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CHANGES IN VISUAL ANALOGUE SCALE SCORE IN INDIAN POPULATION AFTER PROXIMAL FIBULAR OSTEOTOMY

Orthopaedics

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ABSTRACT

Introduction: Osteoarthritis (OA) is a chronic degenerative disorder of multifactorial etiology characterised by the loss of articular cartilage, hypertrophy of bone at the margins, subchondral sclerosis, and range of biochemical and morphological alterations of the synovial membrane and joint capsule. Recent studies have confirmed the safety and efficacy of Proximal Fibular Osteotomy (PFO) in the treatment of knee OA.

Objective: The aim of our study is to evaluate the effect of Proximal Fibular Osteotomy on the predominant medial compartment osteoarthritis knee in terms of Visual Analogue Scale Score.

Methods: In a period of one year, 40 patients with predominant medial compartment osteoarthritis were operated in our department of orthopaedics. 2cm long fibula was resected 7 cm to 9 cm distally from the head of fibula. The outcome was evaluated by using VAS score. Follow up was done according to standard proforma.

Results: In our study, the average age of presentation was 64.1 year. At final follow up, VAS score improved to 1.73 + 1.261 from 8.55 + 0.02 preoperatively (both values were significant P<0.001).

Conclusion: PFO is a new and cost-effective surgery for predominant medial compartment osteoarthritis of knee with better functional outcome of patients and significant decrease in pain as compared to the conventional treatment modalities.

KEYWORDS

Proximal Fibular Osteotomy, Knee, Osteoarthritis, Visual Analogue Scale.

INTRODUCTION

Osteoarthritis (OA) is the second most common rheumatologic problem and it is the most frequent joint disease with a prevalence of 22% to 39% in India[1,2]. OA is more common in women than men, but the prevalence increases dramatically with age[3]. It is a chronic degenerative disorder of multifactorial etiology characterised by the loss of articular cartilage, hypertrophy of bone at the margins, subchondral sclerosis, and range of biochemical and morphological alterations of the synovial membrane and joint capsule[1]. Early clinical symptoms of Knee osteoarthritis include pain, stiffness and limitation of range of movement. Eventually with the progression of the disease there is knee varus deformities and joint failure leading to chronic pain and disability.

Apart from the lifestyle and pharmacological approaches there are various surgical alternatives also available for the treatment. The surgical options include arthroscopic debridement, cartilage repair surgery, osteotomy with axis correction, and uni-compartmental or total knee arthroplasty (TKA). Recent researches have reported that Proximal Fibular Osteotomy (PFO) relieves pain and improves joint function in knee osteoarthritis. This new surgery is simple, safe and affordable.

We performed this research with the aim to study the functional outcome in Indian population after proximal fibular osteotomy in osteoarthritis of knee using Visual Analogue Scale Score.

MATERIALS AND METHODS

This prospective study was carried out from December 2017 to August 2019, in the Department of Orthopaedics, N.S.C.B. Medical College, Jabalpur (M.P.) in patients of medial compartment osteoarthritis of knee joint, between the ages of 60-69 years. Ethical clearance was obtained before beginning of the study. Patients with moderate to severe symptomatic degenerative osteoarthritis of the knee, on whom conservative management has failed and have given informed consent, were included in the study. Patients who have inflammatory or post traumatic osteoarthritis of knee or have any history of previous operations or fractures around the knee were excluded from the study.

Total 40 knees with medial compartment osteoarthritis were operated during this period. These all patients were included in our study and were followed up prospectively starting from immediate postoperative period, at 3 weeks, 6 weeks, 3 months, 6 months and 1 year, and were assessed as per standard proforma, and were classified according to Kalligren Lawrence grading.

Proximal Fibular Osteotomy was performed using the standard guidelines. Post-operative Physiotherapy protocol was followed. Student t test (paired t test) was applied and values less than 0.05 was considered statistically significant.

RESULTS

In our study, 5% of patients were in age group 40-49 years, 12.5% in 50-59 years, 57.5% belonged to 60-69 years and 25% were more than 70 years of age. We operated on a total of 40 knees out of which 19 belonged to female and 21 to males. Symptoms of pain were measured according to VAS score and measured on each follow up.

We compared the pre-operative VAS score with the scores at consecutive follow up. There was significant improvement in VAS score at each step. At final follow up (1 year) there was significant improvement in VAS from 8.55 ± 0.02 pre operatively to 1.73 ± 1.261. (Chi square test was applied and $P < 0.0001$ which is < 0.05 so, it is statistically significant).

TABLE 1. MEAN VAS SCORE

Pre op	8.55 ± 0.02
Immediate post op	5.63 ± 0.705
3 weeks	$4.23 + 0.8$
6 weeks	3.58 ± 0.813
3 months	2.88 ± 0.853
6 months	2.3 ± 1.091
1 year	1.73 ± 1.261

DISCUSSION

In our study, we selected patients with predominantly medial compartment osteoarthritis of knee joint who visited our OPD in the department of Orthopaedics. The patients went through detailed clinical and radiological examination as per standard proforma. All selected patients after taking explained/written consent underwent a

surgical procedure **"Proximal Fibular Osteotomy"** and the outcome was evaluated and compared with other previous similar studies. **Yang ZY et al.**[4] reported that mean VAS score before surgery was 7 which improved to 2 on the final follow up. **Wang et al.**[5] reported that mean VAS score before surgery was 8.02 ± 1.50 which improved to 2.74 ± 2.34 on the final follow up. **Tong G et al.**[6] reported that mean VAS score before surgery was 7.9 ± 0.8 which improved to 1.8 ± 0.9 on the final follow up. **Ren KM et al.**[7] reported that mean VAS score before surgery was 5.70 ± 1.56 which improved to 2.10 ± 0.97 on the final follow up.

In our study, mean VAS score before surgery was 8.55 ± 0.02 which improved to 1.73 ± 1.261 which was significant and similar to other studies.

CONCLUSION

We conclude that Proximal Fibular Osteotomy is a novel surgery for medial compartment osteoarthritis of knee with better functional outcome of patients and significant decrease in pain as compared to the conventional ones. This surgery reduces the dependence on NSAIDS and delays other costly surgical procedures like high tibial osteotomy and total knee arthroplasty which require high expertise and carries a large number of complications.

In a developing country like India, it can be a promising surgery as it is affordable, minimally associated with complications, doesn't require a high expertise and major surgical procedures like High Tibial Osteotomy, Total Knee Arthroplasty can be done after this surgery if needed.

Although this surgery carries a lot more advantages, we still require further follow up to conclude how it fares in the long term.

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