of this study is to compare the clinical and radiological outcomes of three widely used traditional PFN systems (DLT, PFNA, and Intertan) with the next-generation Talon Distalfix nail in the treatment of intertrochanteric femoral fractures. By evaluating the results of these systems in comparable patient populations, the study seeks to provide comprehensive and up-to-date data to inform surgical decision-making.

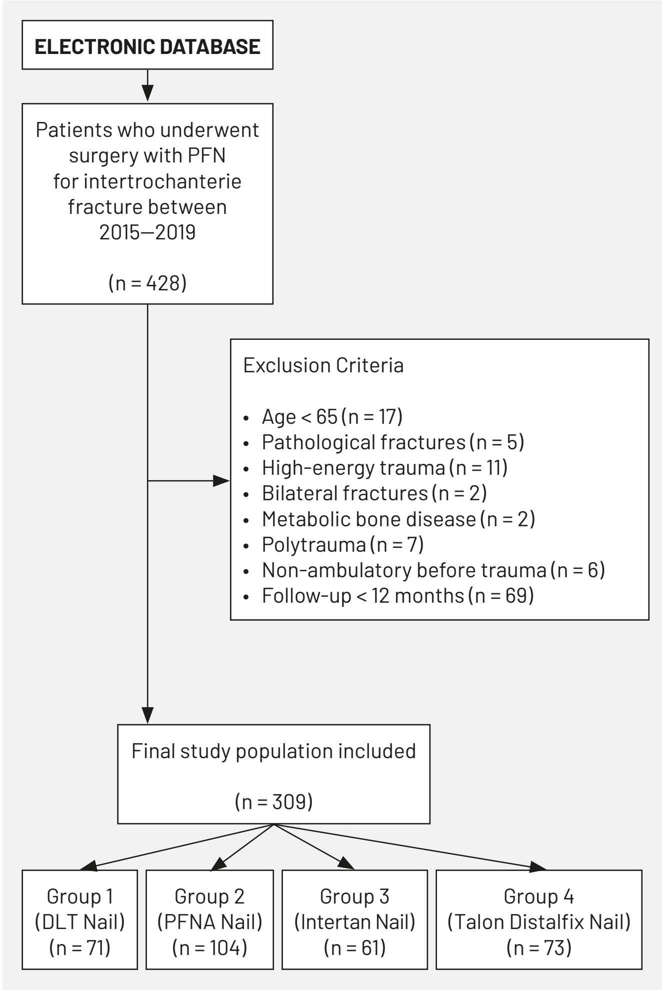

Fig. 1. **Flow diagram of patient selection.**

MATERIAL AND METHODS

This retrospective study was conducted in accordance with the Declaration of Helsinki and received approval from the local institutional ethics committee (Date: 20/02/2025, No: ESH/BAEK 2025/113). The study included patients who presented to a university hospital with AO/OTA 31-A1, 31-A2, and 31-A3 type intertrochanteric femur fractures between January 2015 and December 2019 and were surgically treated with a proximal femoral nail (PFN). A search of the hospital's digital archive identified 428 patients who had undergone PFN fixation. The following exclusion criteria were applied: age under 65 years (n = 17), pathological fractures (n = 5), high-energy trauma (n = 11), bilateral fractures (n = 2), metabolic bone diseases (n = 2), polytrauma (n = 7), inability to walk prior to trauma (n = 6), and follow-up period shorter than 12 months (n = 69). Based on these criteria, 119 patients were excluded from the study (Fig 1). The remaining 309 patients were categorized into four groups based on the type of PFN used: Group 1: DLT nail (*U&I, Uijeongbu, Korea*), Group 2: PFNA nail (*Synthes, Etupes, France*), Group 3: Intertan nail (*Smith & Nephew, Memphis, Tennessee*). Group 4: Talon Distalfix nail (*ODI, Florida, USA*). The number of patients in each group was as follows: 71 in Group 1, 104 in Group 2, 61 in Group 3, and 73 in Group 4. Demographic data were recorded for all patients, including age, sex, affected side, and comorbidities. Additional perioperative variables collected included length of hospital stay, type of anesthesia, American Society of Anesthesiologists (ASA) physical status classification, operative time, estimated intraoperative blood loss, and fluoroscopy duration. Fractures were classified using the Arbeitsgemeinschaft für Osteosynthesefragen (AO) fracture classification system (3).

