



CASE REPORT

Ayurvedic management of both-bone fracture of the forearm - a case report

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Abstract

Both Bone Forearm fractures are one of the most common paediatric fractures, estimated at around 40% of all paediatric fractures. This is a case of a 14-year-old boy who fell on his outstretched hand while playing cricket. He was taken to a nearby hospital and was diagnosed with a bone fracture of the left forearm. The doctor suggested an open reduction, but they weren't prepared for surgery and opted for ayurveda treatment. The objective of the present case was to correct the deformity and associated complaints, ultimately restoring the normal functionality of the hand. The condition is taken as *Prakoshtasthi Bhagna (Antaha and Bahi)* in Ayurveda. The treatment modalities done here are reduction and manipulation by maintaining traction followed by *Murivenna* bandage utilising 4 splints over dorsal, ventral, medial and lateral aspects for 1 month. Following 2 weeks, a simple bandage was done without splints. Complete forearm movement restoration and symptom relief were the final results of the intervention.

Introduction

Simultaneous diaphyseal fractures of the radius and ulna is referred to as both-bone forearm fractures. It may result from both low-energy and high-energy trauma. The most common mechanism of injury of both bone fractures is axial loading applied to the forearm, which is a fall onto an outstretched hand. The cause may be either an indirect force such as a fall onto the hand or may be a direct blow on the forearm. Diagnosis is made with plain radiographs of the forearm. Displacement may be absent or slight, but these fractures are notoriously prone to severe displacement, which is often very difficult to correct without open operation. In general, displacement is more common and more severe in adults than in children who often sustain no more than a green stick fracture with only minor angulation¹. This is a common fracture and remains one of the most challenging of all the fractures encountered by orthopaedic surgeons.

The treatment of *Bhagna* has been explained by *Acharya Susruta Chikitsasthana*. The main principle in the treatment of fracture includes *Bhagnasthapana* (reduction), *Bhagnasthreekarana* (Immobilization), and *Punercheshtapracharam* (rehabilitation). *Acharya Susruta* has also advocated other methods that include *Anchana* (Traction), *Peedana* and

Samkshepana (Manipulative reduction) and *Bandhana* (bandage), which are practiced even today².

The main objective of any fracture management is to promote proper healing of the fracture without forming any deformity, with a complete range of movement and make the part fully functioning within a limited period. After proper reduction, immobilization is made possible by different bandaging techniques³. And These different types of splints which are made from the bark of trees like Bamboo, Ficus, Arjuna tree etc can be used⁴. Splinted bandage using *Murivenna* oil has been mainly practiced in Kerala for the management of *Bhagna*. It has been observed that this method of bone setting techniques using splinted bandages produces better relief in lesser time with no complications and a person can revert to his normal life with full range of movement.

MATERIALS AND METHODS

PATIENTS INFORMATION

A 14-year-old male patient approached *Shalyatantra* OPD with chief complaints of pain and visible deformity on the left forearm along with swelling and difficulty in the movement of the forearm since morning. He had a history of falling onto the outstretched hand while playing cricket. Since then, he had severe pain over his left forearm associated with difficulty in movements of the forearm. The pain is sharp and increased over time. Suddenly the patient was shifted to an allopathic hospital. The X-ray revealed both bone fractures of the distal shaft of the left forearm with displacement and they advised for surgery. His parents were not willing for surgery for which they approached Ayurveda hospital for further investigation and management.

PERSONAL HISTORY

Diet- mixed

Appetite- good

Bowel- regular

Weight- 45 kg

Height- 160cm

Pulse rate- 68/min

BP- 110/80mmhg

Respiratory rate- 16/min

CLINICAL FINDINGS

- Cradled left hand with a right hand
- Semi-flexed position towards the body.
- Supine position of the hand.

