

Femoral Neck Fracture Fixation with Cancellous Screws in A Post Operative Case of Interlock Nailing Done For Fracture Shaft of Femur: By Mis-A-Nail Technique

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Abstract

Case: A 23 year old female with 9 months of pregnancy sustained a injury on right thigh following a motor vehicle collision. Clinical examination demonstrated pain, swelling and deformity over the right thigh. X-ray was done and diagnosed as femoral shaft fracture right side. As patient was near date of delivery, decision was taken to do a caeserian section and was done immediately without delay. After 7 days of caeserian section interlock nailing was done for fracture femur. Probably, an undisplaced neck femur fracture was missed at that time which get displaced as patient gradually started weight bearing after 1 month of nail insertion. Later on neck femur fracture was fixed with "MISS-A-NAIL technique".

Conclusion: Here we present the miss-a-nail technique that has shown good long term results in young active individuals. Rather than going for other techniques of fixation, cancellous screw fixation in a young patient with ipsilateral interlock nail in situ shows good long term results.

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I. Introduction

Antigrade interlock femoral nailing is the most common and gold standard surgical procedure done in isolated fracture shaft of femur¹. Neck of femur fractures are a uncommon entity in young patients, unless there is any comorbidity associated or if associated with high energy trauma. From the previous data's it is found that around 19% associated undisplaced neck femur fractures are missed with shaft femur fracture. Treatment of femoral neck fractures are often performed with open or closed reduction with cannulated or non-cannulated screw fixation in most of the cases in a young adult patient². The options available in our case will be :

1. Removal of the nail followed by renailing with a proximal femoral nail.
2. Cancellous screw fixation by by the MIS-A-NAIL technique. (in our case)

With an antegrade femoral nail in situ, it complicates the neck of femur fixation.

II. Case Presentation :

Here, we are going to report a case of fracture neck of femur (right side) in a 23 year old female patient in puerperium. Patient sustained a motor vehicle collision injury following which she was diagnosed with shaft femur fracture right side. Decision regarding the caeserian section was taken by the gynaecologist and was done immediately without delay. After 7 days shaft femur was fixed by interlock nailing. Probably an undisplaced neck femur fracture was missed during that period. patient was advised non weight bearing for 1 month post operatively. Afte 1 month when patient gradually started weight bearing ,probably the fracture get displaced and patient complained of pain and unable to bear weight. An x-ray was done immediately and diagnosed with a displaced fracture neck of femur right side.



Fig 1: AP view x-ray showing neck femur fracture right side with interlock femoral nail in situ



Fig 2: fracture site with distal locking screws in situ (AP & lateral)

Close reduction with cancellous screw fixation was planned by miss-a-nail technique³. patient was placed in supine position in fracture table with traction on the affected limb. Closed reduction by leadbetter technique done. A 2.0mm threaded guide wire is inserted at inverted triangle fashion, placing two anterior (anteroinferior & anterosuperior) and one posterior to the previous femoral nail. A 7.0mm stainless steel cannulated screw is inserted at the path of the guide wire after drilling with a 4.5 mm cannulated drill bit. We found that during insertion of the 2.0mm threaded guide wire, the guide wire hit either the path of the nail or proximal locking screws due to the limited spaces available.

