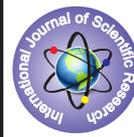


STUDY OF FUNCTIONAL OUTCOME OF RADIUS ULNA TENS IN ADULTS.



Orthopedics

KEYWORDS:

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ABSTRACT

INTRODUCTION:Over the last 40 years, anatomic reduction with plate stabilization has become the standard in adult patients with diaphyseal fractures of the radius and ulna. When operative fixation has been indicated in skeletally mature patients with these fractures, a variety of techniques have been reported, with intramedullary fixation becoming increasingly accepted. **MATERIAL AND METHODS:** There is currently significant variability in the treatment of adults with forearm fractures. The purpose of this study was to investigate the clinical and radiographic outcomes in the adult population after intramedullary fixation of both bone forearm fractures. A retrospective review identified 28 patients 18-65 years of age who had undergone intramedullary fixation of both forearm bones in the past 3 years at our institution. Galeazzi, Monteggia, radial head, and distal metaphyseal fractures were excluded. Radiographic evaluation was performed to determine union and postoperative radial bow. Clinical follow-up was carried out for postoperative complications and range of motion of the wrist, forearm, and elbow. The mean age of the patients was 37.54 years. A total of 24 fractures were closed injuries and 4 were open. **RESULTS:**Of the patients, 7.14% had limited postoperative range of motion. A decrease in radial bow was not associated with limitation in motion. There was a 89.30% union rate. All union time was around 20 weeks. eight minor complications occurred. one nonunion and one ulnar nail backout, three superficial infections and nail impingement in 2 patients, delayed union in one patient. **CONCLUSION:**Flexible intramedullary nailing of both bone forearm fractures provides reliable bony union and excellent postoperative clinical results in adults

INTRODUCTION: Union with restoration of normal anatomy is particularly critical to achieve an optimal outcome for diaphyseal fractures of the shafts of the radius and ulna in adults. These goals have most often been met by many methods including reduction and plate fixation and intramedullary nailing. In previous studies, however, outcome measures other than union have received scant attention, and the inclusion of fractures of a single bone with fractures of both bones has made interpretation of results difficult.

The purpose of this study was to determine the functional and radiological outcome of radius ulna fractures treated with closed reduction and intramedullary nailing.

MATERIAL AND METHODS:

Criteria for inclusion in this study were skeletally mature patients with fractures of the shafts of both the radius and ulna treated at V.S. General Hospital. All of the patients were evaluated by one of the authors. Complete data were available for 28 patients who had sustained 28 diaphyseal fractures of both the radius and ulna. Data collection and radiographic measurements were standardized for all patients.

All patients were followed at least until bone union occurred or the diagnosis of nonunion was made. The mean follow-up was thirty months (range three to 300 months). Twenty one were male and seven female, with an average age of 37.54 years (range 19 to 65 years). In 13 patients, the fracture involved the dominant limb. 4 of the fractures were open and 24 were closed. The grade of soft tissue injury associated with open fractures was not recorded since many of these injuries preceded the advent of the rating system of Gustillo and Anderson. Five patients had sustained other major musculoskeletal or multi-system injuries, the method used for fracture fixation was closed reduction and intramedullary titanium elastic nailing.

EVALUATION AND RESULTS

RADIOLOGICAL UNION:

In weeks	Number	Percentage
< 12	9	32.14
13 - 16	9	32.14
17 - 20	4	14.28
> 20	5	17.86
Non union	1	3.57

RANGE OF MOVEMENTS:

Range of Movements	SUPINATION		PRONATION	
	No.	%	No.	%
Full	19	67.86	20	71.43
10 degree less	4	14.28	1	3.57
20 degree less	1	3.57	4	14.28
30 degree less	3	10.71	1	3.57
40 degree less	1	3.57	2	7.14
Complete loss	1	3.57	0	0

COMPLICATIONS:

	Non union	Backout of Ulna nail	superficial Infection	nail impingement	delayed union
No. of patients	1	1	3	2	1

