www.jmscr.igmpublication.org
Impact Factor 5.84
Index Copernicus Value: 71.58
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v5i10.122

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Original Research Article

Fracture Management by Traditional Bonesetters: A Hospital Based Observational Study

Authors

Tapasa Kumar Panigrahi[1], Dharma Niranjan Mishra[2], Niharika Padhy*[3]

[1]Assistant Professor, Department of Orthopedics S. C. B. Medical College Cuttack 753007, Orissa, India
Email: *tapspan@yahoo.co.in*

[2]Assistant Professor, Department of Anatomy S. C. B. Medical College Cuttack 753007, Orissa, India
Email: *dharmaniranjan.mishra08@gmail.com*

[3]Assistant Professor, Dept of Anatomy M. K. C. G. Medical College Berhampur 760004, Odisha, India
Email: *babypadhy4@gmail.com*

*Corresponding Author

Niharika Padhy*

Assistant Professor, Department of Anatomy M. K. C. G. Medical College Berhampur 760004, Odisha India
Email: *babypadhy4@gmail.com*

Abstract

Background: *Fracture of bone is a persistent problem encountered in orthopedic practice. The management of fracture bone depends on reduction and immobility at the fracture site. The traditional bone setters formulate their own methods and practices for the management of fractures. An observation was made on this traditional indigenous procedure with an aim to bring out the various outcomes and possible reasons for their patronage in society.*

Methods: *Present study was conducted with some kind of prior treatment received from TBS. The detailed history was collected about age, sex, socioeconomic condition, education, habit and habitats from each patient. Each case was subjected to detailed clinical andradiological examinations to evaluate the outcomes of the interventions of TBSs.*

Results: *One hundred and twenty patients in the age group of (1 – 60) years were included in the study out of which 82 (68%) are male and 38 (32%) are females.40% belong to age group of 30 -45 years and 47% are of literate and fair socio economic status. Malunion is the predominant form of presentation with 54 cases (46%) followed by non union in 24 (20%) cases. 33 cases (28%) presented with impending ischemia at initial stages of treatment. Only 8 cases (6%) were presented with chronic osteomylitis and infected nonunion. Eventually 13 cases were ended with gangrene and amputation. Cost of surgery was the major cause (42%) followed by fear of surgery (23%) was observed for non acceptance of modern orthopedic system.*

Conclusion: *The results in our study vindicate the fact that TBS play a major role in providing health care to the fracture patients. Lack of basic knowledge and aversion to referral system by TBS is responsible for complications. So creating public awareness and integrating TBS in the healthcare system through proper training and due legislation seems to be the apt solution to combat this menace.*

Keywords: *Traditional Bone Setters, chronic osteomylitis, Malunion and nonunion.*

Introduction

In the process of evolution man has put a continuous effort in developing methods & practices for improvement of his own health. With passage of time many of such arts have become prey to modern medical sciences. But that one refuses to die is the art of traditional bone setting. In spite of criticism and adversities this age old art has managed not only to survive but also to flourish in every sector of society.

Since 400 B.C till date many prophets like Hippocrates, Susruta, Hugh Owen Thomas etc have tried to justify the usefulness and reasonability of this art. It was Susruta in 3000 years ago in his famous classic Susrutasanhita detailed the "Khandabhagna" (fracture in general), its type, clinical diagnosis, various techniques and principles of treatment.("Science & Society in anciant India" by D B. Chottopadhya 1977[1]. Studies accept that many fractures do heal with the traditional method of treatment. (Eshete M. JBJS 2005). [2] The traditional bone setting plays a vital role in meeting the needs of orthopedic problems especially in rural areas where the formal primary & secondary health care is not adequate. It has been reported that about 70000 traditional bonesetters are prevalent in India and treat about 60% of total trauma patients Eshete .M et.al. JBJS: 2005. [2] Approximately 30-40 patients are attended by single bonesetter per day. In the country like India about 350 traditional bone setters are documented in 16 districts in Tamilnadu, Pondicherry and 4 districts in Kerala. Many of the journals reveal the prevalence of traditional bone setters in African countries to be very high[3]. Various psychosocial and economic factors embolden these bone setters in society particularly in the developing countries. However their credibility is challenged from time to time by various studies. Can the art of TBS be relied up on or tobe reviewed particularly when the modern orthopedic science with its well developed armamentarium is at the door step? This is a growing debate across the globe rather. With this background, we have done an observational prospective study to evaluate the methodology and various outcomes of treatment by traditional bone setters and to find out the facts enacting behind their survival.

Materials and Methods

Present observational study included 120 cases presented to the Outpatient department of Orthopedics, SCB Medical College, Cuttack at different stages of treatment by Traditional Bone Setters during period of Aug 2014 to Nov. 2016. Informed consent obtained from all the cases. Thorough history was collected regarding age, sex, socioeconomic condition, education, habit and habitats etc. Subsequently each case was subjected to detailed clinical & radiological examinations to evaluate the outcomes of the interventions of TBSs. Special emphasis was given on the fracture union, functional recovery in terms of weight bearing, range of moment at joints, infection, deformity or any other relevant results.

