RESEARCH PAPER

Proximal Fibular Osteotomy (PFO) as a Treatment Option for Knee Osteoarthritis — Evaluating Its Efficacy and Impact

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ABSTRACT

Background

Medial compartment knee osteoarthritis is a common degenerative joint disorder causing chronic pain, functional limitation, and reduced quality of life. Proximal fibular osteotomy (PFO) has emerged as a minimally invasive joint-preserving procedure that aims to redistribute mechanical load across the knee and alleviate symptoms.

Aim

To evaluate the efficacy and clinical impact of proximal fibular osteotomy as a treatment option for medial compartment knee osteoarthritis.

Materials and Methods

This prospective interventional study was conducted in the Department of Orthopedics, Saveetha Medical College, from June 2024 to June 2026 (with follow-up continuing as needed so that every patient completed a minimum of 6 months post-surgery). Twenty-five patients with symptomatic medial compartment knee osteoarthritis underwent proximal fibular osteotomy. Clinical evaluation was performed using the Visual Analog Scale (VAS) and Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). Radiographic assessment included medial joint space width and femorotibial alignment. Patients were followed up at 1, 3, and 6 months.

Results

Significant improvement was observed in pain, functional outcome, and knee range of motion following surgery. The mean VAS score improved from 7.9 preoperatively to 2.7 at six months, while the mean WOMAC score decreased from 61.5 to 24.6 ($p<0.001$). Radiographic evaluation demonstrated widening of the medial joint space and correction of varus alignment. Postoperative complications were minimal, and 84% of patients reported good-to-excellent satisfaction.

Conclusion

Proximal fibular osteotomy is a safe, cost-effective, and minimally invasive procedure that provides significant pain relief, functional improvement, and favourable radiographic outcomes in selected patients with medial compartment knee osteoarthritis. It represents an effective joint-preserving alternative that may delay the need for knee arthroplasty.

Keywords

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INTRODUCTION

Knee osteoarthritis (KOA) is one of the most prevalent chronic musculoskeletal disorders worldwide and represents a leading cause of pain, disability, and impaired quality of life among older adults. It is characterized by progressive degeneration of articular cartilage, remodelling of subchondral bone, osteophyte formation, synovial inflammation, and gradual loss of joint function. The disease affects nearly 10% of men and 13% of women over the age of 60 years, with incidence increasing due to aging populations, obesity, sedentary lifestyles, and increased life expectancy. Knee osteoarthritis imposes a substantial socioeconomic burden through healthcare expenditure, work disability, and reduced productivity. Despite advances in conservative and surgical management, identifying effective joint-preserving interventions remains a significant challenge in orthopaedic practice. (1)

The pathogenesis of knee osteoarthritis is multifactorial, involving biomechanical, inflammatory, metabolic, and genetic factors. Mechanical overload plays a pivotal role in disease progression, particularly in the medial compartment, where approximately 70–80% of knee osteoarthritis cases occur. Varus malalignment shifts the mechanical axis medially, increasing compressive forces across the medial tibiofemoral compartment while reducing loading laterally. This imbalance accelerates cartilage degeneration, subchondral sclerosis, meniscal damage, and osteophyte formation, resulting in chronic pain and progressive deformity. (2)

Conventional management of knee osteoarthritis begins with conservative modalities such as lifestyle modification, weight reduction, physiotherapy, quadriceps strengthening exercises, analgesics, non-steroidal anti-inflammatory drugs (NSAIDs), intra-articular corticosteroid injections, hyaluronic acid injections, platelet-rich plasma therapy, and bracing. Although these interventions provide symptomatic relief, they often fail to halt disease progression. As degeneration advances, many patients eventually require surgical intervention, including high tibial osteotomy (HTO), unicompartmental knee arthroplasty (UKA), or total knee arthroplasty (TKA). However, these procedures are associated with higher costs, longer rehabilitation, perioperative complications, and limitations in younger or medically unfit patients. (3)