LOCAL EXAMINATION

INSPECTION

- Swelling of forearm approximately 6cm proximal to the wrist
- Ecchymosis on the medial and distal ends of the hand
- Dorsal angular deformity

PALPATION

- Local rise of temperature at the distal end of the left forearm- grade 2
- Tenderness at the distal end of the left forearm - Grade 4
- Crepitus present – grade 3
- Range of movements-
- Flexion and extension elbow– possible with pain over the distal forearm of the left hand
- Supination and pronation – not possible

MANAGEMENT

Internal medicines are given for two months – table 1

Table 1 – Internal medicines⁵

<i>Rasnerandadi Kasaya</i>	90ml before food, twice daily	Reduce swelling, pain caused due to the vitiation of <i>Vata</i> and <i>Rakta</i> ⁵ .
<i>Chandrapbha gulika</i>	1-0-1	Diuretic. Anti inflammatory ⁶
<i>Amritharishtam+ Punarnavasava</i>	15ml after food, twice daily	Anti-inflammatory, Shophahara ⁷
<i>Vilwadi gulika</i>	1-0-1	Anti inflammatory ⁸

PROCEDURE⁹

Complete both-bone forearm fractures are managed by reduction through a closed manipulative technique. -

The patient was made to sit on a wooden stool. Began with palpating the left forearm of the patient to determine the initial alignment of the ends of the radius and ulna. With firm traction from either side of the forearm, reduction attempted to hook the distal ulnar fragment on the proximal fragment. Subsequently proceeded to reduce the radial fragments too. Reduction angulated in the direction of the original displacement (which relaxes the overlying intact periosteum) and then the distal fragment was pushed out to length and hooked over the edges of the proximal fragment. Angulated distal fragment is apposed onto the end of the proximal fragment, with simultaneous correction of rotation followed by immobilization with a splint.

Table- 2

Date	Treatment	Remarks
03/04/21	Traction and reduction Murivenna bandage using 4 splints over the dorsal, ventral, medial and lateral sides by maintaining the traction	Swelling – grade 3 Pain- grade 4 Temperature- grade 2 Swelling-grade 2
9/04/2021	Murivenna bandage using 4 splints over the dorsal, ventral, medial and lateral sides by maintaining the traction	Pain-grade 2 Temperature-grade 1 Finger movements advised Supination and pronation are partially possible with pain 1
19/04/2021	Murivenna Rebandage with 4 splints over the same site	Able to hold the book for 2 minutes Swelling- grade1
26/04/2021	Murivenna Rebandage with 4 splints over the same site	Supination and pronation are completely possible with pain -grade1 Able to lift a chair using both hands
03/05/2021	Simple Murivenna bandage without splints	Supination and pronation are completely possible without pain Able to lift chair with the affected hand Swelling – absent Interosseous space completely maintained
10/05/21	Simple Murivenna bandage	Same as above

X-ray Imaging

- Radiographs-AP and lateral views of left forearm x-rays

Findings

- Transverse fracture of lower 1/3rd of both radius and ulna
- Both distal fragments were displaced backwards

CHANGES IN THE XRAY DURING EACH VISIT



Figure 1- 1st visit before treatment – on 03/04/2021



Figure 2 – Check X-ray 15/04/2021



Figure 3- check X-ray 29/04/2021

DISCUSSION

The forearm consists of two relatively parallel bones that connect two joints - the elbow and wrist. Besides, two bones themselves form joints that help in supination and pronation for which forearm fractures are considered intra-articular fractures. Proper management of such fractures is necessary to restore forearm functions, including supination and pronation, elbow and wrist movements, and handgrip strength. The forearm fractures may result from both low-energy and high-energy trauma. The most common mechanism of injury for such injuries is axial loading applied to the forearm, which is a fall onto an outstretched hand. In adults, the other common mode of injuries that result in forearm fractures include motor vehicle accidents, athletic injuries, and falls from height. These mechanisms of injury can cause either direct or indirect injuries. The other less commonly seen mechanisms of injury to the forearm include gunshot injuries and nightstick injuries.

