

## Patronizing Traditional Bone Setters and Its Complications- A Study In Bangalore.

Manjunatha V

ESICMC and PGIMSR, Rajajinagar, Bangalore.

Manjunatha V analysed and interpreted the patients data, evaluated clinically and radiologically, prepared the manuscript and approved the final manuscript.

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### Abstract:

**Background:** Traditional bone setting is widely practiced in developing countries like India and a city like Bangalore is no exception to this. We conducted this study to evaluate the reasons for patronizing traditional bone setting and also to know the complications associated with it.

**Methods:** This was a prospective observational study conducted in our hospital. 568 patients presenting to our hospital from August 2013 to August 2015 after getting treated by traditional bone setters were included in our study. They were evaluated clinically and radiologically for presence of fracture, made to answer a questionnaire and observations were made for presence of complications.

**Results:** There were 337 males and 231 females with mean age were 37.6 years. Upper limb was involved in 357 patients and lower limb in 211 patients. Most of the patients were educated, and neighbors were the most common source of information about traditional bone setters. Easy accessibility and affordability were the reasons for patronizing traditional bone setters though it was associated with complications like malunion, nonunion, delayed union, pressure sore, chronic osteomyelitis, neglected dislocation, compartment syndrome, Volkmann's ischemic contracture and gangrene.

**Conclusion:** Even though modern orthopaedic care is easily available, people continue to patronize traditional bone setters as it is affordable and accessible. Educational status does not seem to influence and people continue to patronize traditional bone setters in spite of serious complications associated with it.

**Key words:** Traditional bone setters; fractures; patronize; complications.

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### I. Introduction

Traditional bone setters are one of the largest specialist groups practicing traditional medicine in our country<sup>1</sup>. It is believed that there are about 70,000 traditional healers and bone setters in India and they treat 60% of trauma<sup>2</sup>. In developing countries- especially in the Indian subcontinent, Africa and South America with less developed healthcare resources- these unorthodox practitioners still play an important role in providing primary medical support<sup>3</sup>. There are many clinics in big cities like Chennai, Coimbatore, Hyderabad, Vishakhapatnam, Bangalore, Pune and Mumbai<sup>4</sup>. The popularity of traditional medicine is explained by a number of factors including availability, affordability, familiarity and custom. Many developing nations have integrated traditional practitioners into mainstream healthcare. For example, prenatal and birthing attendants, chiropractors and herbal practitioners have each found places in established healthcare schemes<sup>5, 6</sup>.

Traditional bone setting services are well preserved as a family practice, and training is by apprenticeship. Records are kept strictly by oral tradition<sup>7</sup>. The principle and the common mode of immobilization is application of tight splint at the fracture site<sup>8</sup>. These traditional fracture splints are made from bamboo, rattan cane and palm leaf axis<sup>9, 10</sup>. These materials are knitted together to form a mat-like splint which are usually wrapped round the fracture site tightly. The immobilization is done most of the time without basic knowledge of anatomy, physiology or radiography which make limb and life threatening complications inevitable. These complications vary from acute compartmental syndrome, tetanus, deformities, chronic osteomyelitis, gangrene, amputation and death<sup>11-13</sup>. These complications do not seem to deter other patients from patronizing the TBS rather this practice continues to flourish<sup>11, 14</sup>.

Even in cities like Bangalore where health care facilities are easily accessible, traditional bone setting continues to flourish. This study was conducted with the objective of finding out why patients patronize traditional bone setters despite the complications and also to evaluate the complications associated with it.

### II. Materials And Methods

This was an observational study conducted from August 2013 to August 2015 in our hospital. A total of 568 cases (337 males, 231 females) with upper and lower limb fractures and dislocations presenting to hospital (357 upper limb, 211 lower limb) after initial treatment by traditional bone setter were included in our study. Patients with head, chest, abdominal and spine injury were excluded.

The patients were examined clinically and radiologically for the presence of fracture or dislocation. Patients were presented with a questionnaire; patient's educational qualification, means of contact and reason for patronizing traditional bone setters was noted.

Observations were made for the presence of complications like infection, compartment syndrome, fat embolism syndrome, gangrene, pressure ulcer, malunion, delayed union, nonunion, joint stiffness, osteomyelitis and neuropathy.

### **III. Results**

There were 337 males (59.33%) and 231 females (40.67%) out of the 568 patients. Mean age was 37.6 years (range from 7 years to 87 years). Upper limb was involved in 357 patients (62.85%) and lower limb in 211 patients (37.15%) [Table 1].

Out of 568 patients 38 (6.69%) were not educated, 58 (10.21%) had passed seventh standard, 135 (23.77%) had passed tenth standard, 70 (12.32%) had passed twelfth standard and 267 (47.01%) had passed degree and above [Table 2].