Fig. 2. **Preoperative and postoperative anteroposterior radiographs demonstrating surgical treatment of intertrochanteric femoral fractures using four different proximal femoral nailing systems. Preoperative radiograph of a patient treated with DLT nail (a). Postoperative radiograph after DLT nail fixation (b). Preoperative radiograph of a patient treated with PFNA (c). Postoperative radiograph after PFNA fixation (d). Preoperative radiograph of a patient treated with Intertan nail (e). Postoperative radiograph after Intertan fixation (f). Preoperative radiograph of a patient treated with Talon Distalfix nail (g). Postoperative radiograph after Talon Distalfix fixation (h).**

Surgical technique

All procedures were performed by surgeons experienced with all four PFN systems. For antithrombotic prophylaxis, low-molecular-weight heparin was administered, and for antibiotic prophylaxis, 2 grams of intravenous cefazolin were given approximately 30 minutes prior to surgery. Operations were conducted under either spinal or general anesthesia. Patients were positioned on the operating table in either the supine or lateral decubitus position, with the affected limb placed in slight adduction. Prior to incision, closed reduction was achieved and its adequacy was confirmed fluoroscopically in both anteroposterior and lateral views. Implant selection was based on the surgeon's preference, implant availability, and suitability for the fracture pattern. All proximal femoral nails used in this study were short-type designs; no long nails were employed. For the DLT, PFNA, and Intertan systems, the femoral canal was accessed through a trochanteric entry point. A guide wire was inserted, followed by canal preparation and nail insertion. The lag screw was placed over the guide wire once proper positioning of the nail had been confirmed. Distal locking was performed with a cortical screw, either in static or dynamic mode, depending on the nail design. In the Intertan system, fixation was achieved using a dual lag screw configuration with an integrated compression and interlocking mechanism, providing controlled sliding and interfragmentary compression at the femoral neck. Distal locking was performed with a cortical screw through a small separate lateral incision under fluoroscopic guidance. For the Talon Distalfix system, nail and lag screw placement followed similar steps to the other systems. However, both the distal end of the nail and the lag screw featured deployable "talon" mechanisms that were activated under fluoroscopic guidance to secure the implant within the bone. This design eliminated the need for a distal cortical screw.

For the DLT, PFNA, and Intertan systems, the femoral canal was accessed through a trochanteric entry point. After insertion of a guide wire, the canal was reamed, and the nail was introduced. Once appropriate positioning was confirmed, the lag screw(s) were inserted over the guide wire. In the Intertan system, fixation was achieved using a dual lag screw configuration with an integrated compression and interlocking mechanism, providing controlled sliding and interfragmentary compression at the femoral neck. Distal locking in the DLT, PFNA, and Intertan systems was performed with a cortical screw through a small lateral incision under fluoroscopic guidance, depending on the nail design (static or dynamic mode). In contrast, the Talon Distalfix system utilized deployable "talon" mechanisms located at both the distal nail tip and the lag screw, which were activated under fluoroscopic guidance to secure the implant within the bone. This design eliminated the need for a distal cortical screw or additional incision.

In all cases, implant positioning and reduction quality were confirmed intraoperatively using fluoroscopic imaging (Fig 2). Fluoroscopy was performed with a Multimobil 5E unit (*Siemens, Erlangen, Germany*), typically at 65–100 kV and 1.5–2.2 mA/s. Fluoroscopy duration was recorded in milliampere-seconds (mAs). Operative time was defined as the interval from the initial skin incision to the placement of the final suture. Intraoperative blood loss was estimated by calculating the weight difference of used gauze and subtracting irrigation fluid volume from the total fluid collected in suction canisters.

Postoperative follow-up and clinical evaluation

All patients followed a standardized postoperative rehabilitation protocol. On the first day after surgery, partial weight-bearing on the operated limb was permitted with the assistance of a walker, to the extent tolerated by the patient. Full weight-bearing was encouraged starting from the fourth postoperative week. Intravenous antibiotic therapy was continued for the first two days postoperatively, and low-molecular-weight heparin was administered for up to six weeks for thromboembolic prophylaxis. Posterioroanterior and lateral radiographs were obtained within 24–72 hours after surgery to assess early implant positioning and reduction quality. Patients without postoperative complications were typically discharged on postoperative day three.

