



ORIGINAL RESEARCH PAPER

Orthopaedics

POLYTRAUMA ; OUR EXPERIENCES

KEY WORDS:

Dr Rajesh Tembhornikar*

professor orthopaedics,GMC Shahdol,MP *Corresponding Author

Dr.Pallavi Indurkar

Asstt.Professor,ENT,SS Medical college,Rewa,MP

ABSTRACT

Multiple injuries of the lower limb are common in high energy trauma and are commonly seen in road traffic accidents and in industrial accidents. Their incidence has seen an increase with time, concomitant with the increase in vehicular traffic and industrialization. These patients usually have a multisystem injury and require an individualized approach which should be prioritized, coordinated and comprehensive.

We present cases with rare triad of ipsilateral lower limb injury as result of high energy trauma. Some patient were cases of adult Male presented with a right sided intertrochanteric fracture, supracondylar fracture of femur with proximal tibial fracture with old operated fracture tibia lower 1/3 with plating done with maxillofacial injuries , which was then managed by dynamic hip screw, cobra plating for supracondylar fracture femur and hybrid fixation for proximal tibial fractures. Some patient had an intracapsular neck femur fracture, M/3 shaft femur fracture and fracture of lateral condyle Tibia in the Right lower limb with # mandible which was managed by closed Proximal Femoral Nail and Hybrid External fixator.

In followup,at 2 yrs, patients have returned to their previous occupations and have no restriction of movement at hip and knee. Floating knee injuries are routinely encountered in our practice; however, such combination is rarely seen.

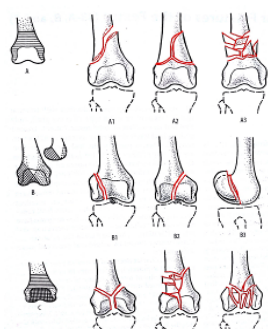


Fig 1: Muller's Classification

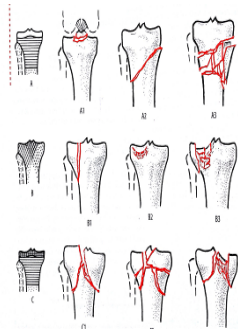


Fig 2: AO Classification of # of proximal tibia



Fig 3: X-ray showing floating knee



Fig 4: Patient1 postoperative scanogram showing 4 operations in ipsilateral lower limb.

INTRODUCTION :-

Combined injuries to the lower limb are always indicative of high energy injury and may be associated with life threatening condition. Various patterns of combined skeletal injuries have been reported. Ipsilateral diaphyseal fractures of femur & tibia have been called floating knee injuries but may include combination of diaphyseal, metaphyseal & intraarticular fractures. Early fixation and mobilization of the patient results in excellent outcome.

Stable fixation and early mobilization of hip & knee is the key to successful treatment. The surgical management of this constellation of injuries combining with Floating Knee is discussed in the light of the current principles of management of a multiple injured patient.

A 35 yr. old man following a RTA sustained ipsilateral injuries of tibia and femur Rt. side that includes Intertrochanteric, supracondylar fracture femur with proximal tibial fracture (all closed fractures) without distal neurovascular deficit.

On admission his Rt. lower limb was shortened and exhibited abduction & external rotation. He had marked swelling and pain around Rt Knee with haemarthrosis, which was aspirated. Plain radiograph revealed Rt intertrochanteric fracture, Rt supracondylar fracture femur (Type III B Muller) with Rt proximal tibial fracture with intraarticular extension (Schatzkar type III) with old operated fracture Rt tibia lower 1/3rd with plating done two years ago.

