

Bent Nail An Inexpensive Technique For Removal: Case Report

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ABSTRACT:

Removal of bent nail in femur fracture where intramedullary nail placed to secure a femoral shaft fracture four months was deformed after surgery because of secondary trauma. The nail was straightened by sectioning through half of its diameter with a drill bit for metal under minimal soft tissue dissection, then removed and replaced with another nail. The femur subsequently healed without complications.

INTRODUCTION:

Intramedullary nailing system was introduced by rush brothers in 1927 which has four types:unlocked nail,interlocking nail,reamed nail and unreamed nail.Gerhard kuntschner introduce femoral nail in 1939 which is called 'K' nail.

Consecutive advancements of nails over the year can be grouped under three generations.First generation:primarily act as splints,rotation stability is minimal example K nail,V nail.Second generation:improved rotational stability due to locking screw example russel taylor nail.Third generation nails with various designs to fit anatomically to aid the insertion and stability example nails with multiple curves and multiple fixation systems.

CASE REPORT:

Case history:

This is a case report of 16 years old malay boy no known co morbid alleged motorvehicle accident on the 28th July 2016 (Motobike vs Car) direct hit the car and sustained:

1)Closed transverse fracture midshaft of left femur

2)Closed refracture right femur with bent nail

3)Closed refracture distal 1/3rd of right radius

He had history of motorvehicle accident on 29th April 2016 and sustained:

1)Open fracture right distal 1/3 radius with DRUJ distraption -wound debridment + T butress plating of right radius and K-wire over DRUJ done.

2)Closed comminuted fracture midshaft of right femur - Interlocking nail of right femur done.

DISCUSSION:

Breakage of the intramedullary nails mostly occurs in nonunion, comminuted or unstable fractures, or fixation of osteotomies and pathological fractures because of metal fatigue and/or thin nails.⁵ Bending of nails is common in secondary traumas and removal of these bent nails is more difficult than that of broken nails. Bending is usually seen late after fracture healing. One reason for this may be that it is uncommon for patients with recently nailed fractures of long bone to sustain another high-energy injury to the same extremity because the original injury usually prevents them from engaging in such activity.

It is not always easy to remove the bent nail by standard technique. The removal procedure also depends upon the angulation of deformity of the nail, as well as stiffness of the nail. When a bent nail is pulled out of the canal it changes shape according to the canal. This change of shape is inversely proportional to the stiffness of the nail. The severer the deformity is, the more difficult the removal will be. Similarly a stiffer nail is more difficult to remove. In our case it was a titanium nail and moreover there was a large deformity of 90° in both AP and lateral views of X-rays.

In Conclusion, Bent femoral nails should always be removed. But the removal process can be much easier after total cut of the nail at bent /fracture site by using a metal drill bit. This technique can be used to remove severely angulated and stiff nail. It is quite safe and has advantages in terms of chances of secondary fracture, injuries to surrounding soft tissues and surgical time. Moreover, this method does not require any special instruments and can be used anywhere in similar cases.



Figure 1: Xray post trauma with bent nail



Figure 2: Deformed right thigh post