

TOTAL KNEE ARTHROPLASTY IN A PATIENT WITH HOFFA FRACTURE PSEUDARTHROSIS: CASE REPORT

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ABSTRACT

A rare occurrence of a case of Hoffa fracture pseudarthrosis in an alcoholic patient with genu valgum associated with venous insufficiency who underwent total knee arthroplasty is reported. The literature is reviewed and the main factors for surgical indication of total

knee arthroplasty after a fracture of the knee are discussed. Total knee arthroplasty was a viable option in a 60-year-old patient with Hoffa fracture pseudarthrosis and comorbidities.

Keywords - Arthroplasty, Replacement, Knee; Femoral Fractures; Pseudarthrosis; Knee Joint

INTRODUCTION

Total knee arthroplasty is a high-complexity surgical procedure that is basically indicated for patients with a diagnosis of knee osteoarthritis or rheumatic diseases. This surgical procedure has been constantly evolving since its creation. Implants with more modern designs that resemble the anatomy of the normal knee as much as possible, together with instruments that are increasingly precise and cause less aggression to soft tissue, have been making the coverage of surgical indications ever wider.

The good results obtained after carrying out total knee arthroplasty (TKA) have been well documented in the literature, with regard both to pain relief and to maintenance of these results over long-term follow-up⁽¹⁻⁶⁾.

Hoff fractures are rare injuries. Pseudarthrosis of coronal fractures of the lateral femoral condyle gives rise to pain and valgus deviation of the knee. Since the knee is a weight-bearing area, it presents greater risk of developing early osteoarthritis.

The aim of this study was to present a case of Hoffa fracture pseudarthrosis in an alcoholic patient with

genu valgum in association with venous insufficiency who underwent total knee arthroplasty (TKA).

Case Report

The patient was a 60-year-old man with a condition of intense pain in his left knee and secondary osteoarthritis due to pseudarthrosis of a Hoffa fracture with two years of evolution, along with genu valgum of the knee and venous insufficiency. This patient underwent total knee arthroplasty on the left knee in August 2008, at the Orthopedics and Traumatology Service of Miguel Couto Municipal Hospital. The prosthesis used was made in Brazil (Baumer S/A, Mogi Mirim, São Paulo; Total Knee Arthroplasty model with preservation of the posterior cruciate ligament). During the patient's hospital stay prior to the surgery, he developed abstinence syndrome (the patient had not informed us of his previous history of alcohol dependence). In the immediate postoperative period, we observed that pain relief and functional improvement of the knee had been achieved. The patient returned to his professional activities, satisfied with the surgical procedure that had been accomplished (Figures 1 to 12).

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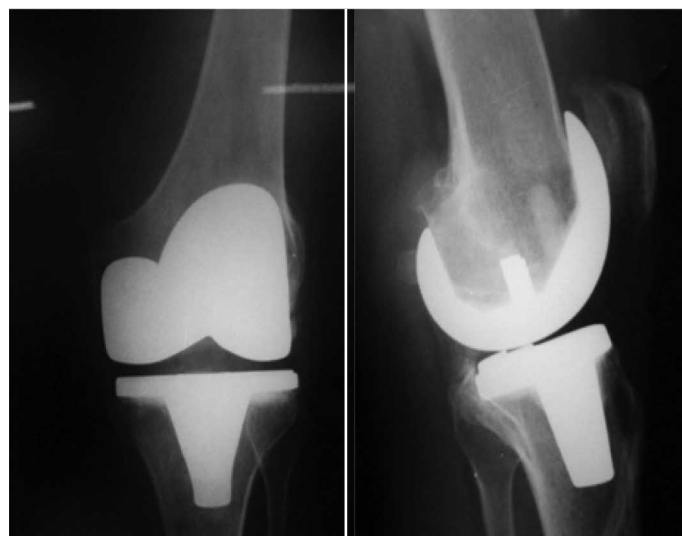
Figures 1 and 2 – Preoperative clinical evaluation.



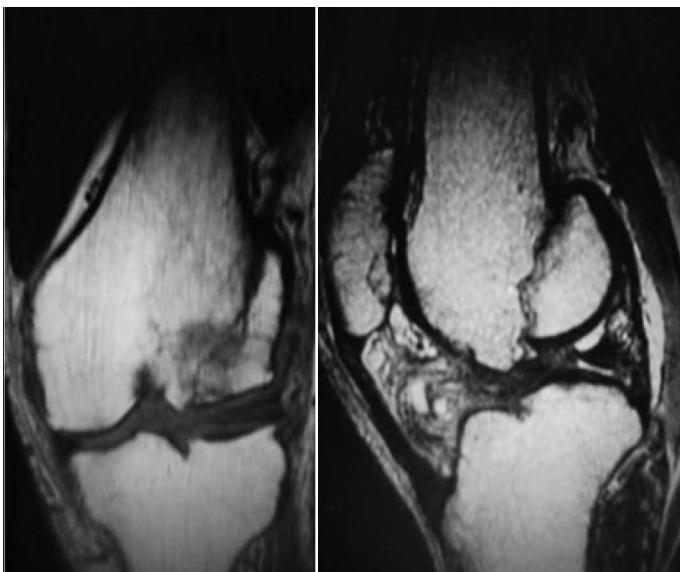
Figure 7- Intraoperative analysis.



