Volume : 2 | Issue : 7 | July 2013 • ISSN No 2277 - 8179

# Study of Result of Ender Nailing in Close Fracture Shaft Of TIBIA

Medical Science

**KEYWORDS :** FRACTURE SHAFT TIBIA, ENDER NAIL, INTRAMEDUALLARY FIXATION.

| | |
|---|---|
| **Dr Jigneshkumar.S.Patel** | 26,Doctor's Quatars, Smt.S.C.L Hospital,Saraspur, Ahmedabad-380018. |
| **Dr Ajaysinh.V.Jadeja** | 21/511,Satyagrah chhavani, Behind Bhavnirjar Temple, Satellite Ahmedabad-380015. |
| **Dr. Vipul R. Makwana** | B/2, Bhagirath Society, B/h S.T. Staff Quarters, Behrampura, Ahmedabad – 380028 |

## ABSTRACT

*Tibial shaft fractures are the most common long bone fractures owing to increase in vehicular and industrial accidents. Various treatment modalities are used in the management of this fracture which include conservative management with cast to Intramedullary fixation to external fixation. We have studied 40 (30 male and 10 female) patients with fracture shaft of tibia operated with ender nailing. All patients with average 36 months of follow up were assessed clinically and radiologically to compare results of ender nailing. Union occurs in mean period of 10 weeks with 70% excellent ,25%Good and 5% fair result in case ender nailing. We concluded enders to be good in the treatment of complex unstable tibial shaft fracture.*

**INTRODUCTION:**

Tibial shaft fractures are the most common of the long bone fractures owing to increase in vehicular and industrial accidents. By its sub-cutaneous location throughout its length tibial fractures are very common,also considering its precarious blood supply and decrease soft tissue coverage ,delayed union, non-union and infection are very common and thus even today treatment of unstable shaft fractures remain difficult. Various treatment modalities are used in the management of this fracture which include conservative management with cast to intramedullary fixation to platting to external fixation.

Concept of stabilization by intra medullary nailing is one of the greatest advancement in the treatment of long bone fracture which range from kuntscher nail ender nail and last the interlock nail.

**The advantages of intramedullary implants are:**

- Closed procedure which preserves the fracture hematoma and aids in the fracture union with less chance of infection.
- Good fixation and alignment of the fracture fragments without periosteal stripping.
- Early ambulation and weight bearing.
- Load bearing implants.

Ender nail is flexible nail that rely on three point fixation in the medullary canal and provide favourable mechanical condition as the force are evenly distributed along the entire length of the nail. As the fixation by this nail is not rigid, therefore some amount of micro motion occurs between the two fragments which in turns stimulate fracture healing.

**MATERIAL AND METHODS:**

We have done a retrospective study of shaft of tibia fractures treated with ender nail. Our study included 40 patient (30 male and 10 female).Diagnosis confirmed by the Antero-posterior and lateral radiograph of involved limb as seen in Fig-I. We have used anatomical classification to classify the fractures.

Figure-I

Figure- II

After general assessment of the patient routine blood investigation that include complete blood count, serum urea and creatinine, blood sugar and blood group are done as part of preoperative work up. Patient is taken in operation theatre and anaesthetized and shifted to fracture table in supine position with hip and knee 90° flexion. Fracture reduction is done under C-arm guidance. After confirming the reduction painting and drapping of operative area done.

In ender nailing the medial portal of entry is 1-1.5cm below the medial tibial flare and medial to patellar tendon and lateral portal of entry is 1-1.5 cm below the lateral tibial flare and lateral to patellar tendon Gentle curvature is given at the tip of the nail to facilitate its passage into distal fragment. At least three nails are recommended for stabilization of fracture. Fig- II.

**POSTOPERATIVE PROTOCOL:**

- Immediately after surgery limb is supported by below knee slab.
- Injectable antibiotic is given for three days, and analgesic given as and when required.
- Quadricep muscle strengthening exercise is started as soon as possible after surgery and bed side knee bending is started on next postoperative day.
- Suture are removed on the 12th post operative day.
- Hospital stay : Patient is discharged as soon as the wound and general condition of the patient is satisfactory-usually in 4-5 days.
- Partial weight bearing was delayed for minimum 10-12 weeks.

**OBSERVATION AND DISCUSSION:**

In our study of 40 patient 20 patients were below the age of 30 years while 20 patient were of more than 30 years and road traffic accidents were the most common cause of this fracture (90%).

Out of 40 cases as seen in table-I most fractures were found to be in lower third of tibia (57.5%)

Ender nailing was done 40 patients. As depicted in table-II partial weight bearing walking (PWBW) at six weeks was started in 14 patients operated with enders nail. Full weight bearing walking (FWBW) was started at 12 weeks in 6 patients in, while at 12-18 weeks 34 patients with ender nailing.

Best criteria for judging the movement of hip and knee is ability to sit cross leg and to squatt after clinical union. From the table –III it is clear that sitting cross leg and squatting ability and movement of ankle are good in patients treated with ender nail.

The union occurred in mean period of 10 weeks in ender nailing

as seen in table -IV.

The rate of complication were very low in ender nailing. Only 2 cases of infection were found in ender nailing. Backing out of nail was seen in 2 patients of ender nailing. Shortening is seen in 12 patient of ender nailing.

It is seen from table –V that excellent results are achieved in 70%, good in 25% and fair in 5%.

**CONCLUSION:**

From our study the results of ender nailing in closed fracture of shaft of tibia we come to the following conclusion.

- Bony union and early full weight bearing was more rapid with ender nailing.
- Activities of daily living and joint function were better performed by patients treated with ender nailing.
- Ankle stiffeness is less common and get full ankle movement in patient treated with enders nailing.
- Shortening valgus and malalignment and rotational deformities were some complication noted in enders nailing.
- Ender nailing is good modality of intramedullary fixation when cost effectiveness is to be considered in developing country like india.

**Table I: Classification of fracture**

| Location of the fracture | No of patients |
|---|---|
| Proximal third | 1 |
| Middle third | 12 |
| Lower third | 23 |
| Segmental | 4 |

**Table II: Duration of weight bearing**

| | Duration | Ender nailing |
|---|---|---|
| PWBW | <=6 weeks | 14 |
| | >6 weeks | 26 |
| FWBW | <=12 weeks | 6 |
| | 12-18 weeks | 34 |

**Table 3: Movement**

| | Ender nailing |
|---|---|
| Sitting cross legged | 32 |
| Squatting | 30 |
| Ankle movement | 38 |

**Table 4: Union**

| | Ender nailing |
|---|---|
| 6-10 weeks | 12 |
| 10-14 weeks | 6 |
| 14-20 weeks | 12 |
| >20 weeks | 10 |

**Table 5: Grade**

| | Ender nailing |
|---|---|
| Excellent | 28 |
| Good | 10 |
| Fair | 2 |
| Poor | |

## REFERENCE

1. Eugene sherry, Jan van Der B. Anatomy and blood supply of Tibia.Wheeles's Orthopaedics,2006 | 2. Anand J, Thakur:The element of Fracture fixation,2nd edition, 2007:10-15 | 3. Kuntscher G.: Practice of intra medullary nailing.J Bone Joint Surg 40A:17,1958 | 4. Ender J,Simon-Weidner R. Condylocephalic nailing in trochanteric fracture by use of elastic nail.Acta Chir Austria.1970;1:40