Orthopaedic condition is well explained and documented in the literature of Ayurveda in the name of *Bhagna Chikitsa*. Acharya Susruta described if injury occurs in bone is called *Kandabagna*, and in the joint it is called *Sandhimuktha*. The three fundamental principles of fracture-dislocation management are *Bhagna Sthapana* (Reduction), *Bhagna Sthireekarana* (Immobilisation) and *Punah Chesta Prasarana* (Rehabilitation). According to Acharya, the basic procedure in treating fracture-dislocations are *Anchana* (traction), *Peedana* (compression), *Samkshepana* (immobilization) and *Bandhana* (bandage).

Here, closed reduction with firm traction followed by local application of murivena and bandage with bamboo splints were done to immobilise the part. Murivena has vata pitta samana and seetha veerya, anti-inflammatory and analgesic properties. Almost 1 month of immobilisation with splints followed by 2 weeks of plain bandage without splints was done. This helped to reduce the swelling, pain and at the same time there was systematic improvement in the movement of the forearm within one and a half months. He was also advised to take internal medicines which include *Rasnerandadi Kasaya*, *Chandraprabha Gulika*, *Punarnavasava*, and *Amritharishta*. *Rasnerandadi Kasaya* helps to reduce swelling and pain which are caused due to *Vata* and *Rakta*. *Chandraprabha gulika* has a diuretic action and an anti-inflammatory action. *Amritharishta* reduces the temperature and is effective in all inflammatory conditions. *Punarnavasava* promotes diuresis and cures swelling. *Vilwadi gulika* is considered for its anti-inflammatory action.

With the aforementioned therapy, full recovery was achieved without any deformity and normal hand function within one and a half months.

Conclusion

Acharya Susruta had done tremendous work in the field of orthopaedics and described bone and joint injuries in a very scientific and elaborative way. The manipulative reduction technique followed by a bandage using murivena has shown improvement in the condition of the patient. Swelling, pain and temperature gradually reduced with improvement in the movements like supination and pronation within the first three weeks. By the end of one month, complete movement was possible without any pain and he was able to lift a chair with the fractured hand. At the end of the treatment, the afflicted part could move fully and freely without experiencing any pain, which is suggestive of a healthy union, both clinically and radiologically.

References

1. David L Hamblen and A Hamish R W Simpson, Adams's Outline of Fractures including joint injuries, Edition 12th, Chapt 12th, Elsevier, Pg. No.172.
2. Prof. Vasant C Patil, Susruta Samhitha, with English translation of text and Dalhana commentary, Volume 2, Chikitsa sthana, 3/17-19, Chaukhambha publications, New Delhi, Pg.No.305
3. Prof. Vasant C Patil, Susruta Samhitha, with English translation of text and Dalhana commentary, Volume 2, Chikitsa sthana, 3/18-19, Chaukhambha publications, New Delhi, Pg.No.305
4. Prof. Vasant C Patil, Susruta Samhitha, with English translation of text and Dalhana commentary, Volume 2, Chikitsa sthana, 3/11-12, Chaukhambha publications, New Delhi Pg. No-304
5. Sahasrayogam with Sujanapriya vyakhyana, vatarakta kashaya prakarana, Vidhyaramba publications Pg No.84
6. Prof. K. R Srikantha Moorthy, Sharangadhara Samhita, Madhyama Khanda, Chapter 7/40-49, Chaukhamba Orientalia Pg No,105
7. Govida Dasji Bhisagratna, Bhaishajya Ratnavali, commented upon by Vaidyasree Ambika Datta Sastri, volume 1, chapter 6/1257-1260, Chaukhambha Sanskrit Samsthan, Varanasi, Pg. No 362
8. Govida Dasji Bhisagratna, Bhaishajya Ratnavali, commented upon by Vaidyasree Ambika Datta Sastri, volume 2, chapter 42/193-197, Chaukhambha Sanskrit Samsthan, Varanasi, Pg. No.681
9. Prof. K. R Srikantha Moorthy, Acharya Vaghbata, Ashtanga Hridaya, Volume 3, Uttara Sthana, 36/84,85, Chaukhamba Krishnadas Academy Pg.No 387

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