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PROXIMAL FIBULAR OSTEOTOMY (PFO) IN THE TREATMENT OF MEDIAL GONARTHROSIS

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Osteoarthritis (OA) is one of the leading causes of disability globally, affecting over 528 million individuals, with knee OA being among the most prevalent forms. Medial compartment OA (MCOA) accounts for 60–80% of cases, primarily due to the body's natural weight distribution. The condition is especially common among adults over 45 years, with 28% showing radiographic evidence. Risk factors include obesity, aging, genetics, repetitive joint stress, and prior injuries. Conventional treatments such as high tibial osteotomy (HTO) and total knee arthroplasty (TKA) are effective but associated with high costs, technical demands, and longer recovery periods.

Proximal Fibular Osteotomy (PFO), initially described as Prakash Fibular Osteotomy in 2003, emerged as an incidental discovery by Dr. L. Prakash and has since gained traction as a minimally invasive alternative for selected OA patients. The procedure involves removing a 2–3 cm section of the proximal fibula, which redistributes mechanical loading across the knee joint. This unloading reduces compressive forces on the medial compartment, promoting pain relief, realignment, and functional improvement. It also slows degenerative changes, thereby postponing or even eliminating the need for joint replacement surgery.

PFO is typically performed through a small lateral incision under general or spinal anesthesia. The operation is short, usually lasting 30–45 minutes, with most patients discharged within 24 hours and often requires just few weeks of reduced activity, full recovery takes only 6-8 weeks. This makes it particularly attractive for older patients and those with limited access to advanced orthopaedic care.

Yang et al. (2015) provided the first significant clinical evidence supporting PFO, showing improved pain scores and joint space in MCOA patients. Follow-up studies, including those by Wang et al. (2020), revealed over 50% pain reduction and measurable biomechanical improvements, including enhanced femoral-tibial alignment and reduction in varus deformity. A multicentre study in France (2018) involving 75 patients found that 89% avoided TKA at the two-year follow-up. An Italian cohort (2020) confirmed PFO's value for elderly patients with mild-to-moderate OA, noting sustained functional improvement. A 2024 study by Huang et al. documented a 90% patient satisfaction rate, alongside a 26-point increase in Knee Society Scores (KSS) and significant improvements in WOMAC (Western Ontario and McMaster Universities Osteoarthritis Index) scores (from 42.1 to 20.5). Radiologically, PFO has demonstrated increased medial joint spacing, improved joint alignment, and correction of varus deformity. These outcomes strongly correlate with reduced pain, enhanced function, and potentially extended joint longevity.

While generally safe, complications such as peroneal nerve palsy, non-union, or infection may arise, though these are rare and often resolve with conservative management. Proper surgical technique and patient selection are crucial to minimizing these risks.

Recent studies have begun exploring the integration of PFO with regenerative approaches such as platelet-rich plasma (PRP) and hyaluronic acid injections to augment healing and extend symptom relief. There is also growing interest in evaluating the long-term outcomes of PFO, particularly its ability to delay or prevent the need for TKA in selected populations.

PFO represents a promising, minimally invasive, and cost-effective alternative to conventional surgical interventions for medial compartment OA. With consistently favorable clinical and radiological outcomes, low complication rates, and short recovery periods, PFO is gaining widespread recognition, especially in resource-limited settings or among early-stage OA patients with varus deformity. Continued research is essential to define optimal patient selection criteria and to evaluate its long-term efficacy as part of a comprehensive OA management strategy.