High tibial osteotomy has traditionally been considered the preferred joint-preserving procedure for relatively young, active individuals with medial compartment osteoarthritis associated with varus deformity. By realigning the mechanical axis toward the lateral compartment, HTO redistributes load away from the diseased medial compartment. Nevertheless, HTO requires extensive surgical exposure, internal fixation, prolonged rehabilitation, and carries risks such as delayed union, infection, neurovascular injury, implant-related complications, and non-union. Similarly, total knee arthroplasty offers excellent pain relief in advanced disease but may not be ideal for younger patients because of implant longevity concerns, revision surgery, and financial constraints. (4)

In recent years, proximal fibular osteotomy (PFO) has emerged as a promising minimally invasive alternative for selected patients with medial compartment knee osteoarthritis. First introduced by Yang and colleagues in China in 2015, the procedure involves resection of a short segment of the proximal fibula approximately 6–10 cm below the fibular head. The rationale is based on the "non-uniform settlement" theory, which proposes that the fibula provides lateral support to the tibia. Removal of a segment of the fibula decreases lateral support, allowing redistribution of mechanical forces and correction of varus alignment, thereby reducing excessive pressure across the medial compartment. (5)

The biomechanical principle underlying proximal fibular osteotomy has generated considerable interest among orthopaedic surgeons. The fibula normally bears approximately 6–17% of axial load transmitted through the lower limb while contributing significantly to lateral stability. Following osteotomy, slight settlement of the lateral tibial plateau permits more balanced load distribution across both compartments of the knee. Consequently, the medial joint space widens, compressive stresses decrease, and pain relief is achieved. Improvements in gait mechanics, weight-bearing alignment, and functional mobility have been documented following the procedure. (6)

Several clinical studies have demonstrated encouraging outcomes after proximal fibular osteotomy. Patients frequently report rapid reduction in pain, improved knee function, enhanced walking ability, and increased range of motion within weeks after surgery. Radiographic evaluation often reveals widening of the medial joint space, correction of femorotibial alignment, and improved weight-bearing distribution. Functional assessment using validated outcome measures such as the Visual Analog Scale (VAS), Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), Knee Society Score (KSS), Oxford Knee Score (OKS), and Hospital for Special Surgery (HSS) score has consistently shown significant postoperative improvement in carefully selected patients. (7)

One of the major advantages of proximal fibular osteotomy is its technical simplicity. The procedure requires a relatively small incision, minimal soft tissue dissection, short operative duration, limited blood loss, and early postoperative mobilization. Most patients are encouraged to bear weight immediately after surgery, resulting in shorter hospital stay and faster rehabilitation compared with high tibial osteotomy. Furthermore, because no implants are required, the procedure is considerably less expensive than osteotomy or arthroplasty, making it particularly attractive in resource-limited healthcare settings. (8)

Patient selection remains crucial for achieving favourable outcomes following proximal fibular osteotomy. The procedure is generally recommended for patients with symptomatic medial compartment osteoarthritis, mild-to-moderate varus deformity, preserved lateral compartment cartilage, and adequate knee range of motion. Patients with severe tricompartmental osteoarthritis, inflammatory arthritis, significant flexion contracture, severe osteoporosis, or advanced ligamentous instability are

less likely to benefit. Appropriate preoperative clinical and radiographic assessment therefore plays a vital role in determining surgical candidacy and predicting postoperative success. (9)

Although the early and intermediate clinical results of proximal fibular osteotomy have been encouraging, several unanswered questions remain regarding its long-term efficacy and mechanism of action. Some investigators have suggested that pain relief may be partly attributable to decompression of the common peroneal nerve branches or altered muscle dynamics rather than solely mechanical realignment. Others have questioned whether radiographic improvements translate into sustained structural modification of disease progression. Long-term randomized controlled trials comparing proximal fibular osteotomy with established procedures such as high tibial osteotomy are still limited, highlighting the need for further evidence. (10)

Meta-analyses published over the past decade have generally demonstrated significant postoperative improvements in pain scores, functional outcomes, and radiographic parameters after proximal fibular osteotomy. Nevertheless, heterogeneity among study populations, surgical techniques, follow-up duration, and outcome measures limits the strength of available evidence. Most published studies have originated from Asian populations, and data from other geographical regions remain comparatively scarce. Furthermore, standardized surgical protocols and consensus regarding indications have yet to be established. (11)

