

**Original Case Report**

DOI: 10.26479/2020.0606.04

**EFFECTS OF TRADITIONAL MEDICINE ON FRACTURE BONES  
FOREARM IN ADULT - CASE STUDY**G. Sritharan<sup>1\*</sup>, S. Anpuchelvy<sup>2</sup>

1. Herbal Health Care Centre, Jaffna, Sri Lanka.

2. Unit Of Siddha Medicine, University of Jaffna., Sri Lanka.

**ABSTRACT:** Distal radius fractures are the most common fractures seen in adults, accounting for 17.5% of all adult fractures with an approximate rate of 23.6 to 25.8 per 100,000 per year. Incidences in females outnumber incidences in males by a factor of three to two. Average age of occurrence is between 57 and 66 years. The purpose of this study was to correlate clinically the rotations of forearm with the radiological restoration of radial bow after Traditional Management of bone forearm fracture in adults. The Radius bone fixed with Varma Manipulation setting method was done. After during the external application of 60 ml of Neeliathy -oil applied. Bamboo splints were applied in the lateral and medial position of elbow to shoulder joint. Splints were kept in the lateral side and medial side of the elbow joint to carpal joint. Bandaging was done moderately while external herbal applications were applied to the fracture area. In our study the Radial bow of the injured forearm after Traditional Fracture management was restored to the near normal value and the functional outcome was excellent or good in majority of the patients.

**Keywords:** Clavicle, Varma Manipulation, Neeliathy oil, Murivu oil.

**Article History:** Received: October 07, 2020; Revised: October 23, 2020; Accepted: November 09, 2020.

**Corresponding Author: Dr. G. Sritharan\*** Ph.D.

Herbal Health Care Centre, Jaffna, Unit of Siddha Medicine, University of Jaffna.

Email Address:gsritharan09@gmail.com

**1.INTRODUCTION**

Diaphysis fractures of the radius and ulna are common among humans. Sri Lanka has a well-established traditional fracture management system (Kedum Bindum Vedakama) [1]. In Ayurveda, Sushruta Samhita describes Bhagna Chikithsa (treatments for fractures) [2]. Distal radius fractures

Sritharan & Anpuchelvy RJLBPCS 2020 www.rjlbpcs.com Life Science Informatics Publications

are most commonly seen in adults, accounting to 17.5% of all adult fractures with an approximate rate of 23.6 to 25.8 per 100,000 per year [3]. Fracture incidences are higher in females than males. Average age of occurrence is between 57 and 66 years [4]. Men who sustain distal radius fractures are usually younger, generally in their 40s (vs. 60s in females) [5]. Low energy injury (usually fall from standing height) is the usual cause of distal end of radius fracture (66 to 77% of cases) [6]. High energy injuries account of 10% in wrist fractures [7]. About 57% to 66% of the fractures are extra-articular fractures, 9% to 16% are partial-articular fractures, and 25% to 35% are complete articular fractures. Unstable metaphysical fractures are ten times more common than severe articular fractures [8]. Older people with osteoporosis who are still active are at an increased risk of getting distal radius fractures. The forearm consists of two bones, the radius and the ulna, with the ulna is located on the pinky finger side and the radius on your thumb side. Fractures of the forearm can occur at different levels [9]; near the wrist, at the farthest (distal) end of the bone, in the middle of the forearm or near the elbow and at the top (proximal) end of the bone [10]. They can occur through a direct blow (a fall on the forearm or direct impact from an object) or indirect injury. The latter is usually secondary to landing on an outstretched arm. The forearm serves an important role in the upper extremity function, facilitating positioning of hand in space thus helping to provide upper extremity with mobility [11]. The both forearm fractures are commonly encountered in trauma setup. Fractures of both forearm are relatively common injuries which can challenge the treating surgeon [12]. Mal union and Non-union occur more frequently because of difficulty in reducing and maintaining reduction of two parallel bones in presence of supinating and pronating muscles that have angulating and rotational influences. Restoration of length, opposition, axial and rotational alignment must be achieved if a good range of pronation and supination is to be restored [13]. Radius is a bone with complex angle and curve. The lateral curve is also called the radial bow. It is the most important curve. The radial bow plays an important role in supination and pronation [14] of the forearm where the radius rotates around the fixed ulna. The unique surgical anatomy of forearm creates problems in the treatment of fractures of the forearm. These difficult problems are obtaining primary osseous union and restoring normal function. A stable, simple and isolated fracture of the ulna (secondary to a direct blow) can be treated with a cast for about four to six weeks. Your doctor will closely follow your progress with X-rays to assure no displacement of the fracture and proper bone healing. During this time, weight lifting and bearing are not permitted. After removal of the cast, you will start physical therapy with specific exercises to regain full range of motion of your elbow and wrist and rotation of the forearm. Your doctor will increasingly allow you to lift weights according to how your fracture is healing. Surgery is performed in most of the forearm cases and usually performed through one or two incisions at different levels and sides of the forearm. The fractures are reduced and held together with plates and screws. After surgery your forearm will be

## **2. MATERIALS AND METHODS**

### **Objective**

The purpose of this study was to correlate clinically, the rotations of forearm with the radiological restoration of radial bow after traditional management of bone of forearm fracture in adults.