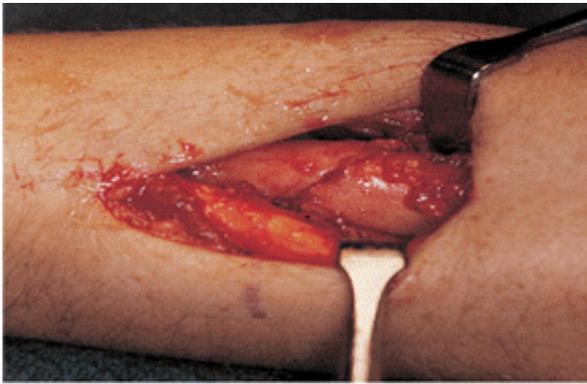
1. RESULTS OF SURGERY:

RESULT	RADIOLOGICAL		FUNCTIONAL	
	Number	Percentage	Number	Percentage
Excellent	17	60.72	13	46.43
Good	8	28.58	8	28.57
Fair	2	7.14	6	21.43
Poor	1	3.57	1	3.57

Results of nailing were quite impressive. However, 1 cases of non-union occurred. only about 4% of cases had poor results.

Excellent + good results: RADIOLOGICAL=89.30% AND FUNCTIONAL=74.00%.

Preop and 6 month post op



FUNCTIONAL OUTCOME AND DISCUSSION:



Anatomic reduction and internal fixation of diaphyseal forearm fractures in adults is considered the treatment of choice to achieve final goal of union and restoration of the limb functions as similar as possible to the prefracture status.

This study tries to assess the clinical effectiveness of forearm intramedullary nailing in adults. The art of internal fixation of fractures utilizing various implants has undergone important and basic changes. Two major approaches are well known to be used for

surgical fixation of fractures: The conventional approach depends upon the rigid fixation of fractures and the direct bone healing and the biological approach considering the importance of preservation of soft tissues and careful protection of bone fragments and their vascularity. Intramedullary nailing as a method fixation of diaphyseal fractures of forearm has many advantages.

Reviewing the literature regarding the use of intramedullary fixation in forearm fractures had been mentioned. Various implants had been used including: K-wires, Steinman pins and Rush pins. Also, the evolution of nails utilized in forearm fractures had been mentioned including: Street nail (1957), Sage nail (1959), Hackethal bundle nailing (1959), Von-Saal square nail (1961), Schneider nail (1971), ForeSight nail (1995) and variable designs of locked nails.

The mechanism of injury of the forearm fractures and the causative trauma either direct or indirect had been declared. The study shifted to the clinical and radiological diagnosis of the fractures,

Regarding the patients of the study, 28 adult patients with diaphyseal fractures of the forearm bones were dealt with and they constituted the material of the study.

Patients were classified according to their age, sex, fracture type (closed or open), causative trauma, fracture configuration and location and associated injuries.

The management of the fractures started with the diagnosis both clinical and radiological and management of the closed fractures. It was followed by managing certain problems as: open fractures, Galeazzi fracture.

Post-operative management included: Antibiotic regimen and immobilization in light soft dressing, above elbow posterior slab.

The study ended with the following results:

- Excellent: cases (63.1%).
- Good: cases (20.4%).
- Fair: cases (8.7%).
- Poor: cases (7.8%).

Some complications developed in our study including: superficial infections, delayed-union, non-union, implant impingement

The final results of the study had been analyzed and compared with results of other similar studies. The total "Excellent" and "Good" cases were cases (83.5%)

CONCLUSION:

Anatomical reduction and internal fixation of diaphyseal fractures of the forearm in adults is mandatory to achieve a satisfactory functional result. The use of intramedullary nailing particularly the closed technique is a preferred method for internal fixation because of: minimal surgical exposure, less scarring and disfigurement, lowered risk of infection, lower risk of soft tissue injury, less risk of refracture after implant removal and minimal period of convalescence. The use of intramedullary nailing in closed and some open (Grade I, Grade II and Grade IIIA) diaphyseal fractures of the forearm is recommended as evidenced by the results of the present study