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Ascending Centromedullary Nailing of Bilateral Supracondylian Fractures of Femurs: Case Report

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Case Report

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Abstract: The treatment of fractures of the lower extremity of the femur by retrograde intramedullary nailing has benefited from the biological and mechanical advantages of this method.The technique is very demanding and requires an experienced hand and remains much faster than open osteosynthesis plate, which makes this method fully suitable treatementof two bilateral supracondylar fracture especially that it requires a single position a single operative field.We report in our work a case of bilateral supracondylar fracture in a 62-year-old woman treated in one single time by two retrograde intramedullary nails, with good recovery of flexion of both knees (100 ° right and 105 ° left)
Keywords: Bilateral fracture, ascending nailing, recovery.

INTRODUCTION

Fractures of the lower extremity of the femur are rare and constitute less than 10% of all fractures, the bilateral form is even rarer and is the prerogative of the young subject following a mechanism of high energy [1]. It is a pathology difficult to manage and the treatment is usually surgical. Retrograde centromedular nailing has shown its efficacy especially in comminuted fractures and is increasingly used [2].

As any fracture of the lower extremity of the femur the stake of the treatment is to obtain the most anatomical reduction possible thanks to a stable osteosynthesis allowing a reeducation effective as quickly as possible, adds to that in the bilateral forms the intraoperative technical particularity from the installation and the type of osteosynthesis to be chosen, but also from the postoperative rehabilitation protocol, especially with regard to support and walking [3].

The consolidation of the metaphyseal zone is quickly obtained, unfortunately the prognosis is conditioned by the evolution towards osteoarthritis and the stiffness of the knee[4].

We report in our work a case of bilateral supracondylar fracture in a 62-year-old woman treated in one single time by two retrograde type intramedullary nails.

CASE REPORT

It is a patient of 62 years, obese with a BMI to 35, osteoporotic and without any other known defect, victim of a fall of its height with reception on both knees causing pain and total impotence functional of the two knees. The clinical examination shows deformity in shortening and external rotation with swelling of both knees without cutaneous lesions, the pulse is well perceived, there is no sensitivo-motor defecation(Figure 1).

Standard radiographs show two supracondylar fractures of both femurs.(Figure 2). The therapeutic decision is to make a surgical treatment by internal osteosynthesis by two retrograde type intramedullary nails.

The installation is done in supine position both knees bent at 30 ° thanks to two cushions placed under the knees, the field is done thanks to a single double field of the two lower limbs and the garrotte has not been used(Figure 3).

The first operative stage consists of the osteosynthesis of the right femur, the longitudinal incision extending from the lower edge of the patella to 3 cm below, then the opening of the patellar tendon longitudinally by a bistoury blade in one fell swoop to

finally approach the lower face of the femoral condyles, the point of introduction is behind the notch and in the center by a curved pin, then a guide rod is introduced to the upper end of the femur, a boring progresses to size 11, and after the achievement of a satisfactory reduction is proceeded to the introduction of a nail size 10-38 and a doublé distal locking without proximal locking.

The second stage consists of an osteosynthesis of the left femur in the same way and a retrograde nail placement of the same size. Immediate post-operative radiographic views are satisfactory except for a small recurvatum of 3 ° in the right femur(Figure 4,5).

This type of osteosynthesis allows us to begin a passive rehabilitation by arthromotor the day after the intervention and a wheelchair with knee flexion to 90 ° to 7 days, however the support is not allowed thereby the patient the wheelchair is used until consolidation at 3 months after surgery.

Receding at 6 months shows a correct mobility of both knees, with a right flexion to 100° and 105° left without agravation of osteoarthritic lesions already present before the fracture and a painless walk conferring autonomy to the patient.