Clinical follow-up visits were scheduled every two weeks during the first two months, and subsequently at 3, 6, and 12 months, followed by annual visits. Clinical assessments included the Harris Hip Score and the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), with final follow-up scores used for analysis (3, 6). Radiological evaluations were performed at each follow-up using anteroposterior and lateral radiographs. Fracture healing was defined as the presence of bridging callus across at least three of the four cortices (3). The quality of reduction was assessed on early postoperative anteroposterior and lateral radiographs. Reduction quality was classified as "good," "acceptable," or "poor" based on Baumgaertner criteria (15). Complications such as screw cut-out, hematoma, infection, nonunion, peri-implant fracture, and deep vein thrombosis (DVT) were recorded throughout the follow-up period.

Statistical analysis

All statistical analyses were performed using SPSS version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics (mean, standard deviation, frequency, and percentage) were used to summarize the data. The Kolmogorov-Smirnov test was applied to assess the normality of continuous variables. When normal distribution was confirmed, analysis of variance (ANOVA) was used to compare more than two groups. In the absence of normality, the Kruskal-Wallis test was applied. For comparisons between two independent groups, the Mann-Whitney U test was used. For paired group comparisons, the Wilcoxon signed-rank test was used in the absence of normality, while the paired t-test was applied when normal distribution was present. Fisher's exact test was used to assess independence between two categorical variables, and the chi-square test was used for categorical variables with more than two groups. A significance level of 0.05 was set for all statistical tests. To assess whether the differences observed between groups were not only statistically but also clinically meaningful, Minimal Clinically Important Difference (MCID) values were calculated. MCID thresholds were determined using the pooled standard deviation of the groups, with half of this pooled value considered the MCID threshold (17). In addition, partial eta-squared (η^2) values were calculated to assess effect sizes between groups. Post-hoc power analysis confirmed that the total sample size used in the study provided a statistical power greater than 95%.

RESULTS

A total of 309 patients, ranging in age from 65 to 102 years, were included in the study. Of these, 156 (50.4%) were female and 153 (49.6%) were male. No statistically significant differences were found between the PFN groups in terms of age, sex, laterality, comorbidities, or fracture type ($p > 0.05$). Similarly, there were no significant intergroup differences regarding hospital stay duration, type of anesthesia administered, or ASA scores (Table 1).

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Table 1. **Relationship between types of PFN and demographic variables**

PARAMETER	GROUP 1 (N=71)	GROUP 2 (N=104)	GROUP 3 (N=61)	GROUP 4 (N=73)	P-VALUE
Age (Mean ± SD)	78.03 ± 6.41	81.42 ± 7.86	81.82 ± 8.18	79.82 ± 7.70	0.111
Gender, n (%)					0.299
Male	37 (52.1%)	55 (52.9%)	32 (52.5%)	29 (39.7%)	
Female	34 (47.9%)	49 (47.1%)	29 (47.5%)	44 (60.3%)	
Side, n (%)					0.681
Right	33 (46.5%)	57 (54.8%)	32 (52.5%)	35 (47.9%)	
Left	38 (53.5%)	47 (45.2%)	29 (47.5%)	38 (52.1%)	
Comorbidities, n (%)					
Hypertension	25	38	19	27	0.891
Diabetes mellitus	13	26	10	14	0.951
CAD	10	19	9	12	0.585
Alzheimer's disease	12	11	6	12	0.932
COPD	15	22	14	16	0.993
Heart failure	10	18	8	11	0.911
AO Classification, n (%)					0.223
31.A1	19	43	26	20	
31.A2	40	46	25	41	
31.A3	12	15	10	12	
Length of hospital stay (day)	5.82 ± 1.99	6.24 ± 2.04	5.92 ± 1.93	6.19 ± 2.05	0.489
Type of anesthesia, n (%)					0.911
Spinal	55 (77.5%)	83 (79.8%)	48 (78.7%)	60 (82.2%)	
General	16 (22.5%)	21 (20.2%)	13 (21.3%)	13 (17.8%)	
ASA Score, n (%)					0.817
2	8	15	5	6	
3	38	55	31	40	
4	25	34	25	27	

PFN = Proximal Femoral Nail, CAD: Coronary Artery Disease COPD = Chronic Obstructive Pulmonary Disease, AO = Arbeitsgemeinschaft für Osteosynthesefragen, ASA = American Society of Anesthesiologists physical status classification

