

Using Interlocking Intramedullary Nails to Treat Tibial Shaft Fractures: A Brief Review

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ABSTRACT:-

Different surgical procedures are used to treat tibial shaft fractures. Interlocking intramedullary nailing has become the industry standard in recent years for treating tibia shaft fractures. For interlocking intramedullary nailing of the tibia, the clinical and radiological prognosis is better, and the problems including compartment syndrome, neurovascular injuries, infection, and non-union are substantially less common. The reduced risk of reoperation is also demonstrated by the usage of ILIM nails. As a load-sharing mechanism that also balances axial and torsional deforming forces, nails are regarded as superior. The fact that closed intramedullary nailing causes the least amount of harm to soft tissue, neurovascular structures, and hematoma at the fracture site are further contributing elements to the better and more natural process of bone healing in the nail instance. Additionally, the nail is secured at the proximal and distal fragments, reducing the likelihood that comminuted fractures will not heal properly. The earliest return to weight bearing and employment for patients who had interlocking nailing is a definite benefit.

Keywords: Tibia fracture, shaft fracture, intramedullary nail, interlocking nail

INTRODUCTION: -

The tibia is the leg bone; it has a triangular cross section, a vertical shaft within the leg, and is anteriorly subcutaneous the whole length of its length; as a result, it is more prone to fracture in trauma. Low energy trauma results in closed fractures while high energy trauma results in open fractures.

Open tibia shaft fracture surgical therapy is still debatable. Due to its subcutaneous nature, it lacks soft tissue covering and has a shaky blood supply. It is susceptible to infection and nonunion as a result of these two reasons. According to Guillo & Anderson, the rate of infection increases with the grade of the open fracture. In grade IIIB open fractures, the infection rate is over 50% [1]. Debridement of soft tissue, fracture stabilization and fixation, soft-tissue coverage, and bone grafting, if necessary, are all steps in the aggressive protocol for the open fracture that must be followed in order to reduce the above-mentioned consequence [2]. It is not necessary to use such an intensive strategy for the surgical therapy

of near fractures. If a close fracture is unicortical, conservative care can be used. But surgical treatment is required for bicortical and displaced fractures. The use of an external fixator is one option for stabilizing open fractures because it is relatively quicker, easier, and has little impact on the tibia's blood supply. However, these benefits are outweighed by the high incidence of pin-track infection, challenges with managing soft tissues, and malunion [3,4].

Because it has virtually eliminated all of the aforementioned issues and offers additional benefits including little damage to soft tissue, neurovascular systems, and hematoma at the fracture site [5-12], interlocking intramedullary nails are currently the treatment of choice.

METHODOLOGY :-

For the purpose of this review, all of the Studies were obtained through a search on Med-line, a search on PubMed, a search on the COCHRANE database, and manual searches of national and international orthopaedic journals. All prospective, randomized, or quasi-randomized trials, regardless of whether they had been published or not, were considered for inclusion in the study.

The publications that had cases with open and closed tibia shaft fractures and had primary outcomes in the form of reoperation were identified for the analysis. These extra procedures include bone grafting, dynamization, revision nailing in case of nonunion and fractured implant.

Quality assessment:

This was accomplished through the use of randomization (both openly and covertly), blinding, and double blinding. Patients who were lost to follow-up were also given a follow-up. The utilization of proper statistical procedures for the collection of data, the computation of sample size, charts and graphs, confidence intervals, and the application of relevant tests. A percentage was used in the calculation to determine the studies' overall quality score. Data Extraction The authors were responsible for gathering all of the information that was available regarding the inclusion and exclusion criteria of the population, surgical intervention, and functional outcome from a number of different articles. In addition, information was gathered about revision surgeries, the techniques used during revision surgeries, and complications such as neurovascular injuries, compartment syndrome, infections, nonunions, malunions, anterior knee discomfort, shortening, angulation, and varus and valgus deformities. Every author's data extraction sheet was checked to ensure that it contained accurate information. All of the data were entered into Excel, and statistical analysis was carried out with the help of the program SPSS specifically designed for that purpose. Using the criteria established by Johner and Wruh, the functional outcomes of our research were assigned ratings of either excellent, good, fair, or bad.

DISCUSSION & CONCLUSION :-

Tibia shaft fractures are rather prevalent among young people, and the majority of them happen to men as a result of being involved in motor vehicle accidents. The interlocking intramedullary nail is the ideal surgical choice since it reduces the amount of time needed for the operation, causes less damage during surgery, helps to preserve the natural length and alignment of the bone, and stops rotational deformity. It also helps to maintain the blood supply to the periosteum and causes only minor disruptions to the hematoma at the fracture site, which contributes to a reduction in the likelihood of infection. Additionally, it facilitates the early production of callus, which in turn lowers the rate of non-union and mal-union and enables its application in a variety of fracture patterns. Patients are able to begin moving around as early as the first day after surgery. The patient who undergoes ILIM nailing for a tibia shaft fracture achieves early mobility, a reduced length of hospital stay, and an early return to work, all of which increase the patients' mood. When it comes to treating shaft fractures of the tibia, interlocking intramedullary nailing is considered to be the gold standard.

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