

Tensor Fascia Latae muscle Pedicle Bone Grafting for a Neglected Fracture Neck of Femur using Fiber Wire Suture, A Case Report

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Abstract: *Neglected fracture neck femur have been considered a challenging problem to treat, more so in young patients where head salvage procedures are essential. Head salvage procedures like valgus osteotomy, non-vascularised bone grafting, muscle pedicle bone grafting and vascularised bone grafting have been mentioned in the literature. To the best of our knowledge very few cases have been treated using tensor fascia latae muscle pedicle graft augmentation to cannulated cancellous screws. We hereby document a neglected fracture neck femur case successfully treated by tensor fascia latae muscle pedicle grafting.*

Keywords: Neck femur fracture, Tensor fascia latae

1. Introduction

“Vascular emergency” is the term used by many authors for intracapsular fractures of neck femur¹. But in developing countries like India many patients present late to hospitals. If osteosynthesis is planned, the golden period to operate is within 6 hours of the fracture but controversy still exists for this. Some studies shows no significant difference in union rates of such fractures with delay in the treatment. A neck femur fracture is considered neglected if the patient present a month later to the time of occurrence of the fracture.²

So a neglected neck femur fracture in young adult where femoral head salvage is attempted is one of the most challenging treatment¹.

Multiple treatment options are given in the literature for neglected fracture neck femur in young patients (age<60yrs) which includes Open reduction internal fixation alone, valgus osteotomy, osteotomy with closed or open reduction with or without fibular bone grafting, vascularised muscle pedicle bone grafting, even hip replacements in age>40yrs¹.

2. Case Vignette

In February 2014, a 21yrs old female presented to us with pain in the left hip since 1 month following history of self-fall. Patient was bedridden since 1 month of presenting to us. Patient's plain radiographs showed fracture neck of left femur with sclerosed margins and mildly resorbed neck of femur. Preoperative CT scan was done showing a partially displaced transcervical fracture neck of femur. MR scan showed no evidence of avascular necrosis, no irregularity or flattening of femoral head. High intensity shadows on T2 weighted images over the femoral head were visible suggestive of non-viable marrow. As the patient was 21yrs old and no AVN features were there so a head salvage procedure was planned.

Patient was planned for open reduction and internal fixation with 6.5mm cannulated cancellous screws and was augmented with tensor fascia latae muscle pedicle graft. In

supine position, smith Peterson approach was taken and the fracture site was approached after giving a T-shaped incision over the capsule. Freshening of the fracture site bone edges was done. Fracture was reduced and through another lateral incision over the greater trochanter, three 6.5mm cannulated cancellous screws were put to fix the fracture.

The tensor fascia latae origin from iliac crest was identified and using saw the graft was removed. Using small k-wire two drill holes in the centre of the graft were made. Through the drill holes in the graft the fibre wires were passed and after impacting the graft in the fracture site, bites were taken through the capsule and knots were applied to fix the muscle pedicle graft and sutured it to the capsule. Adequate coverage of the neck by the capsule was ensured.

Patient was mobilised non weight bearing with a walker for 6 months.

Regular x-rays were taken and patient was regularly followed up. At the end of 6 months patient was pain free and on plain radiographs fracture union was noted.

Further confirmation of union was done by CT scan, done 9 months after surgery.

