Chapter 14

Treatment of pseudoarthrosis of diapifary femur fracture after failure of dynamization of intramedullary nail - case report with a simple technique

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1 INTRODUCTION

Pseudarthrosis is characterized as the absence of union 6 months after treatment of a fracture. This pathology can be caused by failure of stability or biological insufficiencies for consolidation. Approximately 7% of long bone fractures evolve with this complication. Historically, the treatment is performed with open reduction, open focus, and fixation with absolute stability. With the advent of intramedullary nails, the technique most commonly used in diaphyseal fractures today, union failure can be treated with nail dynamization or new milling and implantation of a thicker nail. However, the current literature reports that 42% of dynamizations and 22% of nail exchanges did not progress to consolidation, and when these techniques fail, treatment is returned with absolute stability, bone grafting, and removal of intramedullary fixation. The present clinical case aims to present a new minimally invasive surgical technique for the treatment of diaphyseal pseudarthrosis.

2 MATERIALS AND METHODS

Patient R.S.A* with a history of proximal diaphyseal fracture of the left femur in April 2017 was treated with an intramedullary nail with two distal blocks and one proximal block. She developed symptomatic pseudarthrosis when she came to Semper Hospital for evaluation. Radiographic studies were performed showing oligotrophic pseudarthrosis in the proximal diaphysis of the left femur. A surgical procedure was performed to treat pseudarthrosis on April 11, 2018.

3 DESCRIPTION OF THE SURGICAL TECHNIQUE

The patient is positioned in the supine position on a common operating table with a slight elevation of the hip on the side to be operated on. An incision is made on the lateral aspect of the thigh in the topography of the fracture focus. Deep dissection is performed in the usual way with an incision of the fascia lata and anterior displacement of the vast lateral. After identifying the focus of pseudarthrosis with

minimal deprioritization, stabilization is performed with a DCP plate of small fragments. In this surgical technique, ideally, fixation is obtained with 6 cortices proximal to the focus and 6 cortices distal to the pseudarthrosis focus, with screws of small fragments tangent to the intramedullary nail. In case the nail thickness and femoral cortex do not allow screws to the tangent to the implant, unicortical screws are used for fixation. The order of fixation is usual with fixation with screws immediately proximal and distal to the focus of pseudarthrosis using an eccentric technique for interfragmentary compression.

4 RESULTS

The patient was followed up as an outpatient with progressive improvement in pain. Radiographs taken four weeks after the surgical procedure showed evidence of consolidation. The patient was released for gradual load-bearing and twelve weeks after the operation, she was able to walk with a crutch without pain. Serial radiographs showed gradual consolidation of the pseudarthrosis focus and three months after the operation, almost complete consolidation of the pseudarthrosis was observed. The patient was then released for ambulation without the support and physical exercises for muscle strengthening.

5 CONCLUSION

Pseudoarthrosis is an uncommon complication in femoral shaft fractures, but it is difficult to treat. Current surgical options cause great morbidity to the patient, whether with intramedullary implant replacement or implant removal and fixation with plates and screws of large fragments. The technique presented is an option for the treatment of femoral diaphyseal pseudarthrosis that generates little morbidity due to the size and surgical time and has promising initial results. Despite the good results with specific cases, additional studies are needed to definitively confirm the success of the technique.