

Case Series

Management and evaluation of osteoarthritis knee, stage III and IV by total knee arthroplasty in an institution at rural set-up: a cases series

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ABSTRACT

The management of advanced knee osteoarthritis remains a subject of discussion. The use of total knee prosthesis is a solution to improve the quality of life's patients. The end of this work was to describe the epidemiology and estimate the results of a series of 60 cases advanced knee osteoarthritis, treated with total knee prostheses in the department. This was a retrospective study conducted from August 2023 to June 2024 at Dr. PMR Institute of medical Sciences and Teaching Hospital, Chevella, Telangana. The study concerned the analysis of the patients operated on for advanced stage III and IV knee osteoarthritis by total knee prostheses. We collected 15 patients which includes 9-female and 6 male. The average age of the patients was 55 years. All patients were operated on under indigenous anesthesia in the supine position with a pneumatic tourniquet. The surgical site was approached antero-medially. The functional results evaluated according to the International Knee Society (IKS) score were favorable in 96.7%. In conclusion, knee osteoarthritis is a condition of elderly females. Its treatment, using total knee arthroplasty, evaluated according to the IKS score, gave satisfactory results.

Keywords: Rural, Radiological stage III and IV, Total knee prosthesis, International Knee society

INTRODUCTION

Knee osteoarthritis is a chronic and progressive arthropathic disease of the knee characterized by degenerative changes in the knee cartilage and hypertrophic changes in the bone tissue around the joint surface.¹ It manifests clinically as pain and functional impotence of varying severity, causing real disability to varying degrees.^{2,3} In the Gabonese context, the diagnosis of knee osteoarthritis is most often made at the late stage with significant functional disability leading to poor quality of life. Its management is still a subject of discussion.⁴ Total knee replacement is often the last resort to improve the quality of life of patients. It is mainly indicated for patients suffering from advanced knee osteoarthritis, when it becomes disabling and painful and no longer responds to conservative medical and physio-therapeutic treatments.⁵ Although it is now a mature surgical technique, TKA remains, in our context, a recent technique, at our institute, Dr. PMR Institute of Medical

Sciences and Hospital, Chevella. They can still be improved in younger and more active patients who use their implants longer and more intensely. The aim of this work was to describe the evaluate the preliminary results of patients preferring advanced stage III and IV knee osteoarthritis, in our department, by total knee prostheses.

CASE SERIES

The study concerned the analysis of patients operated on for stage III and IV by total knee prostheses, at our institute, Dr. PMR Institute of Medical Sciences and Hospital, Chevella, who were followed regularly in outpatient consultation by a clinical and radiographic control examination until a follow-up. Minimum of 12 months. The study variables were collected using a survey form developed for the study. Our results were evaluated using the International Knee Society (IKS) score, based on the criteria of pain, joint mobility and knee function.



Figure 1 (A and B): X-ray right knee-AP/lateral-view.



Figure 2 (A and B): X-ray of bilateral knee-AP/lateral view.

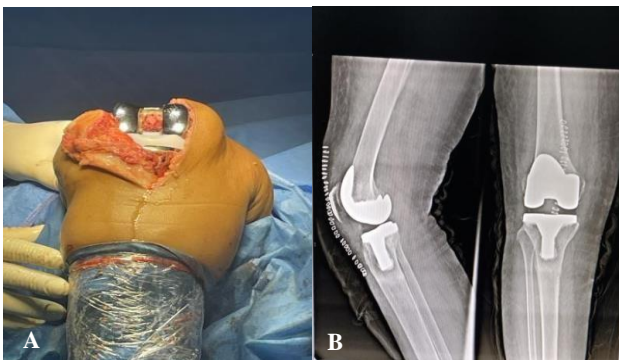


Figure 3 (A and B): Intra-operative pictures.



Figure 4 (A and B): C-Arm and post-operative X-ray AP and lateral with prosthesis.



Figure 5 (A and B): Bilateral knee TKR, with bone augmentation.

Table 1: Distribution of patients according to radiologically observed.

Radiological changes	Number of patients	Percentage
Osteo-arthritis	15	100
Grade III	05	25
Grade IV	10	75

Table 2: Baseline and clinical characteristics of the patients.

Characteristics	Percentage
Age of patients (years)	
55-75	15
Gender	
Male	05
Female	10
Comorbidities	
Cardiovascular disease	6
Diabetes	9
Alcohol	4
Tobacco	10

Results

We collected 15 patients including 9 women and 6 men, either a sex ratio of 0.43. The average age of the patients was 55 years with extremes of 50 and 70 years. The age group of 60-69 years was predominant in the series with 35% (n=12). The average weight of the patients was 70 kg with extremes of 46 and 90 kg. The height fluctuated between 1.52 m and 1.80 m with an average of 1.66 m. The average body mass index (BMI) was 31.53. Obesity was noted in 20% of cases. Examination of the knee revealed deformation of the joint in 83.3%, and painful joint mobility in 46.7%, the Lequesne functional index was achieved in 58.3%, with an average score of 14.0. An X-ray of the knee with frontal and lateral views (Figure 1) was carried out in all patients.

The overall deviation angle which measured the deformation was on average 13.8 with extremes of 4 to 27. Radiologically, we obtained a normal correction of the

mechanical axis in 85% of the cases. Cases and hypo correction in 15% of cases. Therapeutically, all patients were operated on under regional anesthesia in the supine position with a pneumatic tourniquet. The surgical site was approached via an anteromedial and internal parapatellar approach. The implant was placed in the left knee in 53.3% and in the right knee in 46.7%.

In this series, we noted 33.3% of complications, mainly persistence of pain in 21.7%, infection of the surgical site in 0.3%, of a fracture of the tibial plateau in 1.7%, synthesized intraoperatively by direct screwing. To evaluate our results, we opted for the International Knee Society (IKS) score, based on functional criteria: pain, joint mobility and function. With an average follow-up of 12 months, we noted a favorable functional outcome in 86.7% with a disappearance of pain in 60% and a reduction in 10%. Joint mobility was improved in 78%: the average flexion postoperatively was 105° instead of 90° preoperatively. The walking perimeter became unlimited again in 48.3%. Overall, we obtained very good results in 68.3%, average results in 20% and poor results in 0.7%.

DISCUSSION

In this series, we collected 15 patients including 9 women (70%) and 6 men (30%), either a M/F sex ratio of 0.43. the average age was 55 years with extremes of 50 and 70 years. The age group from 60 to 65 years was predominant in the series with 35%. These results are similar to those of Bakriga et al in Togo who set up in their series an average age of 65 years with extremes of 60 years and 90 years.⁶ These results confirm that knee osteoarthritis is a condition of the senior; it is unanimously recognized that the prevalence and incidence of knee osteoarthritis increase with age.^{7,8} The womanish ascendance setup in this series is present in other studies and is consistent with the data in the literature thus affirming that female sex is a risk factor for the occurrence of knee osteoarthritis.^{9,11} Several studies suggest that taking estrogen replacement therapy at menopause is associated with a reduction in the risk of knee osteoarthritis.

CONCLUSION

Our study confirmed that knee osteoarthritis is a condition of elderly females. Obesity and genu varum have been particularly noted as a risk factor. Imaging makes it possible to make the opinion and stage III and IV knee osteoarthritis. Total knee prosthesis is an intervention of choice in advanced knee osteoarthritis. The results obtained with the sliding prostheses, put in place during the various procedure were satisfactory, the IKS score gave us a favorable functional assessment in the majority of cases.

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