3. Case Photos



Figure 1: plain radiograph showing neglected fracture neck femur



Figure 2,3,4: pre operative CT scan



Figure 5: Pre op MRI

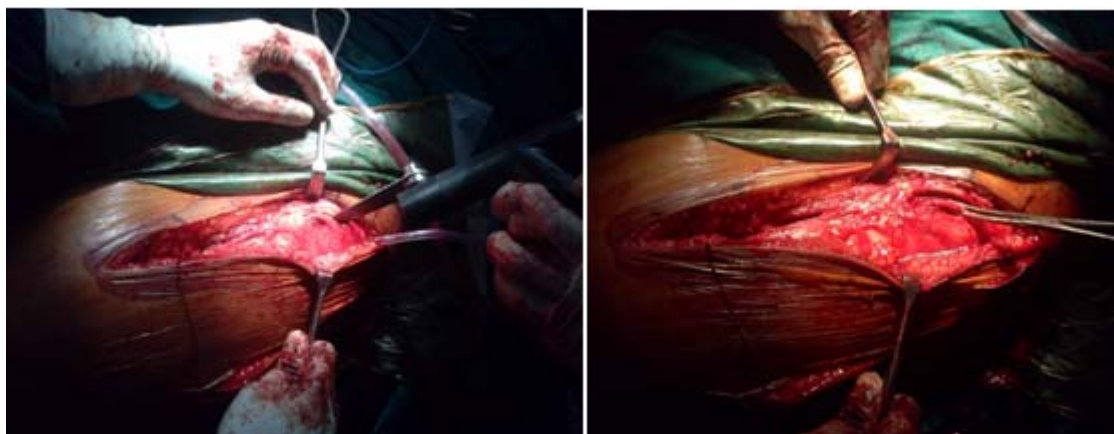


Figure 6: Tensor fascia latae graft harvesting



Figure 7: post op radiographs

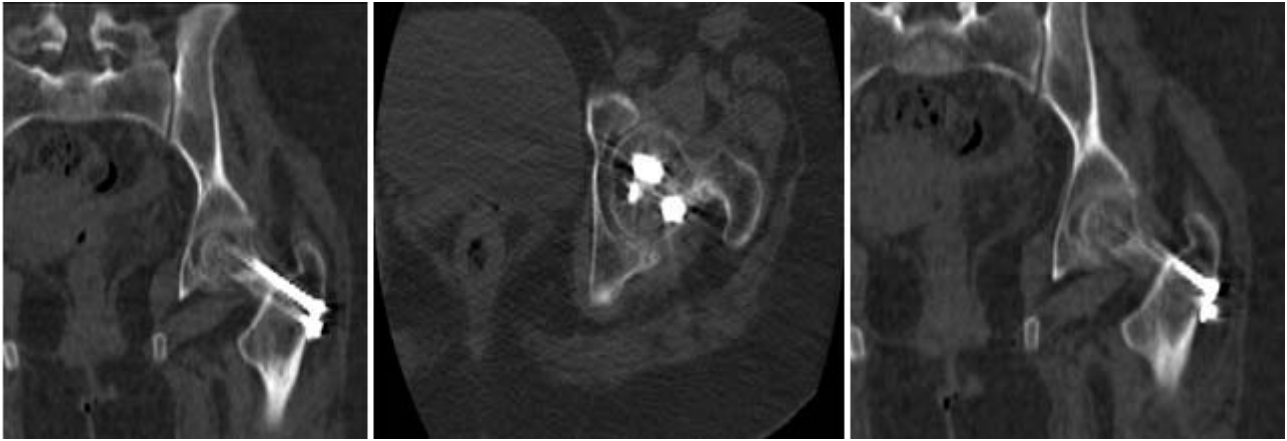


Figure 8: 9 months follow up CT scan

4. Discussion

It's a challenging problem to treat neglected neck femur fractures in young patients. More so because of additional high susceptibility of avascular necrosis of femoral head³. Salvaging the femoral head in younger patients is most important as hemiarthroplasty or THR cannot be done in young patients due to concern about revisions. Other treatment option includes valgus osteotomy⁴ whereas forces are converted into compression forces, non-vascularised bone grafting⁵, muscle pedicle bone grafting⁶ and vascularised bone grafting⁷.

Vascularised bone grafting on a musclepedicle such as gluteus medius, quadratus femoris, or sartorius is an established method of treatment^{6,8}. In our study we used a tensor fascia latae muscle pedicle graft with intact periosteum and sutured it to the capsule anteriorly.

Regular radiographs post operatively suggested union which was confirmed after 8 months with a CT scan.

5. Conclusion

Muscle pedicle grafting has been described in the literature for neglected fracture neck of femur. We found our method of using tensor fascia latae muscle pedicle grafting with the use of fibre wires to fix it to the capsule an easier and effective method for neglected fracture neck femur.

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