Complications associated with proximal fibular osteotomy are relatively uncommon but should not be overlooked. Reported adverse events include transient weakness of the extensor hallucis longus, superficial peroneal nerve paraesthesia, common peroneal nerve injury, wound infection, hematoma formation, and persistent lateral leg pain. Fortunately, most neurological deficits are temporary and resolve spontaneously within several months. Careful surgical technique, knowledge of regional anatomy, and appropriate patient selection substantially reduce complication rates. (12)

Given the increasing prevalence of knee osteoarthritis and the demand for cost-effective joint-preserving procedures, proximal fibular osteotomy represents an attractive treatment option that bridges the gap between conservative management and joint replacement. By providing pain relief, improving functional capacity, correcting biomechanical loading, and preserving native joint anatomy, PFO has the potential to delay or even prevent the need for total knee arthroplasty in appropriately selected patients. Continued clinical research is essential to establish its long-term effectiveness, define optimal indications, and compare outcomes with other established surgical interventions. Therefore, the present study aims to evaluate the efficacy and clinical impact of proximal fibular osteotomy as a treatment option for medial compartment knee osteoarthritis by assessing pain relief, functional improvement, radiographic correction, and postoperative patient outcomes.

AIM

To evaluate the efficacy and clinical impact of proximal fibular osteotomy (PFO) as a treatment option for patients with medial compartment knee osteoarthritis.

OBJECTIVES

1. To assess the improvement in pain and functional outcomes following proximal fibular osteotomy using validated clinical assessment scores.
2. To evaluate the radiographic changes (medial joint space) following surgery.
3. To determine the overall safety, clinical efficacy, and patient satisfaction associated with proximal fibular osteotomy in the management of knee osteoarthritis.

MATERIALS AND METHODS

Study Design

This was a prospective interventional study conducted to evaluate the efficacy and clinical impact of proximal fibular osteotomy (PFO) in patients with medial compartment knee osteoarthritis.

Study Area

The study was conducted in the Department of Orthopedics, Saveetha Medical College and Hospital, Chennai.

Study Duration

Patient recruitment was carried out over a period of 2 years, from June 2024 to June 2026. Follow-up data collection continued as needed beyond the recruitment window so that every included patient completed the minimum required 6-month follow-up.

Study Population

A total of 25 patients diagnosed with symptomatic medial compartment knee osteoarthritis and meeting the eligibility criteria were included in the study. All patients underwent proximal fibular osteotomy and were followed prospectively.

Sample Size

The study included a sample size of 25 patients.

Sampling Method

Patients fulfilling the inclusion criteria and willing to provide informed written consent were recruited consecutively until the desired sample size was achieved.

Study Procedure

After obtaining approval from the Institutional Ethics Committee and written informed consent, all eligible patients underwent detailed clinical evaluation,

including history taking, physical examination, and radiographic assessment. Baseline demographic characteristics, duration of symptoms, body mass index (BMI), side involved, and Kellgren–Lawrence radiographic grading were recorded.

Pain intensity was assessed using the Visual Analog Scale (VAS), while functional outcome was evaluated using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) before surgery.

Standard anteroposterior standing radiographs of both knees were obtained to assess the medial joint space, femorotibial angle, and degree of varus deformity. Routine preoperative investigations were performed to determine fitness for surgery.

All patients underwent proximal fibular osteotomy (PFO) under spinal anaesthesia using a standardized surgical technique. A 3–5 cm longitudinal incision was made over the proximal fibula approximately 6–10 cm below the fibular head. A 1.5–2 cm segment of the fibula was excised while carefully protecting the common peroneal nerve and surrounding soft tissues. Haemostasis was achieved, and the wound was closed in layers.