Three days after trauma, the patient was taken up for fixation, under Epidural anaesthesia, the patient lying in supine position in a simple operating table first fixation of supra condylar fracture of femur with cobra plating was done through lateral approach, then intercondylar fracture of tibia was stabilised with hybrid fixation (percutaneous intercondylar screw with external fixation under image control).Then fracture table attachment was fixed for fixation of intertrochanteric fracture with Dynamic hip screw. Patient stood all the surgeries well and only one unit blood was required intraoperatively. Later on in postoperative ward one more unit of blood was transfused. Duration of surgery was about 4 hrs. No peri or post operative complication was encountered. Post operatively after 48 hrs of wound drainage active quadriceps and knee mobilisation was encouraged. At the time of discharge, after removal of stitches and primary healing of the wound, pt. had attained approximately 60 degree of flexion at Rt Knee. Follow up of the patient was recorded at 1st, 3rd, 6th, 9th month, 1year and at 2 years. ROM at knee and hip were recorded and status of fracture union was evaluated radiologically. Partial weight bearing was allowed at 10 weeks after radiological signs of union were confirmed, at the same time, the external fixator at Rt tibia was removed leaving only the cancellous screw insitu. At 6 months ROM at knee was 80° and full range at hip, the pt being able to squat and sit cross legged. Radiologically union was progressing satisfactorily and hence full weight bearing was started and the patient advised to continue his regimen of strengthening and

mobilizing exercises. At one year he is fully independent with return to his previous duties and complete radiological union. At two year follow up the patient has no problem and is fully independent, in the meanwhile he also had the lower tibia plate removed elsewhere.



Fig 5: Patient Postop. clinical photograph



Fig 6: Patient Postop. clinical photograph

Another 31 yr old man suffered a RTA and sustained an intracapsular neck femur fracture, M/3 shaft femur fracture and fracture of lateral condyle Tibia in the Right lower limb. He also sustained a fracture of the 5th & 6th ribs on the Rt side. Pt was hemodynamically stable and strapping for his broken ribs was done immediately. After stabilization and anesthetists fitness the patient was taken for operation and a closed Proximal femoral Nailing was done to stabilize the neck and shaft fracture and hybrid external fixator was applied over the proximal tibia. Total time taken was 2 hrs with no intraop blood transfusion required.



Fig 7: Patient 2 clinical photo in follow up

Static quadriceps drill and knee mobilization was started from 1st post op day and were limited by the patients comfort. Non weight bearing walker frame mobilization was started from 3rd post op day and the patient was discharged after stitch removal and primary wound healing on the 10th post op day. At 3 months the patient had 90° ROM knee with near normal hip ROM. Radiological picture was suggestive of delayed union at the femoral shaft but decision to wait till next followup was made before intervention be planned. The external fixator frame was removed and patient allowed partial weight bearing.

At 6 months, radiological union was delayed at the distal femoral fracture hence percutaneous autologous bone marrow infiltration was done at the fracture site under IITV control, the procedure was repeated again after a gap of 3 weeks. At 9 months ROM knee was >100° and the distal femoral site showed signs of union, visible callus at the fracture site. There was a limb length discrepancy of around 1.5cm for which shoe raise was advised. At the end of 1year the patient is walking without support and has ROM at knee > 100° with full squatting and sitting cross legged. At two year followup the patient is fully independent with no restriction of movement at hip or knee. The xray revealed that the implant (PFN) had failed at the first distal locking side but with solid union at the fracture site. This was in all probably caused by the delayed union at the femoral diaphyseal fracture site.

DISCUSSION:-

Ipsilateral fracture of femur & tibia are serious injuries which are often associated with major injuries to head, chest, viscera and

musculoskeletal system and maxillofacial injuries. Various studies have been done with fracture of the ipsilateral limb advocate immediate stabilization of tibia by external / internal means within two weeks have reported excellent results¹.

A study of ipsilateral fractures of femur & tibia concluded that atleast one fracture, preferably femur, be stabilized by internal fixation² & in another study suggested that rigid internal fixation seems to be more appropriate in fractures other than type III compound fractures³. Ipsilateral fractures of femur & tibia are commonly seen with road traffic accident especially in unprotected two wheeler rider

Internal fixation of both fractures is ideal for early mobilization of both patient and joint, being subcutaneous bone hybrid fixation using a subchondral cancellous screw supported by an external fixation of tibia is an acceptable treatment for proximal tibial fractures. Combined treatment with internal & external fixation can produce good results with early mobilization of knee & hip being one of the key factors for successful outcome.

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