### **Specific Objectives**

To study relation between the range of supination & pronation after, traditional management of bone of forearm fracture.

### **Case Presentation**

A 28 Years old female presented to the Herbal Health Care centre, Kokuvil, Jaffna with history of fall on outstretched hand falling. She had complaints of pain over her left forearm. On physical examination, her left forearm was grossly deformed and there was swelling over her left forearm. Tenderness was present over her left elbow and wrist joints. The range of movement of her left wrist and left elbow joint were painfully restricted. Her plain x-rays revealed distal radius fracture. Surgery was performed in most of the forearm cases and usually performed through one or two incisions at different levels and sides of the forearm. The fractures treated by holding together with plates and screws. After surgery forearm will be put in a short splint for comfort and protection. Patient will not be allowed to lift weight for six weeks after surgery.

### **Operative procedure**

The radius bone fixed with *Varma* Manipulation and setting method. After during the external application 60 ml of Neeliathy -oil applied. Bamboo splints [15] were applied in the lateral and medial position of elbow to shoulder joint. Splints were kept in the lateral side and medial side of the elbow joint up to carpal joint. Bandaging was done moderately while external herbal applications were applied to the fracture area.

### **Post-operative management**

Following above treatment for -15 days 30 ml of *Murivu* oil with othyam paste applied was applied with bamboo splints and patient was asked to perform passive and active exercises. *Cissus quadrangularis* powder 10 gm per day in three divided doses was given with luke warm water for 30 days. Then 30 ml of Narayana oil with 30 g paste of *Ashwaganda* was applied with bamboo splints. Patient was asked to do the active exercises. After traditional management of affected forearm, post-operative x-ray was taken to measure radial bone. Radiological measurement of radial bone of the injured and the uninjured side was observed. Patient was assessed clinically after traditional fracture management and normalcy observed by supination and pronation without pain.

### **Evaluation**

A Grace and Eversmann [16] criterion was used for evaluation of functional results. An Excellent rating consists of union of the fracture and at least 90 % of the normal rotation arc of the forearm. A Good rating requires union of the fracture and at least 80% of the normal rotation arc of the forearm. An Acceptable result is union of the fracture and at least 60% of the normal rotation arc of the forearm[17].



**Fig. 1: Before treatment**



**Fig. II: In the treatment**



**Fig. III: After treatment**

### 3. RESULTS AND DISCUSSION

Some fracture does not heal even patients get the best surgical or non- surgical treatment. In some cases, certain risk factors make it more likely that a bone will fail to heal. When a fracture fails to heal (Non union) the reasons for non union include avascular necrosis, the two ends are not apposed, infection (osteomyelitis), improper fixture of the fracture and soft –tissue imposition. The case study was done in a young patient and past medical history revealed that she was healthy and devoid of any metabolic disorders. The traditional system of medicine in the fracture management is combined with *Siddha & Ayurveda* and native orthopedic preparation that are capable of increased fracture healing activity and antimicrobial properties. Hence once applied on the immobilized fracture site, these medicinal preparations would enhance the healing of fracture bone and lead to proper reunion [19]. In the case study have used herbal oil & herbal paste it reduces swelling surrounding the fracture area and blood circulation around the fractured bone was regularized. It reduces the formation of hematoma and subsequently resolves into granulation tissue with the typical inflammatory cascade. In the case of chronic non union *Sodhana* (elimination) treatment would trigger the granulation tissue formation which subsequently leads to soft callus and finally triggers the hard callus formation. *Sodana* treatment was given for around 8 weeks. Once shaman treatment was initiated, a state of balance between osteoclast and osteoblast activities can be seen which strengthened the callus. With *Tarpana* (strengthening) treatment, the homeostasis proceeded with bone remodeling and lead to final bone formation with complete fracture healing[20]. Studies on fracture healing suggest that this unidentified anabolic steroid may act on estrogenic receptors of the bone. Efficacy of *Cissus quadrangularis* on early ossification and remodeling of bones have been reported and it has been observed that *Cissus quadrangularis* acts by stimulation of metabolism

and increased uptake of the minerals calcium, sulphur and strontium by the osteoblasts in fracture healing.[21]. *Cissus quadrangularis* contains vitamins and steroids, which are found to have specific effect on bone fracture healing. The anabolic steroidal principles from *Cissus quadrangularis* showed a marked influence in the rate of fracture healing by influencing early regeneration of all connective tissues involved in the healing and quicker mineralization of callus. Functions of the forearm and hand are dependent on the combination of stability and mobility. In the fractures of the forearm function depends on the union of fracture and rotations of the forearm.