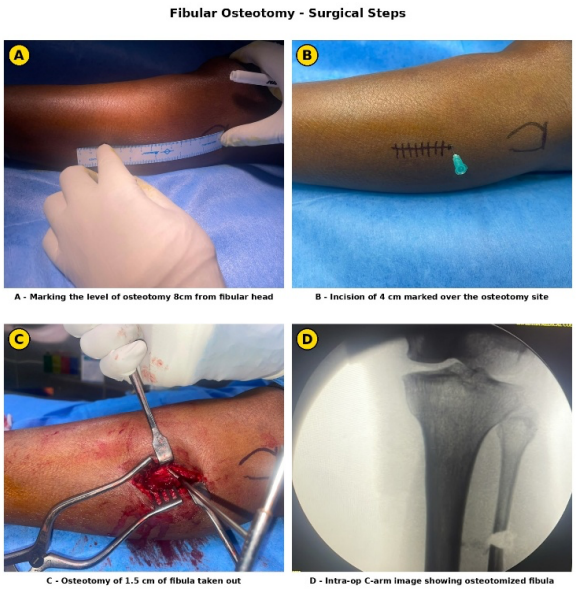


Figure : 1 – PFO(Proximal Fibular Osteotomy) Steps

Postoperatively, patients received standard analgesics, antibiotics, and physiotherapy. Early mobilization with weight bearing as tolerated was encouraged from the first postoperative day. Patients were advised to perform quadriceps strengthening exercises and range-of-motion exercises under physiotherapy supervision.

Ethical Considerations

This study was conducted following review and approval by the Institutional Ethics Committee of Saveetha Medical College and Hospital [approval reference number to be inserted by authors]. Written informed consent was obtained from all participants prior to enrolment. Patient confidentiality was maintained throughout data collection, analysis, and reporting.

Follow-up

Patients were reviewed at 1 month, 3 months, and 6 months following surgery. During each follow-up visit, clinical assessment was performed using VAS and WOMAC scores. Radiographic evaluation was carried out to assess changes in medial joint space width, lower limb alignment, and progression of osteoarthritis. Any postoperative complications, including wound infection, nerve injury, persistent pain, or delayed recovery, were documented.

Outcome Measures

Primary Outcome Measures

Improvement in pain assessed using the Visual Analog Scale (VAS); improvement in knee function assessed using the WOMAC score.

Secondary Outcome Measures

Radiographic improvement in medial joint space and femorotibial alignment; range of motion of the knee; patient satisfaction; postoperative complications.

Inclusion Criteria

- Patients aged 40–70 years.
- Clinically and radiologically diagnosed medial compartment knee osteoarthritis.
- Kellgren–Lawrence Grade II or Grade III osteoarthritis.
- Symptomatic varus knee deformity with predominant medial compartment involvement.
- Persistent symptoms despite at least 6 months of conservative treatment.
- Patients willing to undergo surgery and comply with follow-up.

Exclusion Criteria

- Patients with advanced (Kellgren–Lawrence Grade IV) or tricompartmental knee osteoarthritis requiring total knee arthroplasty.
- Patients with inflammatory arthritis, such as rheumatoid arthritis or gout.
- Patients with previous surgery, fracture, or significant trauma involving the affected knee or proximal fibula.
- Patients with active local or systemic infection, pathological bone lesions, or severe neurological disorders affecting the lower limb.
- Patients unwilling to provide informed consent or unable to comply with the scheduled follow-up visits.

Statistical Analysis

The collected data were entered into Microsoft Excel and analysed using Statistical Package for the Social Sciences (SPSS) version 26.0. Continuous variables were expressed as mean ± standard deviation, while categorical variables were expressed as frequencies and percentages. Comparisons between preoperative and postoperative outcome measures were performed using the paired Student's t-test for normally distributed data or the Wilcoxon signed-rank test for non-normally distributed data, as determined by preliminary normality testing. A p value of <0.05 was considered statistically significant.

RESULTS

Table 1. Demographic Characteristics of the Study Population (n = 25)

Variable	Category	Number (n)	Percentage (%)
Age (years)	40–49	5	20.0
	50–59	10	40.0
	60–70	10	40.0
Mean Age		**58.4 ± 7.2 years**	
Gender	Male	10	40.0
	Female	15	60.0
BMI (kg/m²)	<25	7	28.0
	25–29.9	12	48.0
	≥30	6	24.0

The majority of patients were between 50 and 70 years of age, with a mean age of 58.4 ± 7.2 years. Females predominated (60%), and nearly three-fourths of the patients were overweight or obese.

