



EASY AND LOW COST TECHNIQUE FOR REMOVAL OF BROKEN INTRAMEDULLARY NAIL: A CASE REPORT

Ali Cagri Tekin, Murat Cakar*, Selçuk Saygılı, Mehmet Kurşad Bayraktar, Mujdat Adaş,
Yusuf Ozcan

Okmeydanı Education and Research Hospital, Orthopaedics and Traumatology Clinic, Istanbul.

Corresponding Author:- **Murat Cakar**
E-mail: drmuratcakar@gmail.com

<p>Article Info <i>Received 09/03/2015</i> <i>Revised 17/03/2015</i> <i>Accepted 12/04/2015</i></p> <p>Key words: Broken femoral nail, Intramedullary nailing, Femur fracture.</p>	<p>ABSTRACT</p> <p>Revision is required for broken intramedullary nails. Removal of the broken nail especially the distal fragment is technically difficult and time-consuming to make revision. The patient had a subtrochanteric femur and tibia fracture in a traffic accident five years ago. He was treated with intramedullary nail. He is 61 years old. He has broken the nail in subtrochanteric region after a fall. Broken parts have been removed by conventional intramedullary nail application kit and fracture is nailed again using a larger reamer. We can easily and economically remove broken parts of the nail with this method without the need an extra special set and an osteotomy.</p>
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INTRODUCTION

Intramedullary nailing is the preferred treatment method for subtrochanteric and shaft fractures of the femur. Nail breaking after a trauma is a rare complication of long bone fracture treatment with intramedullary nail. In the literature so many techniques are defined for the solution of this complication [1-3].

We report a patient who is treated with intramedullary nail for subtrochanteric femur fracture five years ago. The patient had a femoral nonunion and nail breakage with distal screws after a trauma.

CASE

The patient had a subtrochanteric femur and tibia fracture in a traffic accident five years ago. He is treated with intramedullary nail. He is 61 years old. He has pain on his left thigh and pathological movement in fracture site. He couldn't weight bear. There is no vascular and neurological deficit in his clinic examination. In the radiologic examination; distal locking screws and the femoral nail in the fracture site are broken (Figure 1). The

operation is planned. Only nail extraction set and large femoral reamers are prepared.

Surgery technique

The patient positioned in lateral decubitus position. Previous incision was used for extracting end cap and proximal part of the nail. The guide wire was turned down and inserted antegradely in to the distal part of the broken nail under fluoroscopy control. Guide wire removed from the knee joint while knee flexed at 30°. Mini incision was made where guide wire pulled out. The hole of guide wire at intercondylar notch was enlarged by a cannulated awl (Figure 2). Guide wire pulled out and the end with olive was bended 90° (Figure 2). After that guide inserted from the knee retrogradely. The guide pulled out from the proximal incision with distal broken nail without any osteotomy (Figure 3). One of the broken screw was taken from medial incision. The second intramedullary broken screw was taken by curette after hole expanded with drill. The nail extracted was 11mmx36cm in size.



Medulla was measured 15 mm before the surgery. Femur reamed with 15,5 mm reamer and 15mmx36cm femoral nail inserted antegradely (Figure 4). Proximal and

distal screws locked statically. There was no complication after surgery.

Fig 1. X-ray before surgery



Fig 2. Hole of guide wire at intercondylar notch was enlarged, the end with olive was bended 90°

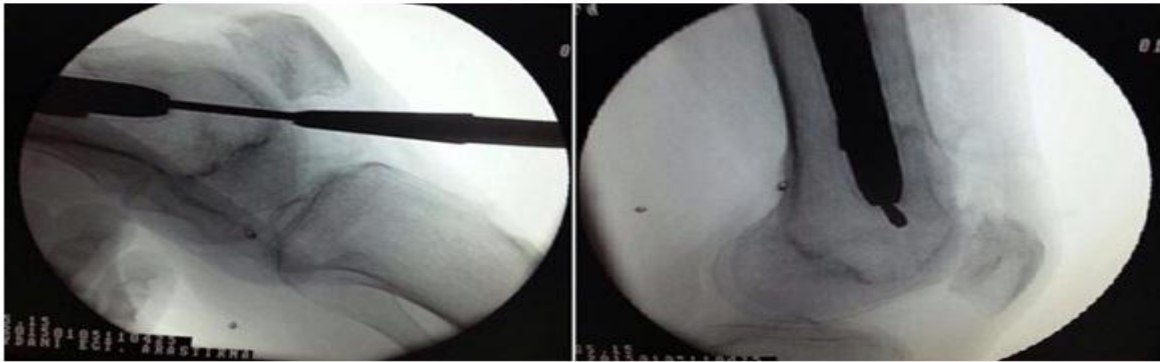


Fig 3. Guide pulled out from the proximal incision with distal broken nail

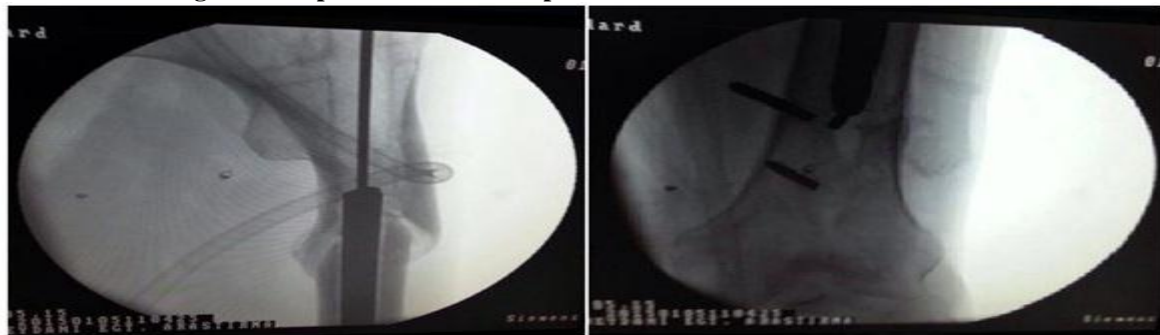


Fig 4. X-ray after surgery



DISCUSSION AND CONCLUSION

Nonunion, shortness, infection and rotational problems are seen frequently in treatment of femoral shaft fractures. Breakage of the nail generally caused by nonunion and new trauma [4, 5]. The strength of the nail is proportional to the thickness. Bending strength resistance in 11 mm diameter nail is %110 more than 9 mm diameter nail [6]. The reduction of the metal resistance is rare cause of intramedullary nail breakage. If the nail is thin, the nail is broken [7].

Long hooks are produced for extraction of broken nails. Extraction the distal part of the broken nail with these hooks is suggested without opening the fracture site [8]. If the nail is stuck and cannot be removed, the osteotomy is an option which must be in mind [9].

In this case broken nail extracted and exchanged with bigger nail without opening fracture site and making osteotomy. We can extract broken nail by using the tool set of nailing and the guide wire, without an additional set of materials and applications

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