

Catastrophic events in Intramedullary Nailing Femur

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INTRODUCTION:

Intramedullary nailing (IMN) has become the gold standard treatment of adult femoral shaft fracture. Complications such as incarcerated reamer and malrotation can occur.

REPORT:

21-year-old man involved in an accident sustained closed transverse fracture distal third right femur. Intraoperatively during IMN, reamer catastrophically incarcerated over isthmus. Partial corticotomy was performed under image intensifier (II) guidance for extraction and was successful. IMN was exhaustively done.

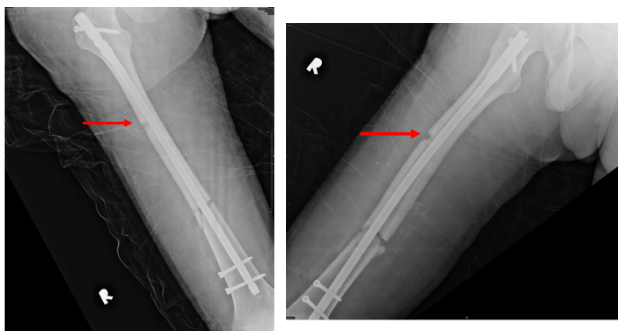


Figure1 : Partial corticotomy site (Arrow).

Unfortunately, patient's operated limb was 50° externally rotated postoperatively. Malrotation was corrected and revision done. Jig locked to the nail and distal screws removed. 5mm schanz pin inserted over supracondylar femur to control distal fragment rotation.



Figure2 : Jig and schanz pin to control rotation.

Rotational profile and alignment assessed using II along the lesser trochanter profile proximally and patella over middle of the knee distally. Prior to final locking, reevaluation via cable method and cortical step sign done. There is no

clinical malrotation postoperatively, x-ray was satisfactory, and patient discharged well.



Figure3 : Malrotation corrected.

DISCUSSION:

Femoral nailing is a challenging procedure. Incarcerated reamer can be caused by overuse or poor quality of the instrument, technical deficiencies, and debris accumulation in the isthmus¹. Extraction techniques include using olivary tip guidewire, gentle thrust with wire holder, medullary decompression with unicortical osteotomy adjacent to reamer, retrograde removal from fracture site, hold and extract with forceps or jumbo cutters. Rotational malalignment <10° is acceptable whereas >30° requires correction². Malrotation can be caused by certain fracture pattern(transverse or comminuted), bilateral femur shaft fracture or incorrect rotational profile assessment². Chronic malrotation can lead to patellofemoral joint symptoms, hip, knee and ankle osteoarthritis. Acute malrotation commonly addressed by changing of distal screws while chronic malrotation requires circumferential osteotomy and femoral derotation.

CONCLUSION:

Incarcerated reamer and malrotation in IMN are devastating and must be treated promptly to prevent further complications.

REFERENCES:

1. Kazemi *et al.*(2021) Reamer breakage during intramedullary nailing in tibial shaft fractures.
2. Branca *et al.*(2020) Rotational malalignment in femoral nailing: Prevention, diagnosis and surgical correction.