However, statistically significant differences were observed among the PFN types with respect to mean operative time, intraoperative blood loss, and fluoroscopy duration (Table 2). In all three parameters, the Talon Distalfix group had the lowest mean values compared to the other nail systems (all $p < 0.001$). The effect sizes for these three parameters were found to be high, with partial eta-squared values of 0.488 for operative time, 0.623 for blood loss, and 0.836 for fluoroscopy time. To further assess clinical significance, MCID thresholds were calculated as 3.37 minutes for operative time, 15.08 mL for blood loss, and 2.81 seconds for fluoroscopy duration. The observed differences in all three parameters exceeded the MCID thresholds, indicating both statistical and clinical significance. No statistically significant differences were observed between the PFN groups in terms of functional outcomes such as Harris Hip Score, WOMAC score, fracture healing time (Table 2). The distribution of reduction quality (good, acceptable, poor) was comparable among the four implant groups, and no statistically significant intergroup differences were observed. Although the PFNA group demonstrated a higher proportion of poor reductions (17%) compared with the Talon Distalfix group (1.4%), this difference was not statistically significant. Similarly, no significant differences were observed in reduction quality among the other PFN systems.

Post-hoc analyses revealed that the Talon Distalfix nail required significantly shorter operative time compared to DLT,

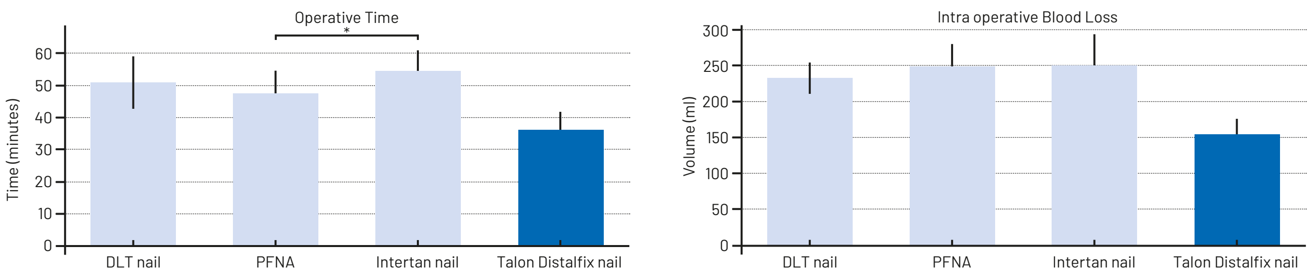
Table 2. **Comparison of clinical parameters among the four groups**

PARAMETER	GROUP 1 (N=71)	GROUP 2 (N=104)	GROUP 3 (N=61)	GROUP 4 (N=73)	P-VALUE	EFFECT SIZE
Operative time (min)	50.85 ± 8.19	47.74 ± 6.61	54.50 ± 6.37	36.10 ± 5.61	0.000	0.488
Blood loss (ml)	232.25 ± 18	247.53 ± 32.18	249.84 ± 43.63	153.97 ± 21.76	0.000	0.623
Fluoroscopy time (sec)	84.80 ± 24.92	79.84 ± 6.46	76.90 ± 8.44	51.47 ± 6.07	0.000	0.836
Harris Hip Score	82.25 ± 6.02	81.08 ± 8.74	83.05 ± 7.38	83.19 ± 6.58	0.209	0.018
WOMAC Score	79.49 ± 5	81.53 ± 4.63	80.09 ± 7.03	79.63 ± 4.85	0.096	0.027
Union time (weeks)	11.40 ± 2.81	11.06 ± 1.86	11.36 ± 1.57	11.04 ± 2.34	0.412	0.006
Reduction quality n (%)					0.768	
Good	50	70	43	56		
Acceptable	17	16	16	16		
Poor	4	18	2	1		

WOMAC: Western Ontario and McMaster Universities Osteoarthritis Index

PFNA, and Intertan nails (all p < 0.001) (Fig 3). In addition, PFNA was associated with significantly shorter operative time than Intertan (p < 0.001), while there were no significant differences between DLT and PFNA (p = 0.160) or between DLT and Intertan (p = 0.092). Regarding intraoperative blood loss, post-hoc analyses showed that the Talon Distalfix nail resulted in significantly lower blood loss compared to DLT, PFNA, and Intertan (all p < 0.001). However, no statistically significant differences were observed among the DLT, PFNA, and Intertan groups (p = 0.106, p = 0.136, and p = 1.000, respectively). In terms of fluoroscopy time, the Talon Distalfix nail again showed significantly shorter durations compared to Intertan, PFNA, and DLT (all p < 0.001). Both Intertan and PFNA required significantly less fluoroscopy time than DLT (both p < 0.001), but the difference between Intertan and PFNA was not statistically significant (p = 0.067).