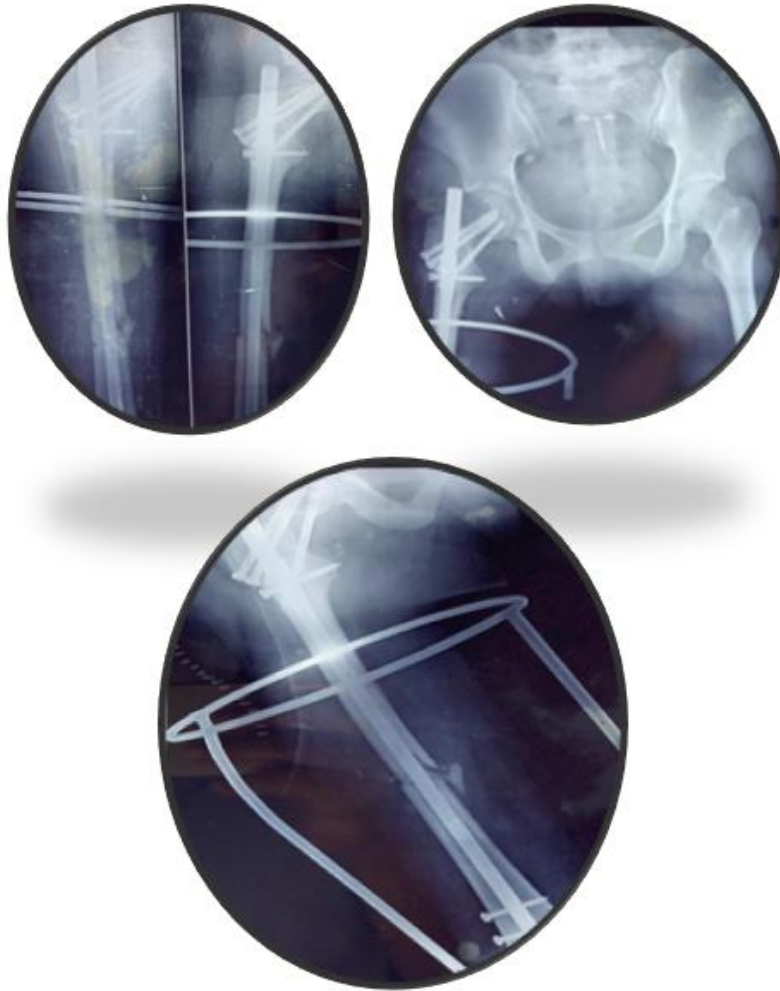


Fig 3: immediate post operative xray following CCS fixation

Patient was advised non weight bearing for one and half months following which she was advised partial weight bearing for one month and then started weight bearing without support 3 months after surgery. follow up xrays are shown in figure.

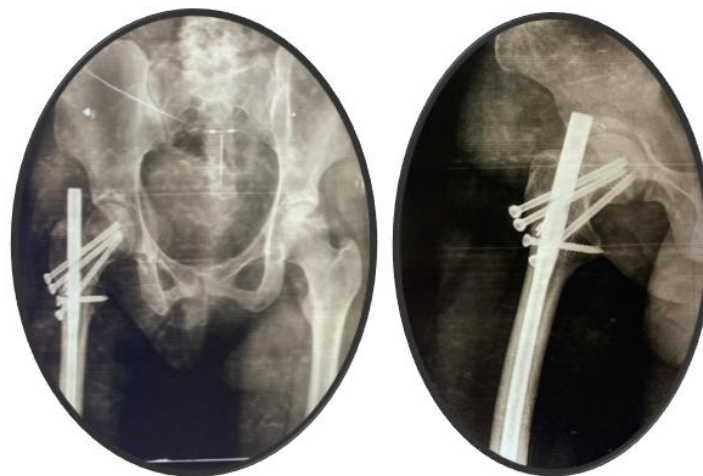


Fig 4: at 2 month follow up



Fig 5: at 6 months follow up



Fig 6: at 1 year follow up



Fig 7:lateral view after 2 years follow up



Fig 8: AP view after 2 years follow up



Fig 9: 2years follow up xray



Fig 10: showing hip range of movements at 2years follow up

The range of movement of the hip after 2 years of surgery is found to be near normal as shown in the fig. patient can sit cross legged, squat ,hip flexion upto 120 degree,extention upto 15degree, abduction upto 35 degree and adduction upto 25 degree ,internal rotation upto 15 degree,and external rotation upto 30 degree without pain and spasm.

III. Discussion

With an antegrade femoral nail in situ, it complicates the neck of femur fixation in this patient. One option includes removing the previous implant prior to inserting the screws for the neck of femur fractures. However, removal of the implant may cause iatrogenic fractures. Any attempt to remove the previous implant with invasive maneuvers risks further displacement of the neck of femur fracture and increases the risk of avascular necrosis of the femoral head². Miss-A-Nail technique can be performed for femoral neck screw fixation with the femoral nail in situ which can be a less invasive surgery with less time consuming and lower cost as compared to proximal femoral nail (as the patient is already went for surgery twice in last months).

IV. Conclusion :

From the following case we can conclude that the mis-a-nail technique is a much easier ,less invasive and less expensive procedure for this patient with less post operative morbidity and good 2 years outcome in terms of range of motion and patients satisfaction as compared to removing the nail and to do a proximal femoral nailing .

On 2 years follow up xray, we have found some radiodense lesion in head of the femur in weight bearing zone probably a new avascular necrosis has set in. Our following plan will be to remove the implant and do an MRI of bilateral hip for the search of AVN of right hip.

References :

- [1]. Yang KH, Choi YW, Won JH, Yoo JH. Subcapital femoral neck fracture after removal of Gamma/Proximal Femoral nails: report of two cases.
- [2]. Kow RY, Abdul-Aziz A, Low CL. Miss-A-Nail Technique for Neck of Femur Screw Fixation: It Is Easier Said Than Done. *Malaysian Orthopaedic Journal*. 2020 Mar;14(1):96.
- [3]. Kow RY, Abdul-Aziz A, Low CL. Miss-A-Nail Technique for Neck of Femur Screw Fixation: It Is Easier Said Than Done. *Malaysian Orthopaedic Journal*. 2020 Mar;14(1):96.

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