Fig-1: Clinical aspect of both fractured knees

Fig-2:X-ray showing the bilateral supranuclear fracture

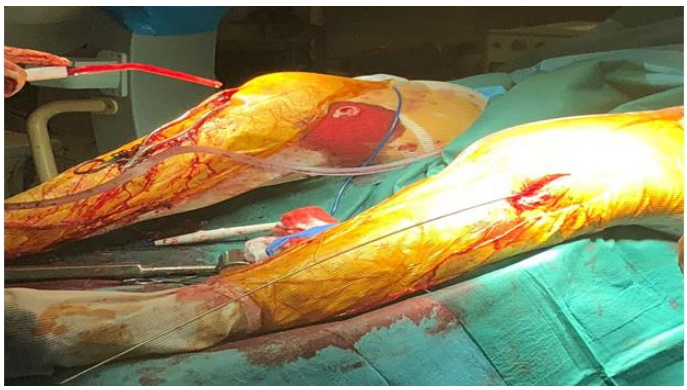

Fig-3:Peroperative picture showing instalation

Fig-4: Postoperative radiographic control of face

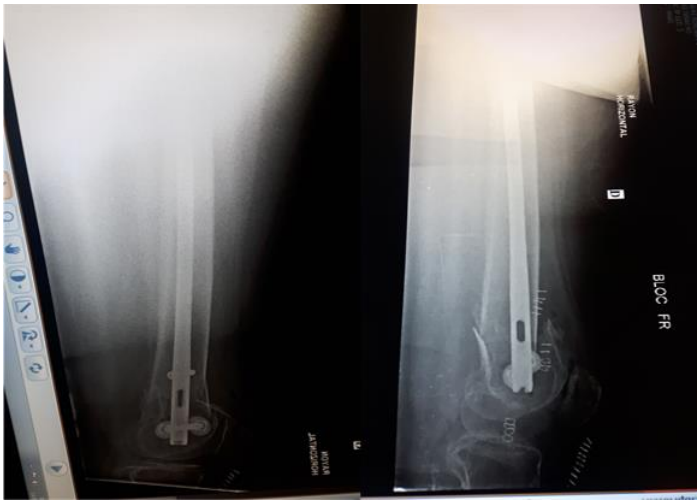

Fig-5: Postoperative radiographic control of profile

DISCUSSION

Supracondylar fractures are localized in bone and cartilaginous zones of variable quality. The AO classification determines three types:

Type A: extra-articular fractures,
Type B: unicondylar fractures,
Type C: intra-articular fractures [5]

In fractures of types A and C, the articular surface and the femoral condyles are separated from the femoral diaphysis. These fractures represent a good indication of ascending centromedullary nailing. On the other hand, plate osteosynthesis is better adapted than the supracondylar nail for the osteosynthesis of Type B unicondylar fractures [6]. Centromedullary supracondylar nailing has many advantages over other techniques. Firstly, ascending nailing is easier to perform than descending nailing, requiring no orthopedic table, nor introduction of the nail by the side-trochanteric approach. The ascending nailing is biologically preferable to plate osteosynthesis (plate-plate and screw-plate) performed with a closed focus, without devascularization of the soft or periosteal parts. External fixation is useful only in cases of severe fracture of the distal end of the femur: relatively bulky, its stability is sometimes limited, it has a high incidence of complications at the plugs. Finally, open reduction and osteosynthesis of comminuted fractures of the lower extremity of the femur may require a long procedure and present anatomical and functional results that are far from satisfactory[7-9].

In addition, supracondylar nailing has many biological and mechanical advantages for the polytraumatised. Finally, in Type C fractures, particularly with the joint surface, nailing is often possible after epiphyseal reconstruction and alignment in the frontal plane is more easily achieved than with plaque[10].

Very low transcondylar fractures (the last 2 or 3 cm of the distal end of the femur) are not accessible to retrograde nailing. In these cases, open reduction with direct fixation of the fracture focus is required. In young people, this type of fracture is often associated with fracture dislocation of the knee[11,12].

Supracondylar centro-medullary nailing is often considered in obese patients who are difficult to

operate on an orthopedic table. On the other hand, it is completely excluded when the distal intramedullary space is already occupied by an implant (long-tailed hip prosthesis or knee prosthesis closing the intercondylar notch.) Supracondylar centro-medullary nailing can not solve the problem of a supracondylar pseudarthrosis[6].

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Supracondylar nailing resulted in few complications. The most common problem is the protrusion of too long screws at the distal end of the femur. The distal femur is indeed trapezoidal: its posterior part is wider than its anterior part. The correct length of the screws must be checked intra-operatively using the image intensifier at an oblique angle. Aggressive and painful screws can be removed or replaced as an outpatient. Other complications encountered include nonunion, infection, nail rupture, screw fracture. To remove a broken screw, first remove the head from the screw, then insert a 4 mm pin with its foam end along its axis. A few strokes of mallets are applied to advance the distal portion of the screw on the opposite side[13].

The occurrence of an infection is a serious complication. An early infection can be treated by knee joint lavage and adapted antibiotic therapy by holding the nail in place. The occurrence of an infection after fracture consolidation is treated by removal of the nail and articular irrigation of the knee[14].

The rate of complications after supracondylar nailing remains low, however, especially given the level of difficulty of its fractures. At the same time, "arthrolysis" can be achieved by release of adhesion and joint cleaning[15].

CONCLUSION

Bilateral supracondylar fractures remain very rare and constitute a therapeutic challengefor the orthopedist. Retrograde centromedular nailing proves to be the surgical treatment of choice, subject to a perfect mastery of the technique allowing a fast and efficient intervention in one single time, allowing early re-education and return to autonomy.

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