Table 3 presents the relationship between PFN type and postoperative complications. Among the 309 patients included in the study, at least one postoperative complication occurred in 71 cases (22.9%). The most frequently observed complication was screw cut-out (14.2%), followed by infection, hematoma, nonunion, peri-implant fracture, and DVT. No statistically significant differences were found between groups in terms of complication types or frequencies. When screw cut-out was analyzed separately, a significant difference was observed only between the Gamma and Talon Distalfix nails



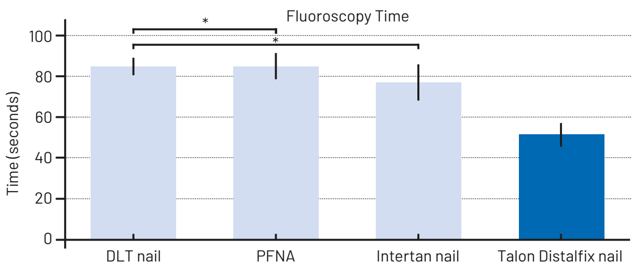


Fig. 3. **Histogram showing the mean values and standard deviations (±SD) of operative time (minutes), intraoperative blood loss (ml), and fluoroscopy time (seconds) for patients treated with DLT, PFNA, Intertan, and Talon Distalfix nail. Statistically significant differences among the DLT, PFNA, and Intertan nail groups are indicated by asterisks (*p < 0.05). All pairwise comparisons involving the Talon Distalfix nail were statistically significant (*p < 0.05) but are not marked on the figure for visual clarity.**

Table 3. **Relationship between PFN types and postoperative complications**

PARAMETER	GROUP 1 (N = 71)	GROUP 2 (N = 104)	GROUP 3 (N = 61)	GROUP 4 (N = 73)	P-VALUE
Screw cut-out	9	21	9	5	0.092
Hematoma	1	2	1	1	0.991
Infection	2	3	1	0	0.523
Nonunion	1	2	1	1	0.991
Peri-implant fracture	0	1	2	1	0.566
DVT	2	3	3	1	0.686

PFN = Proximal Femoral Nail, DVT = Deep Vein Thrombosis.

(20.2% vs. 6.8%, p = 0.014), whereas no significant differences were detected among the other implant comparisons.

DISCUSSION

In this study, the clinical and radiological outcomes of four different proximal femoral nailing systems used in the surgical treatment of intertrochanteric femoral fractures were compared. In patients treated with the Talon Distalfix nail, operative time, intraoperative blood loss, and fluoroscopy duration were found to be lower compared to other PFN types, and these results were both statistically and clinically significant. In terms of functional outcomes, no significant differences were observed between the groups in Harris Hip Score and WOMAC score evaluations.

With the global increase in the elderly population, the incidence of intertrochanteric fractures is also on the rise (3). The primary treatment principle for such fractures is early fixation and mobilization in order to prevent potential morbidity and mortality (4). In recent years, the use of PFN has become increasingly widespread, owing to their high reported success rates (7). As their popularity among surgeons has grown, various PFN systems have been developed. However, there remains no clear consensus regarding which PFN design yields the most favorable outcomes (4, 12, 22). Numerous studies in the literature have compared different PFN systems in terms of clinical and functional outcomes, and most have failed to demonstrate significant differences (1, 7, 16, 20). Similarly, in the present study, four different PFN types were compared, and comparable clinical and functional outcomes were observed. No significant differences were noted between the groups in Harris Hip Score or WOMAC score at the 6- and 12-month follow-ups. These findings suggest that the different PFN systems offer functionally similar results, and that the surgical technique and postoperative rehabilitation protocol may play a more decisive role in influencing clinical outcomes.