Table 2. Clinical Profile of Patients before Surgery

Variable	Category	Number (n)	Percentage (%)
Side Involved	Right	14	56.0
	Left	11	44.0
Kellgren–Lawrence Grade	Grade II	11	44.0
	Grade III	14	56.0
Mean Duration of Symptoms		**3.8 ± 1.4 years**	
Mean Preoperative VAS Score		**7.9 ± 0.8**	
Mean Preoperative WOMAC Score		**61.5 ± 8.4**	

Most patients presented with Grade III medial compartment osteoarthritis and had symptoms for approximately four years. Baseline pain and functional disability scores indicated moderate-to-severe disease.

Table 3. Comparison of Pain Scores (VAS) During Follow-up

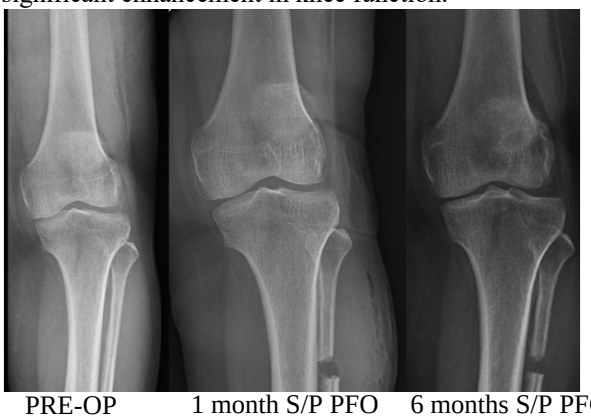
Follow-up	Mean VAS Score	Mean Difference	p-value
Preoperative	7.9 ± 0.8	—	—
1 Month	5.4 ± 0.9	2.5	<0.001
3 Months	3.8 ± 0.8	4.1	<0.001
6 Months	2.7 ± 0.7	5.2	<0.001

Pain scores showed a progressive reduction following proximal fibular osteotomy at each follow-up visit. The improvement from baseline to six months was highly statistically significant (p<0.001).

Table 4. Comparison of Functional Outcome (WOMAC Score)

Follow-up	Mean WOMAC Score	Mean Improvement	p-value
Preoperative	61.5 ± 8.4	—	—
1 Month	49.2 ± 7.3	12.3	<0.001
3 Months	36.8 ± 6.5	24.7	<0.001
6 Months	24.6 ± 5.8	36.9	<0.001

Functional outcomes improved consistently throughout the follow-up period. The WOMAC score decreased by nearly 60% at six months, demonstrating significant enhancement in knee function.



PRE-OP 1 month S/P PFO 6 months S/P PFO

Figure 2 – Radiological follow-up X rays

Table 5. Radiographic Outcomes Following Proximal Fibular Osteotomy

Parameter	Preoperative	6 Months	p-value
Medial Joint Space Width (mm)	2.3 ± 0.5	3.2 ± 0.6	<0.001
Femorotibial Angle (°)	181.6 ± 2.8	178.8 ± 2.3	<0.001

Radiographic assessment demonstrated widening of the medial joint space and correction of varus alignment following surgery. These findings indicate

favourable biomechanical redistribution after proximal fibular osteotomy.

Table 6. Range of Motion Before and After Surgery

Follow-up	Mean Knee Flexion (°)	p-value
Preoperative	108.6 ± 11.5	—
1 Month	114.2 ± 10.1	0.012
3 Months	120.8 ± 8.7	<0.001
6 Months	126.4 ± 7.3	<0.001

Knee flexion improved progressively after surgery with significant gains observed at three and six months. Early rehabilitation and pain reduction contributed to improved joint mobility.

