

An alternative reduction and fixation technique for the treatment of femoral neck fractures

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BACKGROUND

Anatomic reduction is mandatory for the treatment of femoral neck fractures. In the current literature, the Leadbetter technique is recommended to obtain closed reduction.¹ Since surgeons use their hands for reduction, the most difficult part of this manoeuvre is lateral traction. As surgeons usually are not strong enough to separate the femur from an impacted neck, we describe an alternative method to achieve the reduction using a reduction tool.

TECHNIQUE

While fluoroscopy and a reduction tool are needed for this method, a traction table is not required. The reduction tool must be threaded, thick enough and long enough to allow manipulation of the femur. We use a 8.5mm cannulated screw with a T-handle from a proximal femoral nailing set. As this screw is cannulated, it can be mounted in a T-shaped screwdriver (Fig 1).

The reduction tool is advanced through the fracture line under fluoroscopic anteroposterior and lateral x-ray guidance. Following lateral traction of the femur using the reduction tool, the impacted femur is separated from the neck. The femur is rotated internally (Fig 2; Video 1 – available online) and the reduction is checked on fluoroscopy. When the reduction is obtained, the screw is sent through the neck and additional K-wires are used to maintain the reduction. Ultimate fixation of the fracture is performed in a routine manner, according to the surgeon's preference (Fig 3).



Figure 1 A proximal screw and screwdriver from a proximal femoral nailing set can be used to manipulate the femur.

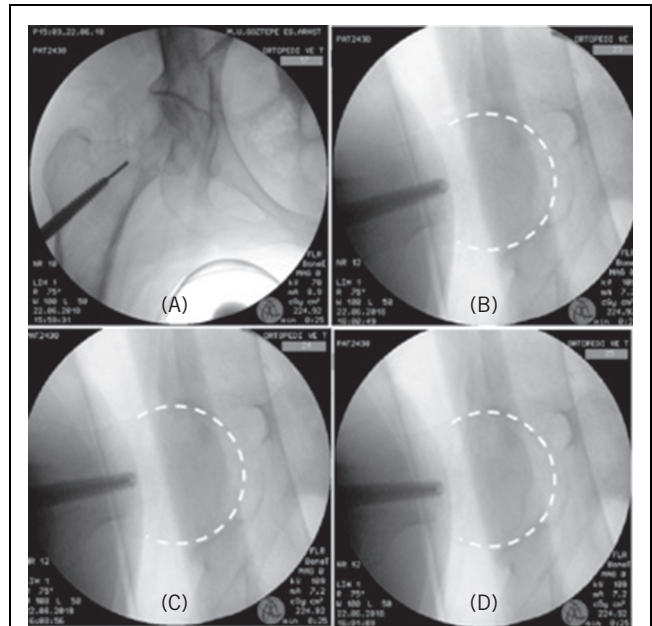


Figure 2 Fluoroscopy during reduction: The femoral head generally falls to the posteroinferior part of the femur after a neck fracture. Under anteroposterior and lateral x-ray guidance, the reduction tool is advanced from the lateral femoral cortex to the fracture line (A). Lateral traction is applied to separate the femur from the head and the femur is then gradually rotated internally (B–D).



Figure 3 After the reduction is obtained, ultimate fixation of the femoral neck fracture is maintained using the surgeon's preferred method. Anteroposterior pelvis radiography during the early postoperative period shows that the reduction is secured with three cannulated screws.

DISCUSSION

Following an intracapsular femoral neck fracture, the femoral neck is generally displaced posteroinferiorly. The technique described here is helpful for separating the femur from the impacted neck and manipulating it easily.

Reference

1. Leadbetter GW. Closed reduction of fractures of the neck of the femur. *J Bone Joint Surg* 1938; **20**: 108–113.