Figures 3 and 4 – Preoperative radiographs.



Figures 8 and 9 – Postoperative radiographs.



Figures 5 and 6 – Preoperative magnetic resonance images.



Figures 10, 11 and 12 – Postoperative clinical evaluation.

DISCUSSION

Because Hoffa fractures are extremely rare injuries⁽⁷⁾, the percentage presenting pseudarthrosis is so far unknown⁽⁸⁾. The treatment for this type of lesion encompasses many particular features that have

caused controversy in the literature⁽⁹⁾. Yoshino et al signaled that in treating patients with distal femoral fractures associated with knee osteoarthritis, the type of fracture and the systemic condition should be taken into consideration⁽¹⁰⁾. In our opinion, a 60-year-old patient with Hoffa fracture pseudarthrosis associated with venous insufficiency and early arthrosis would achieve greatest benefit through TKA. When we discovered that our patient was an alcoholic, our indication gained further validation.

With regard to the etiology of the joint degeneration process, we believe that it is useful to differentiate primary osteoarthritis from conditions that are secondary to knee fractures, because we take the view that the fracture pattern may give rise to bone stock changes. There are several studies in the literature in which prostheses with greater constriction were used for distal femoral fractures⁽¹¹⁻¹⁶⁾. Osteoarthritis secondary to knee fractures causes bone losses that may give rise to technical difficulties because of unusual anatomy. For this reason, it is prudent to carry out a good preoperative evaluation (both clinical and radiographic), and sometimes to request implant revision.

Single-compartment arthroplasty was another option considered, but the long-term results from TKA have been well established in the worldwide literature. Moreover, within our setting, Camanho et al⁽¹⁷⁾ did not recommend lateral single-compartment arthroplasty.

The advantage of TKA over osteosynthesis for Hoffa fractures is the early return to walking and rapid return to normal daily life. It should be borne in mind that our patient was 60 years old and had a history of alcoholism. Alcohol not only is a risk factor for pseudarthrosis but also makes such patients undisciplined, in that they often start walking earlier than advised. In TKA cases, alcohol use has been correlated with a higher infection rate because such patients are generally malnourished⁽¹⁸⁾. The approach taken for the TKA on our patient included conventional prophylaxis with cefazolin for 24 hours. The patient's condition of intense pain was what motivated us to continue with the indication of TKA.

With regard to venous insufficiency, prevention

of thromboembolism was achieved through general measures (compressive bandaging, elevation of the lower limbs, partial weight-bearing on the second postoperative day and early physiotherapy) and through drug therapy consisting of enoxaparin 40 mg subcutaneously for two weeks.

There are many articles in the literature showing correlations of distal femoral fractures after TKA⁽¹⁹⁻²⁸⁾. On the other hand, in a review of the literature than we conducted, to correlate the use of TKA following Hoffa fracture pseudarthrosis, we found that there was currently no literature.

Pearse et al reported that TKA is a reasonable choice for elderly patients with distal femoral fractures⁽²⁹⁾. Worldwide, life expectancy is continually increasing, thus turning elderly people into active people who require rapid recovery with knees that are close to normal.

Wolfgang⁽³⁰⁾ affirmed that TKA is an appropriate surgical choice for patients with intercondyle fractures of the femur and rheumatoid arthritis. We believe that we have validated this author's affirmation, although attention is required with regard to the greater postoperative complication rate^(31,32).

Kress et al⁽³³⁾ concluded that pseudarthrosis of the distal femur could be treated by means of total knee arthroplasty, through using a long nail without cement, fitted under pressure together with the bone graft. In our view, revision implants are an option to be considered, depending on the fracture pattern, although it becomes necessary to use bone cement.

Rosen et al⁽³⁴⁾ took the view that the geriatric population has relative indications for undergoing TKA in situations of distal femoral fracture: intra-articular fracture, severe joint damage, preexisting arthrosis, severe osteopenia, delayed consolidation or pseudarthrosis. We corroborate this thinking and also advocate this.

Anderson et al⁽³⁵⁾ proved that TKA with long nails was effective for treating pseudarthrosis of distal femoral fractures. We believe that indications for these implants exist, although in our case we chose to use a conventional TKA. We emphasize that TKA is a soft-tissue surgical procedure in which ligament balance is fundamental for good functional results. In our case, because it consisted of pseudarthrosis of a lateral condylar fracture, we chose to use a prosthesis

that would preserve the posterior cruciate ligament. We believe that the posterior cruciate ligament does not interfere with the anatomy of the lateral condyle, and therefore we chose to use a prosthesis that would preserve the bone stock more.

CONCLUSION

Total knee arthroplasty is a viable option for 60-year-old patients with Hoffa fracture pseudarthrosis and comorbidities.

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