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CASE REPORT

NEGLECTED FRACTURE NECK OF FEMUR OPERATED WITH NON VASCULARISED FIBULAR GRAFT

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ABSTRACT: Neglected fracture neck of femur is a common presentation in developing countries like India. We report a case of 58years old male patient which was successfully managed at our institute. Treatment options vary from arthroplasty and osteotomy (with or without graft) to osteosynthesis using various implants and grafting techniques (muscle pedicle, vascularized, and non-vascularised fibular graft). We performed a non vascularised fibular graft with cancellous screw fixation. Patient had a satisfactory bony union without any avascular changes. We emphasize that Non vascularised fibular graft is a treatment option for surgical management of fracture neck of femur.
KEYWORDS: Fracture neck of femur, Non-vascularised fibular graft, cancellous screw.

INTRODUCTION: Hip fracture is the most common serious injury in the elderly population and the most common reason for admission to an orthopaedic ward. Delay in the treatment is associated with avascular necrosis of femoral head. Various methods of treatment options are available, but none of them give uniformly good results.[1] In younger age groups less than 60 years osteosynthesis is indicated. Various types of osteosynthesis options available are valgus osteotomy, free or vascularised fibular graft,[2] quadratus femoris muscle pedicle graft,[3] combined osteotomy with fibular graft[2] and Non vascularised cortical autografts. Non vascularised cortical autografts have been used for reconstruction of skeletal defects of long bones since long. The grafts are usually removed from fibula, iliac crest or tibia. Less donor site morbidity associated with removal of fibular graft has popularized its use. Taylor, Miller and Ham, in 1975,[4] were the first to use free vascularized bone graft in tibial defect. Literature[2,5] supports osteosynthesis using non vascularised fibular strut graft in both fresh and old femoral neck fracture. We report a case of neglected fracture neck of femur in 58-year old male patient operated with non vascularised fibular graft.

CASE REPORT: A 58 year old male patient met with a high velocity Road traffic accident. Patient had pain in the left hip which he neglected and did not pay adequate medical attention to for about 2 months because of his financial constraints and then came to our institute with complaints of persistent pain, decreased range of motion at the hip joint and restriction of his daily routine activities.

We took a plain pelvic radiograph which revealed old fracture neck of femur. There were no avascular necrosis changes so patient was planned for Non-vascularised free fibular strut graft. In most of the patients with late presentation neck is absorbed which was not the case in our patient. After separating the deep fascia and splitting the vastus lateralis, the base of the trochanter and upper shaft of femur were exposed. The fracture edges were freshened till bleeding and multiple drill holes were made in the femoral head to ensure thorough decompression of the avascular bone. Cortical bone graft harvested from fibula was used to reconstruct the neck length and 6.5mm cannulated

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cancellous screws were inserted parallel to the graft. Final position of screw and graft were checked under image intensifier both in AP and Lateral views and confirmed in central position of head and neck of femur. Wound was closed in layers.

Patient was encouraged to start active quadriceps exercises of hip and knee joints. Non weight bearing ambulation by walker was started by 12th post-operative day. Partial weight bearing was allowed gradually depending on the status of union which assessed radiologically by serial radiographs. Fracture gap started disappearing gradually and clinically patient did not complain of any pain while weight bearing. Full weight bearing was allowed only after full osseous union at 4 months Patient was clinico- radiographically followed up. On clinical examination range of hip movements, pain on weight bearing, limp and leg length discrepancy were assessed. The follow up was for 2.5 yrs

