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Research Paper

FUNCTIONAL OUTCOME OF LOCKING COMPRESSION PLATING FOR PROXIMAL TIBIA FRACTURES

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KEYWORDS

INTRODUCTION

Tibia plateau fractures are mainly caused by high energy mechanisms such as motor vehicle accidents, sports injuries, fall from height.
Post traumatic or secondary osteoarthritis usually develops after fracture of the tibial plateau as a result of the alteration of the osseous anatomy leading to altered knee mechanics and loss of cartilage and bone[1].

Treatment option of these fractures include osteosynthesis with a cannulated cancellous screw with or without a bone graft, plate and screw fixation with a locking or non locking plate and external or illizarov fixator[4].

Plates are placed firmly against the cortex, periosteal blood supply gets hampered, which may lead to necrosis of underlying bone[5].

To overcome this drawback, limited contact and point contact plates were developed to preserve the periosteal blood supply[6].

The use of locking plates have been clearly demonstrated for comminuted intra-articular fractures, short segment periarticular fractures and fractures in osteoporotic bone, where they were proved to be superior to that of conventional plates.

MATERIAL AND METHODS

This was a prospective study done on 50 proximal tibial fractures treated with locking plates in a span of 1 year.

All proximal tibial fractures in patients above 18 years were included in the study.

Patients with active infection in the involved leg, and open fractures with extensive soft tissue damage were excluded.

On presentation, Anteroposterior and lateral radiographs of the knee were taken.

Post operatively quadriceps exercises and ankle mobilization were started within 24 hours of surgery.

The limb was immobilised in a long knee brace.

Knee bending was commenced on second or third postoperative day if the fixation allowed otherwise the patient was kept non weight bearing ambulation.

Intravenous antibiotics were continued for 3-5 days in closed injuries followed by oral antibiotics till suture removal.

Patients were followed up at 3 months and 6 months and one year
Full weight bearing was permitted only after clinico-radiological evidence of union.
Union was defined as bridging of three of the four cortices and disappearance of the fracture line on the plain radiographs for a patient who was able to bear full weight.

Fracture in the process of union but not united at six months was considered as delayed union.

At the end of 1 year, functional outcome score was analysed using the Rasmussen's knee score

RESULTS

Of the 50 patients, 28 were male and 22 female.

Majority of patients had Schatzker's type 6 fracture (30 patients, table 1).

The mean follow up was 18 weeks. MIPPO was used in 16 patients.
A primary Bone graft was used in 6 patients in whom the fracture fragments were depressed.

Complications encountered were
- superficial infection (8%),
- deep infection (4%),
- non union (4%)
- knee stiffness (6%).

Excellent results were found in 44% of patients, good in 40%, fair in 10 % and poor results in 6% of cases.

Complications encountered were
- superficial infection (8%),
- deep infection (4%),
- non union (4%)
- knee stiffness (6%).

Excellent results were found in 44% of patients, good in 40%, fair in 10 % and poor results in 6% of cases.

TABLES

Table 1: Fracture types according to Schatzker's classification

Table 2: Complications

COMPLICATIONS	NO. OF PATIENTS	%
SUPERFICIAL WOUND INFECTION	4	8
DEEP WOUND INFECTION	2	4
NON UNION	2	4
KNEE STIFFNESS	3	6

Table 3: Results according to Rasmussen's Criteria

RESULTS	PATIENTS	%
EXCELLENT	22	44%
GOOD	20	40%
FAIR	5	10%
POOR	3	6%

SCHATZKERS TYPE	NO. OF PATIENTS	%

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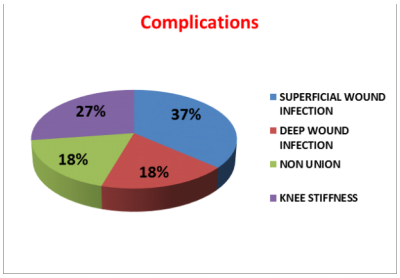
TYPE I	3	2
TYPEII	5	10
TYPEIV	8	16
TYPE V	4	8
TYPEVI	30	60

Complications



DISCUSSION

With the introduction of locking plates, many limitations of conventional plating have been overcome.

The angle stable locking screws allow secure fixation of the opposite condyle with a single plate thus avoiding extensive soft tissue dissection[8].

Contact area between the plate and the bone is minimal thus preserving periosteal blood supply.

The mean time to union in our study was 3 months, with majority of the fractures uniting in 14-16 weeks.

This is comparable to other studies with locked plating.
In our study infection was observed in 12% cases.

CONCLUSION

Treatment of proximal tibial fractures with locking compression plate is an excellent option regardless of the fracture type.

Adherence to principles of plating and minimal soft tissue dissection can give excellent results with minimal complications

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