Neighbors were most often the source of contact (43.84%) to give information about traditional bone setters followed by family members (30.99%) and friends (14.08%) [Table 3].

Easy accessibility was the most common reason for patronizing traditional bone setters in 162 patients (28.52%), followed by affordability in 146 (25.7%), fear of plaster in 138 (24.3%), superstition in 66 (11.62%) and fear of amputation in 56 patients (9.86%) [Table 4].

Patients presented with complications like malunion in 186 (32.75%), nonunion in 97 (17.08%), joint stiffness in 56 (9.86%), delayed union in 71 (12.5%), pressure sore in 13 (2.29%), chronic osteomyelitis in 4 (0.7%), neglected dislocation in 7 (1.23%), compartment syndrome in 6 (1.06%), Volkmann's ischemia in 4 (0.7%) and gangrene in 7 (1.23%). There were no complications in 117 patients (20.60%) as these patients had presented within 10 days after taking treatment from traditional bone setters because they were not satisfied by their treatment due to persistent pain. [Table 5].

### **IV. Discussion**

Traditional bone setters are one of the largest specialist groups practicing traditional medicine in our country<sup>1</sup>. It is believed that there are about 70,000 traditional healers and bone setters in India and they treat 60% of trauma<sup>2</sup>. In developing countries- especially in the Indian subcontinent, Africa and South America with less developed healthcare resources- these unorthodox practitioners still play an important role in providing primary medical support<sup>3</sup>. There are many clinics in big cities like Chennai, Coimbatore, Hyderabad, Vishakhapatnam, Bangalore, Pune and Mumbai<sup>4</sup>. The popularity of traditional medicine is explained by a number of factors including availability, affordability, familiarity and custom. Many developing nations have integrated traditional practitioners into mainstream healthcare. For example, prenatal and birthing attendants, chiropractors and herbal practitioners have each found places in established healthcare schemes<sup>5, 6</sup>.

Even in cities like Bangalore where health care facilities are easily accessible, traditional bone setting continues to flourish. This study was conducted with the objective of finding out why patients patronize the traditional bone setters despite the complications and also to evaluate the complications associated with it.

Slight male predominance (59.33%) seen in our study was similar to observations made by Aneikan Udoh Ekere et al<sup>15</sup> who found male predominance (53.52%) in their study. This is because males are more commonly involved in outdoor activities and hence incidence of fracture was more common in males.

In our study upper limb was involved in 62.85% and lower limb in 37.15% patients. Aneikan Udoh Ekere et al<sup>15</sup> observed that upper limb was involved in 43.03% and lower limb in 56.97% of patients. Our finding was different because lower limb fractures occur more commonly due to high velocity injury and these patients seek hospital care directly in a city like Bangalore.

We observed that educational status has nothing to do with people patronizing traditional bone setters. Similar observations were made by Oweseni Joseph sina et al<sup>16</sup> and Ashok Kumar Panda et al<sup>4</sup> in their studies.

Neighbors were the most common source of information (43.84%) for patronizing traditional bone setters in our study, followed by family (30.99%) and friends (14.08%) in our study. Oweseni Joseph Sina et al<sup>16</sup> found that family members were the most common source of information, followed by relatives and friends.

Traditional bone setters are easily accessible (28.52%) and affordable (25.7%). Patients are superstitious (11.62%), they have fear of plaster (24.3%) and amputation (9.86%) and hence they don't come to hospital after trauma. C B Kuubiye et al<sup>17</sup> found that superstition (37.5%) was the most common reason, followed by affordability (31.25%) and easy accessibility (7.5%) for patronizing traditional bone setters in their study.

Malunion (32.75%) [Figure 1] was the most common complication of traditional bone setting, followed by nonunion (17.08%) [Figure 2] and delayed union (12.5%). Serious complications like compartment syndrome (1.06%) [Figure 3], gangrene (1.23%) [Figure 4], chronic osteomyelitis (0.7%) [Figure 5], Volkmann's ischemic

contracture (0.7%) [Figure 6] and neglected dislocation (1.23%) [Figure 7] were also seen. Aniekan Udoh Ekere et al<sup>15</sup> found nonunion in 36.47%, malunion in 24.71%, chronic joint dislocation in 9.41%, Ankylosis in 5.88%, joint stiffness in 4.71%, arthrosis or arthritis in 3.53%, chronic osteomyelitis in 3.53%, Volkmann’s ischemic contracture in 2.35%, gangrene in 2.35%, delayed union in 1.18% and pressure ulcer in 1.18%. The results were comparable to our study.

### V. Conclusion

Even though modern orthopaedic care is easily available, people continue to patronize traditional bone setters as it is affordable and accessible. Educational status does not seem to influence and people continue to patronize traditional bone setters in spite of serious complications associated with it. Provision of affordable health care at accessible sites along with public education regarding the adverse effects can prevent people from patronizing traditional bone setters.