Table 7. Postoperative Complications and Patient Satisfaction

Variable	Number (n)	Percentage (%)
No Complications	20	80.0
Transient Peroneal Numbness	2	8.0
Superficial Wound Infection	1	4.0
Persistent Mild Lateral Leg Pain	2	8.0
Overall Patient Satisfaction		
Excellent	11	44.0
Good	10	40.0
Fair	3	12.0
Poor	1	4.0

Proximal fibular osteotomy was associated with a low complication rate, with most adverse events being minor and self-limiting. Overall, 84% of patients reported good-to-excellent satisfaction at the six-month follow-up, reflecting favourable clinical outcomes.

DISCUSSION

The present prospective interventional study evaluated the efficacy and clinical impact of proximal fibular osteotomy (PFO) in 25 patients with symptomatic medial compartment knee osteoarthritis. The outcomes were assessed using pain relief, functional improvement, radiographic changes, range of motion, and postoperative complications over a six-month follow-up period. The findings demonstrated significant reductions in pain, marked improvement in functional status, correction of varus alignment, widening of the medial joint space, and a low rate of postoperative complications. These results support the growing evidence that PFO is an effective joint-preserving procedure for selected patients with medial compartment knee osteoarthritis. (11)

The demographic profile of the present study revealed a mean patient age of 58.4 ± 7.2 years, with the majority of patients belonging to the 50–70-year age group. Females constituted 60% of the study population, reflecting the well-established epidemiological trend that knee osteoarthritis is more common among postmenopausal women because of hormonal changes, obesity, reduced bone density, and altered biomechanics. Similar age and gender distributions have been reported by Wang et al., who observed a predominance of female patients undergoing proximal fibular osteotomy for medial compartment osteoarthritis. (12)

Most patients in the present study were overweight or obese, with nearly three-fourths having a body mass index above the normal range. Obesity is recognized as one of the strongest modifiable risk factors for knee osteoarthritis because increased body weight substantially elevates compressive forces across the medial compartment during weight-bearing activities. Beyond mechanical loading, obesity also contributes through metabolic inflammation mediated by adipokines that accelerate cartilage degeneration. These observations are consistent with those reported by Yang et al., who emphasized the importance of body weight in disease progression and postoperative outcomes following proximal fibular osteotomy. (13)

Baseline clinical assessment demonstrated severe pain and functional limitation, with a mean preoperative Visual Analog Scale (VAS) score of 7.9 and a WOMAC score of 61.5. Following proximal fibular osteotomy, pain scores decreased progressively to 2.7 at six months, while WOMAC scores improved substantially, indicating marked recovery of knee function. The significant improvement observed at each follow-up interval suggests that PFO provides early as well as sustained symptomatic relief. These findings closely resemble those of Liu et al., who reported significant reductions in pain and improvement in functional scores within six months after surgery. (14)

The mechanism responsible for pain relief following proximal fibular osteotomy remains an area of active investigation. The currently accepted biomechanical explanation is the non-uniform settlement theory, which proposes that excision of a segment of the proximal fibula reduces lateral cortical support, thereby allowing redistribution of load across the tibial plateau. This decreases excessive stress within the medial compartment, reduces cartilage compression, and improves overall joint biomechanics. In addition, improved lower-limb alignment and reduced subchondral bone stress may contribute to symptomatic improvement. These biomechanical concepts have been supported by finite element analyses and clinical investigations published by Zhang and colleagues. (15)

Radiographic evaluation in the present study demonstrated widening of the medial joint space and

improvement in the femorotibial angle after surgery. These findings indicate partial correction of varus deformity and more balanced load transmission through the knee joint. Although the degree of angular correction is less than that achieved by high tibial osteotomy, the radiographic improvement observed after PFO is clinically meaningful and correlates with pain reduction and functional recovery. Similar radiographic changes have been documented by Qin et al., who demonstrated increased medial joint space width and improved mechanical axis following proximal fibular osteotomy. (16)

Another important finding of the present study was the progressive improvement in knee range of motion during follow-up. Mean knee flexion increased from 108.6° preoperatively to 126.4° at six months. Improved mobility can largely be attributed to reduced pain, decreased joint stiffness, correction of abnormal loading patterns, and early postoperative mobilization. Enhanced range of motion contributes significantly to better performance of activities of daily living and overall patient satisfaction. Comparable improvements in postoperative knee motion have been reported by Shi et al., who concluded that early rehabilitation after PFO facilitates rapid functional recovery. (17)

