Revising Femoral Mal-rotation Post Nailing – Technical Tips

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INTRODUCTION:

Femoral mal-rotation post nailing is not uncommon. High index of suspicion is needed to detect it, with proper planning to correctly revise the mal-rotation. We share technical tips with a case report.

MATERIALS & METHODS:

A 25 years old gentleman, who had right femoral diaphyseal segmental fracture post nailing 1 month, came to outpatient clinic. On sitting, his right leg deviated outwards. Clinically his hip arc of motion skewed towards internal rotation, with symmetrical rotational range of motion bilateral hips, suggesting right femoral mal-internal rotational deformity. X-ray demonstrated reduced femoral shaft on a nail, with good coronal and sagittal alignment. With clinical diagnosis of mal-rotation, we decided for intraop fluoroscopic assessment and revision of the nailing if with significant mal-rotation.

RESULTS:

During surgery, traction table was applied. C-arm was applied over proximal and distal femur to obtain a perfect neck axis and lateral knee view respectively. The difference of C-arm angle represents femoral version, in this case, it was 50 degree anteversion and not acceptable. A shanz pin was applied parallel to perfect lateral knee axis as a guide/joystick to assist rotational reduction. Entry point was revisited and nail-jig was re-attached to gain control of either segment. Distal interlocking screws were removed to free distal femoral segment, allowing rotation of jig/joystick to restore rotational alignment. Restoration of 15 degree femoral version was confirmed with C-arm prior to distal screws re-insertion with full moon technique.

DISCUSSIONS:

Mal-rotation post femoral nailing is not uncommon. Proper evaluation immediate post-op is frequently impossible due to post-op pain. A standard clinical technique allows early intervention. Fluoroscopic technique is an effective, simple and accurate technique to check femoral rotation intra-operatively.

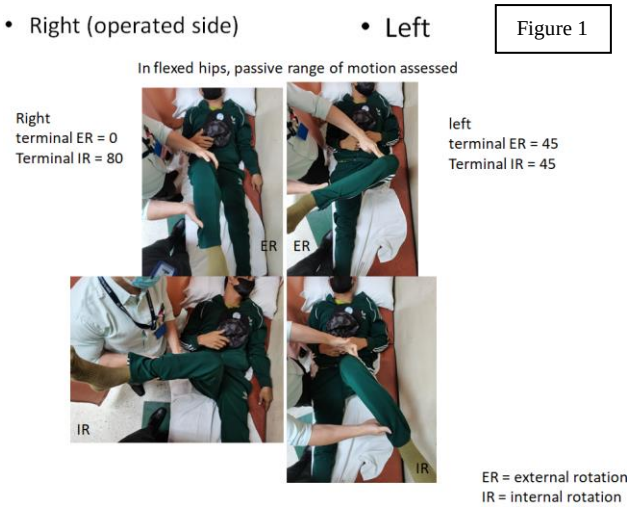

Figure 1

Figure 1: Clinical evaluation of hip arc of motion skewed towards internal rotation, with preservation of total arc of motion.

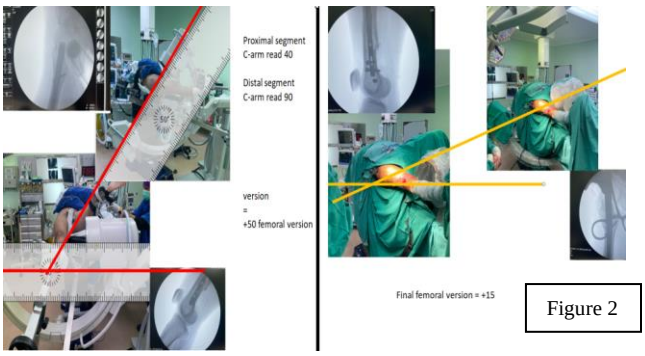

Figure 2

Figure 2: Left (red line) demonstrated femoral version of 50 degree on traction table, right (yellow line) reduction of femoral version to physiological value.

REFERENCES:

1. Karaman O et al. Rotational malalignment after closed intramedullary nailing of femoral shaft fractures and its influence on daily life. Eur J Orthop Surg Traumatol 2014;24:1243–7.