### VI. Competing Interests

The authors declare that they have no competing interests.

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### Tables

**Table 1:** Injury sustained.

Pathology	Site	Number	Percentage
Fracture	Peritrochanteric	56	9.86
	Femur	9	1.58
	Tibia & Fibula	18	3.17
	Patella	12	2.11
	Ankle	48	8.45
	Foot	52	9.16
	Humerus	58	10.21
	Elbow	65	11.44
	Forearm	43	7.57
	Distal Radius	82	14.44
Dislocation	Hand	74	13.03
	Shoulder	26	4.58
	Elbow	9	1.58

	Hip	16	2.82
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**Table 2:** Educational qualification.

Education level	Number	Percentage
None	38	6.69
Upto 7 <sup>th</sup> standard	58	10.21
Upto 10 <sup>th</sup> standard	135	23.77
Upto 12 <sup>th</sup> standard	70	12.32
Degree or above	267	47.01

**Table 3:** Source of contact.

Source	Number	Percentage
Neighbors	249	43.84
Parents	176	30.99
Friends	80	14.08
Self	53	9.33
Others	10	1.76

**Table 4:** Reason for patronizing traditional bone setters.

Reason	Number	Percentage
Easily accessible	162	28.52
Affordable	146	25.7
Fear of plaster	138	24.3
Superstition	66	11.62
Fear of amputation	56	9.86

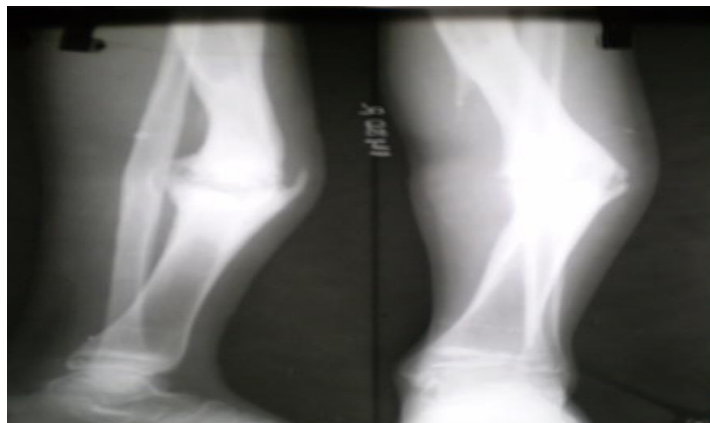
**Table 5:** Complications.

Complications	Number	Percentage
Malunion	186	32.75
Nonunion	97	17.08
Joint stiffness	56	9.86
Delayed union	71	12.50
Pressure sore	13	2.29
Chronic osteomyelitis	4	0.70
Neglected dislocation	7	1.23
Compartment syndrome	6	1.06
Volkman's ischemic contracture	4	0.70
Gangrene	7	1.23
None	117	20.60

**Figures:**



**Figure 1:** X-ray showing malunited fracture of distal end radius.



**Figure 2:** X-ray showing nonunion of fracture shaft tibia.



**Figure 3:** Clinical picture showing compartment syndrome in foot.



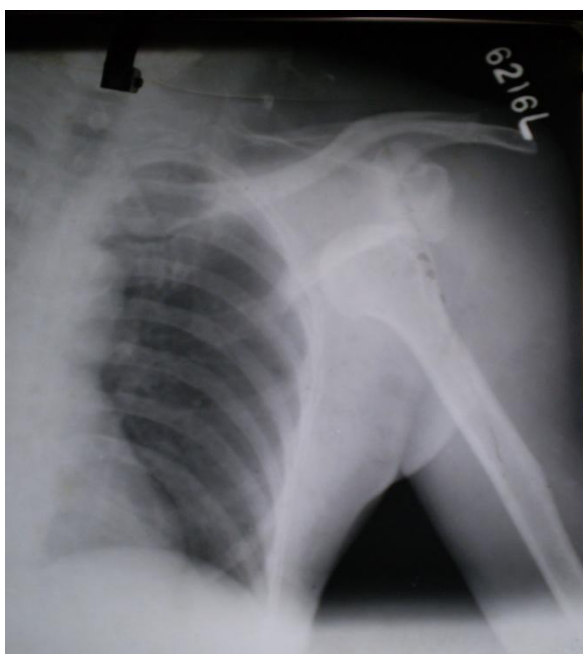
**Figure 4:** clinical picture showing gangrene changes in hand.



**Figure 5:** X-ray showing chronic osteomyelitis of tibia.



**Figure 6:** Clinical picture showing Volkmann's ischemic contracture.



**Figure 7:** X-ray showing neglected dislocation of shoulder joint.