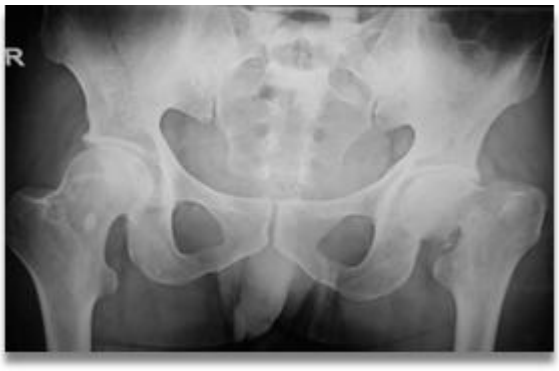

Fig. 1: Pre-operative

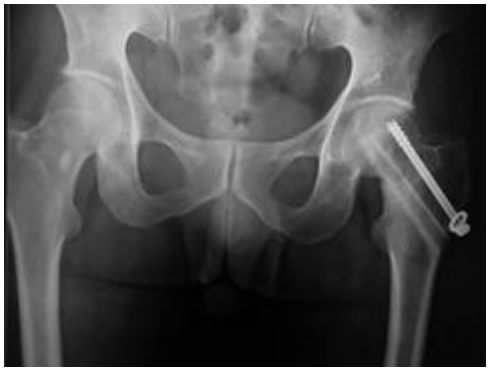

Fig. 2: Post- operative after 1 year

Fig. 3: clinical photograph after 2.5 year of follow up with normal range of movements.

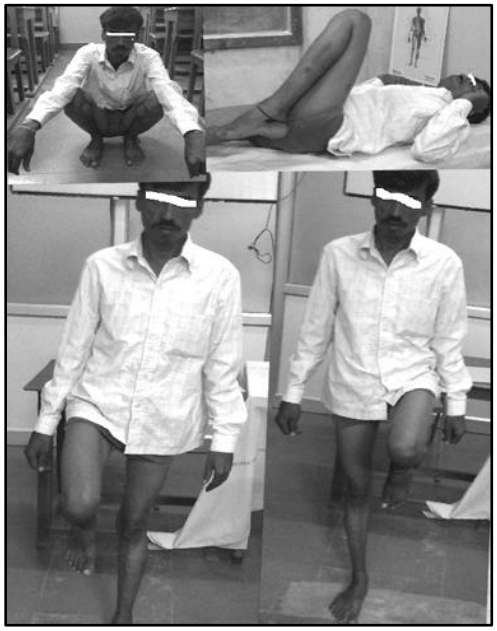

Fig. 3

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At the end of 2.5 year follow up the result were analyzed according to modified Harris hip scoring system and they were found to be excellent.

DISCUSSION: Treatment of un united femoral neck of fracture is a challenging to treating surgeon. Conservative treatment remained the method of choice until 1931, when Smith-Peterson et al,[6] introduced the triflanged nail. King[7] pioneered the use of fibular strut in combination with Smith-Peterson nail in cases of fractures of the neck of the femur. Several osteotomies have been described for old femoral neck fractures by Mc Murray's,[8] Blount,[9] Dickson[10] and Stewart et al.[11] They concluded that realignment osteotomies gives most predictable result in young patients even in the presence of small areas of necrosis by modifying the mechanical environment about the fracture site, i.e., by converting the shearing forces into compressive force.

Attempts at head salvage in the young are important. Bone grafting has emerged as a reliable method to treat these fractures with good functional outcomes in the long-term. A vascularized fibular graft may be superior to a conventional bone graft but it is technically difficult and occasionally impossible. Economy of time and equipment to microsurgical techniques, which still remains important consideration for an orthopaedic surgeon can't be overlooked. On the contrary, conventional bone grafting may not succeed where the recipient bed is not ideal. Patient age significantly influences the rate of fracture healing.

Infants have the most rapid rate of fracture healing. The rate of healing declines with increasing age up to skeletal maturity, but after completion of skeletal growth, the rate of fracture healing does not appear to decline significantly with increasing age, nor does the risk of non-unions significantly increase, one possible reason for the greater healing potential of children may be increased availability of cells that produce repair tissue: younger cells may differentiate more rapidly from the mesenchymal pool and the pool of the undifferentiated mesenchymal cells may larger in children.

In the current study we showed good results in a patient with neglected fracture neck femur with non-vascularized free fibular strut graft with cancellous screw fixation. In this regard we recommend non-vascularized free fibular grafting is an option for young patients.

CONCLUSION: Non-vascularized fibular graft is a simple procedure that is still useful to bridge bone defects, it takes longer duration to achieve union but if used in selected patients can yield good results.

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