Among the most frequently examined parameters when comparing PFN systems are operative time, intraoperative blood loss, and the number of fluoroscopic images required (11, 14, 22, 24, 28). A review of the literature reveals that studies comparing PFNA to standard PFNs have reported shorter operative times and reduced intraoperative bleeding with PFNA (14, 19, 18, 26). Arıcan et al. compared the Talon Distalfix nail with conventional PFN systems and reported that the Talon design was associated with shorter operative times and less radiation exposure (1). Our findings are in line with those results: patients treated with the Talon Distalfix nail had significantly lower operative times, less blood loss, and shorter fluoroscopy durations compared to the other PFN systems. These differences were not only statistically significant but also exceeded the calculated MCID thresholds, underscoring their clinical relevance. It is likely that the distinctive mechanical design of the Talon Distalfix nail played a key role in these outcomes. Unlike conventional systems that require distal cortical locking screws, the Talon system utilizes expandable structures that deploy from within the nail to anchor it to the bone. This mechanism likely streamlines the surgical process and reduces the need for additional fluoroscopic imaging. Furthermore, bypassing the distal locking screw step may reduce soft tissue trauma, thereby contributing to lower intraoperative blood loss. The clear operational advantages of the Talon Distalfix system in terms of shorter operative time, reduced bleeding, and decreased fluoroscopy exposure are particularly noteworthy from a clinical standpoint. This system may be especially beneficial in elderly patients with multiple comorbidities who have limited tolerance for prolonged surgery. While reduced surgical time and radiation exposure may not directly impact long-term clinical outcomes, the Talon system could offer a practical advantage in fragile patient populations where minimizing surgical burden is critical.

When examining the literature, reported complication rates following PFN application vary widely, ranging from 5% to 55% (9, 13, 21, 23). While several factors may contribute to this broad variation, we believe that differences in study methodology are the primary reason for the inconsistency. The most commonly reported complication is cut-out of the PFN lag screw (21). Other noted complications include the

Z-effect, reverse Z-effect, peri-implant femoral fractures, hematoma, and infection (3, 19). In a study by Catania et al., the complication rate was reported as 25%, with lag screw cut-out being the most frequent issue (4). Another study by Arıcan et al. compared the clinical outcomes of the Talon Distalfix nail and PFNA (1). In the group treated with the Talon Distalfix nail, one case of screw cut-out and one case of nonunion were observed, resulting in a complication rate of 4.3%. In our study, the overall complication rate among the included patients was 22.9%. The most frequently observed complication was lag screw cut-out, occurring in 14.2% of cases. Although no statistically significant difference was found between the PFN groups in terms of this complication, it appeared to be more common among patients treated with PFNA. While this difference did not reach statistical significance, it may be clinically relevant. This finding suggests that patient-specific factors – such as implant positioning, quality of fracture reduction, and the presence of osteoporosis – should be more closely evaluated in relation to complication development.

This study has several limitations. First, due to its retrospective design, there is a potential for selection and information bias during patient inclusion and data collection. Moreover, implant selection was not randomized but based on surgeon preference, introducing the possibility of selection bias. As surgeries were performed by several surgeons with varying levels of experience, subtle differences in surgical technique or familiarity with each implant system might have contributed to variations in operative parameters. The follow-up period was limited to the mid-term, and long-term complications or revision rates could not be assessed. Additionally, parameters such as bone mineral density, which may influence fracture biology, were not included in the analysis. Furthermore, detailed implant position parameters such as tip-apex distance, calcar reference TAD, Cleveland zone, and Parker's ratio index were not assessed during the data collection and analysis phases. However, these variables may provide valuable information for evaluating implant positioning and are planned to be included in future prospective studies. Nevertheless, the relatively balanced group sizes, single-center nature of the study, consistency in surgical setting, and the use of the same fluoroscopic imaging system throughout enhance the methodological reliability of the study. Future prospective, randomized controlled trials with longer follow-up periods are needed to further validate these findings.

CONCLUSIONS

In this study, the clinical and radiological outcomes of four different PFN systems in the treatment of intertrochanteric femoral fractures were compared. Functional scores were found to be similar across all groups. However, patients treated with the Talon Distalfix nail demonstrated significantly lower operative time, intraoperative blood loss, and fluoroscopy duration – differences that were also clinically meaningful. Based on these findings, the Talon Distalfix system appears to offer advantages in terms of surgical efficiency. Overall, the results suggest that while PFN systems provide comparable clinical success, implant design may play a critical role in influencing intraoperative parameters. ■

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