



## ROLE OF FIBULAR RESECTION IN UNUNITED TIBIAL SHAFT FRACTURE

Dr. Raj Kishore Prasad\*, Dr. Mayank Kumar, Dr. Rashi and Ratnika

Assistant Professor Dept. of Orthopaedic, Darbhanga Medical College Hospital, Darbhanga, Bihar.

\*Corresponding Author: Dr. Raj Kishore Prasad

Assistant Professor Dept. Of Orthopaedic, Darbhanga Medical College Hospital, Darbhanga, Bihar.

Article Received on 23/03/2017

Article Revised on 15/04/2017

Article Accepted on 05/05/2017

### ABSTRACT

**Background:** Intact fibula may delay Union in ununited fracture of tibia. **Method:** 15 cases of 5 months or more old ununited fracture of tibia with intact fibula were studied in the present series between 2005 to 2013. Partial fibulectomy was done and long leg POP cast was applied for four weeks. After four weeks a PTB cast was applied and weight bearing encouraged. **Results:** All fractures united at an average time of 14 weeks after partial fibulectomy. (Range of 6 to 20 weeks) in acceptable position. No neurovascular complication was present. Ankle stiffness was present in 3 of the cases which improved after physiotherapy. **Conclusion:** partial fibulectomy is a viable option in the management of delayed tibial fractures.

**KEYWORDS:** Fibulectomy, ununited, delayed Union, closed fractures.

### INTRODUCTION

Early weight bearing in fracture tibia in a cast or cast brace has resulted in an exceptionally low rate of delayed Union (11%) and very few non-unions.<sup>[1,2]</sup>

The removal of a portion of fibula increases the compression force in ununited fracture of tibia during weight bearing in cast. It has been reported by several authors.<sup>[3,4]</sup> Resection of a portion of fibula is technically a simple procedure and can be performed in remote areas. Achieving bony alignment becomes easy, avoids vascular impairment, avoids infection and retains the further scope of internal fixation and bone grafts in case of failed union.

### MATERIAL AND METHODS

In the present series 15 cases of ununited tibial fracture with intact fibula of five months or more after injury were studied between 2005 and 2013. Out of fifteen 11 were male and 5 females. The age varied between 21 and 54 years. The average age being 27 years. All fracture were closed ones. 9 cases had partial displacement. 10 of the cases had fractures in the middle third, 3 in the lower third and 2 in the upper third. There were 11 male and four females. 11 cases, the injury was due to motor cycle accident, 3 due to fall from height and 1 due fall from stair. There were no associated injuries. All patients were subjected to long leg cast after satisfactory bony alignment. After six weeks the cast was changed in PTB cast and the patient were encouraged full weight bearing.

Ununited fracture were diagnosed on following criteria:

1. Fractures at least of five months duration.
2. Fracture gap present in X-Ray
3. No progression of Union in subsequent X-Ray
4. Tenderness at the fracture site
5. With or without Clinical motion at the fracture site.

All the cases were subjected to partial fibulectomy subperiostally. Two cm of fibula at the site remote from the level of tibial fracture were excised out subperiostally. A long leg cast was applied after acceptable bony alignment and weight bearing was begun. After four weeks cast changed to a PTB cast until Union was evident.

### RESULTS

All the fifteen cases united with the average time of Union being 12 weeks (range, six to eighteen weeks). There was no complication. Only in one case there was superficial skin infection at the fibulectomy site. Three patients had some limitation of movement at ankle joint which improved after physiotherapy.

### DISCUSSION

A fracture of the fibular shaft associated with a fracture of the tibia usually heals in 6-8 weeks.<sup>[5]</sup> Fibula is usually intact when delayed Union of tibial fracture is diagnosed. The healed or intact fibula may prevent effective compression at the tibial fracture site. Jorgensen has shown<sup>[6]</sup> presence of an intact fibula, if a tibial fracture is to be compressed a considerable fraction of applied force

is spent to deform the intact fibula, thereby decreasing the compression force on the tibial fracture fragments<sup>[6]</sup> Dehne(1) and Sarmento(2) said that Fibulectomy in delayed Union of Tibia helps in Union of tibia due to effective compressive force at the fracture site.

Sorenson<sup>[7]</sup> reported 30 cases (18 delayed unions and 12 non-unions) in which partial fibulectomy was successful led to fracture Union in all but one case. Fernandez-Palazz<sup>[3]</sup> described fourteen cases of so called delayed Union of tibia in which Union of the fracture occurred within seven to eighteen week after fibulectomy.. They said in delayed Union of tibia fibulectomy is an effective method to achieve Union. Its importance is further enhanced in our rural areas where POP cast is the primary method of treatment of leg bone fractures and facilities for a major surgery is not available.

#### REFERENCES

1. Deane E. Treatment of fracture of the tibial shaft. Clin Orthop, 1969; 66: 159-173.
2. Sarmiento A. Functional bracing of tibial fractures. Cli Orthp, 1974; 105: 202-219.
3. Fernandez palazzi F. Fibular resection in delayed Union of tibial fractures Acta Orthop Scand, 1969; 40: 105-118.
4. Rankins EA, Metz.CW. Management of delayed Union in early weight bearing treatment of fracture tibia J Trauma, 1970; 10: 751-759.
5. Court- Brown CM Fracture of the tibia and fibula. In Fractures in adults. Ed. Rockwood and green vol 2 Philadelphia: JB Lippincott 2003 1939-96.
6. Jorgensen TE The influence of intact fibula on the compression of a tibial fracture or pseudarthrosis. Acta Orthop Scand, 1974; 45: 119- 129.
7. Soresen K H Treatment of delayed Union and non-Union of the tibia by fibular resection. Acta Orthop Scand 1969; 40: 92-104
8. Mohd FB partial resection of fibula in treatment of ununited tibial shaft fracture Indian Journal of Orthopaedic Oct 2006; 40(4): 247-249.