#### **4. CONCLUSION**

In the study the radial bone of the injured forearm after traditional fracture management was restored to the near normal value and the functional outcome was excellent or good in majority of the patients.

#### **ETHICS APPROVAL AND CONSENT TO PARTICIPATE**

Not applicable.

#### **HUMAN AND ANIMAL RIGHTS**

No Animals/Humans were used for studies.

#### **CONSENT FOR PUBLICATION**

Not applicable.

#### **AVAILABILITY OF DATA AND MATERIALS**

The author confirms that the data supporting the findings of this research are available within the article.

#### **FUNDING**

None

#### **ACKNOWLEDGEMENT**

The authors gratefully acknowledge the support by Herbal Health care centre, Jaffna, Kokuvil, Sri Lanka, for all the help and cooperation rendered during the work

#### **CONFLICT OF INTEREST**

Authors have no conflict of interest.

#### **REFERENCES**

1. Kalukattadiya K.K., Appuhami K., Bandara, editors. Handi Veda Potha. 2nd ed. Samayawardane Printers; Sri lanka: 2012.
2. Murthy S.K.R., editor. SusrutaSamhitha, CikitsaSthana; BhagnaCikitsita: Chapter 3, verse 19–26. 1st ed. Chaukhambha Sanskrit Series; Varanasi: 2002. pp. 48–50.
3. Hamblen D.L., Simpson A.H.R.W., editors. ADAMS'S outline of fractures. 12th ed. Churchill Livingstone Elsevier; USA: 2007. pp. 29–32.
4. Houghton D.N., Jordan D., Malahias M., Hindocha S., Khan W. Principles of hand fracture management. Pub Med Central. 2012;6:43–53.
5. Giotakis N., Narayan B. Stability with unilateral external fixation in the tibia. Strategies Trauma

Limb Reconstr. 2007;2:13–20.

6. Lips P., Jameson K., Bianchi M.L., Boonen S., Reeve J., Stepan J. Validation of the IOF quality of life questionnaire for patients with wrist fracture. *Osteoporos Int.* 2010 Jan;21(1):61–70.
7. Fazal MA, Saksena J, Haddad FS. Temporary coracoclavicular screw fixation for displaced distal clavicle fractures. *J OrthopSurg (Hong Kong)* 2007 ; 15 : 9-11.
8. Fuchs M, Losch A, Stürmer KM. [Surgical treatment of fractures of the clavicle – Indication, surgical technique and results.] (in German). *ZentralblChir*2002 ; 127 : 479- 484.
9. Nordqvist A, Petersson C, Redlund-Johnell I. The natural course of lateral clavicle fracture. 15 (11-21) year follow-up of 110 cases. *ActaOrthopScand*1993 ; 64 : 87- 91.
10. Nuber GW, Bowen MK. Acromioclavicular joint injuries and distal clavicle fractures. *J Am AcadOrthopSurg*1997 ; 5 : 11-18.
11. Haidar SG, Krishnan KM, Deshmukh SC. Hook plate fixation for type II fractures of the lateral end of the clavicle. *J Shoulder Elbow Surg*2006 ; 15 : 419-423.
12. Terry Canale S, James MD, H beatyb MD. editors Campbell’s operative orthopedics, 12th edition, Elseveir, 2013; III:2887-2888 .
13. Anderson LD, et al. Compression plate fixation in acute diaphyseal fractures of the radius and ulna. *J Bone Joint Surg [Am]*. 1975; 57-A:287-96
14. Schemitsch and Richards. The effect of malunion on functional outcome after plate fixation of fractures of both bones of the forearm in adults. *J Bone Joint Surg.* 1992; 74:1068-78
15. Murthy S.K.R., editor. *SusrutaSamhitha, CikitsaSthana; BhagnaCikitsita: Chapter 3, verse 19–26.* 1st ed. Chaukhambha Sanskrit Series; Varanasi: 2002. pp. 48–50.
16. *Ayurveda Pharmacopeia.* 1st ed. vol. I Part 1. Colombo: Department of Ayurveda; 1976. p. 281, 286-303.
17. Grace TG, Everamann WW. Treatment by rigid fixation with early motion. *J Bone Joint Surg.* 1980; 62A:3:433437
18. Fann CY, Chiu FY, Chuang TY, Chen CM, Chen TH. Transacromial Knowles pin in the treatment of Neer type 2 distal clavicle fractures. A prospective evaluation of 32 cases. *J Trauma* 2004 ; 56 : 1102-1105.
19. Kaviratna A.C., Sharma P., editors. *Caraka Samhita, treatment of Abcess, Lesson 25.* 2 nd ed. Sri Satguru Publications; Delhi: 1996. pp. 1128–1131.
20. *Susrutha Samhitha with Nibandhasangraha commentary by Dalhana, Choukamba Orientalia.*1999.
21. Prasad G.C., Udupa K.N., Pathways and site of action of a phytogetic steroid from *Cissusquadrangularis*, *Journal of Research in Indian Medicine*, 1972, 4, 132.