One of the major advantages observed in this study was the relatively low complication rate. Only minor complications, including transient peroneal nerve paraesthesia, superficial wound infection, and mild lateral leg discomfort, were encountered, with no patient requiring revision surgery. Most neurological symptoms resolved spontaneously during follow-up. The low incidence of complications reflects careful surgical technique and meticulous protection of the common peroneal nerve during osteotomy. Similar safety profiles have been reported in systematic reviews evaluating proximal fibular osteotomy, which concluded that major complications are uncommon when the procedure is performed by experienced surgeons. (18)

Patient satisfaction following proximal fibular osteotomy was high in the present study, with 84% of patients reporting excellent or good outcomes at six months. This favourable response can be explained by significant pain relief, improved walking ability, correction of deformity, and rapid postoperative rehabilitation. Unlike total knee arthroplasty, proximal fibular osteotomy preserves the native joint, avoids implant-related complications, and permits immediate weight bearing. Furthermore, because no internal fixation is required, the procedure is associated with shorter operative time, minimal blood loss, lower treatment costs, and faster return to daily activities. These advantages have also been emphasized by Li et al., who recommended PFO as an economical treatment option for appropriately selected patients with medial compartment osteoarthritis. (19)

Compared with established surgical procedures such as high tibial osteotomy (HTO) and total knee arthroplasty (TKA), proximal fibular osteotomy offers several practical advantages. HTO provides greater correction of mechanical alignment but requires extensive surgery, prolonged rehabilitation, and carries risks such as delayed union, implant failure, and non-union. Total knee arthroplasty remains the gold standard for advanced tricompartmental disease but may not be suitable for younger or economically disadvantaged patients because of implant longevity and revision concerns. PFO serves as an intermediate joint-preserving option that can delay the need for arthroplasty while providing meaningful symptomatic improvement in selected cases. Recent comparative studies have suggested that although radiographic correction is smaller than HTO, clinical improvement following PFO is often comparable in patients with mild-to-moderate varus deformity. (20)

Despite the encouraging findings, several limitations should be acknowledged. The present study included a relatively small sample size of 25 patients and was conducted at a single tertiary care centre, which may limit the generalizability of the results. The study also lacked a control or comparison group, which limits the ability to distinguish the specific contribution of PFO from natural symptom fluctuation, placebo effect, or the concurrent physiotherapy all patients received. The follow-up period of six months primarily reflects short-term outcomes, and longer follow-up is required to determine whether the clinical and radiographic benefits are sustained over time. Additionally, the absence of a comparison group undergoing high tibial osteotomy or total knee arthroplasty limits direct comparison with other treatment modalities.Future multicentre randomized controlled trials with larger patient populations and long-term follow-up are necessary to establish standardized indications and define the precise role of proximal fibular osteotomy in the management of knee osteoarthritis. (21)

Overall, the findings of the present study demonstrate that proximal fibular osteotomy is a safe, minimally invasive, and effective surgical option for patients with medial compartment knee osteoarthritis. Significant improvements in pain, function, knee mobility, radiographic alignment, and patient satisfaction, together with a low complication rate, support its use as a valuable joint-preserving procedure capable of delaying the need for more extensive reconstructive surgery in appropriately selected patients.

CONCLUSION

Proximal fibular osteotomy is a safe, minimally invasive, and effective treatment option for selected patients with medial compartment knee osteoarthritis.

The procedure provides significant pain relief, improves functional outcomes, enhances knee range of motion, and achieves favourable radiographic correction with minimal complications. Its simplicity, cost-effectiveness, and rapid postoperative recovery make it a valuable joint-preserving alternative to more extensive surgical procedures. As this was a single-arm study without a comparator group and with only six months of follow-up, larger controlled studies with longer follow-up are recommended to validate its long-term efficacy and establish standardized treatment guidelines.

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