The method of interventions provided in hospital were

Conservative Close Manipulation

- (Osteoclasis) POP Cast under anesthesia
- PTB Cast
- Functional bracing

Operative

- External fixation for neglected open wounds
- CRIF under anesthesia
- ORIF under anesthesia with or without bone grafting
- Ilizarov ring fixator for infective non union
- Amputation and Rehabilitation for gangrenous limb.

Data analysis

All data obtained with questionnaire and biochemical analysis were analyzed using the Graph Pad's web site. Statistical significance was accepted when the two-tailed P value is less than 0.0001.

Observation

In the present study120 patients in the age group of 1 – 60 years are included out of which 82 (68%) are male and 38 (32%) are females. Maximum number of patients i.e. 48 patients (40%) belonged to the age group of 30 – 45 years. Interestingly 51 cases (42%) are of having fair socioeconomic status and 56 cases (47%) are literate with some level of primary education.

Table No 1. Socio-demographic characteristics of the study population

Variables	Levels	Frequency n=120	Percentage
Age in years	< 15	42	35%
	16 – 29	21	18%
	30 – 45	48	40%
	46 – 60	5	4%
	> 60	4	3%
Sex	Male	82	68%
	Female	38	32%
Socioeconomic status	APL	89	74%
	BPL	31	26%
Educational status	Illiterate	64	53%
	Literate	56	47 %

In the present study out of 120 cases 83(69%) cases were simple fracture followed by 12(10%) cases as compound fracture and 25(21%) cases were having soft tissue injury and dislocation.

Table No 2. Type of injury in the study group

Type of Injury	No. of Cases	Percentage (%)
Simple Fracture	83	69%
Compound Fracture	12	10%
Soft tissue injury and dislocation	25	21%
Total	120	100%

Modern basic Orthopedic services like X-ray, Oral antibiotics, Antitetanus and anti-inflammatory drugs were availed by only 26 cases (12%). There were only 4 cases (3%) offered referral services in case of complication.

Table No 3. Modern Basic Service followed by traditional bone setters

Type of Modern Basic Service	n =26	Percentage (%)
X-ray	8	6%
Oral Antibiotics	3	2%
Anti tetanus Drugs	3	2%
Anti-inflammatory	8	6%
Referral to Orthopedic Surgeon	4	3%
TOTAL	26	19%

Malunion was the predominant form of presentation with 54 cases (46%) followed by non union in 24 (20%) cases, 33 cases (28%) presented with impending ischemia at initial stages of treatment, 8 cases (6%) presented with chronic O.M. and infected non union. About 33(28%) cases were with features of impending ischemia.

Table No 4. Complications of the study subject by traditional bone setters

Complication	No. of Cases	Percentage (%)
Malunion	54	46%
Non union	24	20%
Chronic Osteomylities	8	6%
Impending ischemia	33	28%
Others (Tetanus, Sepsis etc.)	1	0.8%
TOTAL	120	100%

Treatment cost was the major factor for apathetic approach of 41 cases (33 %) towards modern orthopedic services. About 18 % of cases were still ignorant about the advancement of modern orthopedic surgery, the various complications of traditional bone setting etc. In our study 23 % of total cases had fear for surgery. Poor transport facility was responsible for the inclination of 19(15%) of patients towards TBS. At the end 10 (12%) patients were found to be biased by fellow villagers and friend's opinions about TBS.

Table No 5. Reason for patronizing traditional bone setters

Reason	No. Of Cases	Percentage (%)
Cost factor	41	33%
Lack of awareness	14	11%
Fear of Surgery	28	23%
Local belief & traditions	8	7%
Easy accessibility	19	15%
Hear Say	10	12%
TOTAL	120	100%

Discussion

In this study the bulk of the patients were young people below 45 years (40%) with children <15 years contributing a significant proportion (35%). Any kind of functional impairment in this group directly affects the productive and valuable group in a society. Distribution of sex in the present series showed a male preponderance with M: F

ratio about 2: 1 [4]. The involvement of more young males is not surprising as they are more adventurous in the active years of life and engage themselves in injury prone activities in the day to day life. Quite a good number of people in this study are having an affordable life style. Fifty one cases (42%) are above poverty line. (The standard taken for socioeconomic status in this study is possession of BPL card). 20% of the APL (Above poverty line) cases are having even good repute & business in their villages. Also, 56 literate cases (47%) had attended the TBS instead of availing the modern health avenues. These results are definitely a set back to the aim of the WHO i.e. health for all". In spite of awareness, education, affordable financial status, still people are inclined towards these TBSs. So, other causes such as psychosocial factors need to be evaluated. This study also rejects the misconception that poverty and illiteracy are the important causes that patronise the traditional bone setters in the common mass.[5] In this study, as compared to simple fracture and soft tissue injuries, the number of cases with compound fractures is substantially low i.e. 10%. This suggests that either the TBS tactically avoid dealing compound injuries or the people in apprehension of bleeding and infection seek the hospital services. Whatever may be the reason, but this trend is definitely a blessing in disguise. Or else the mortality & morbidity would have been very high in terms of limb amputation, septicemia etc, in their study on complication of TBS, in Nigeria, found bones of axial skeleton were fractured more frequently than other and the most frequently fractured bone was femur & then Tibia, humerus & fibula in order of incidence[6]. Most of the TBS use of bamboo stick or barks of trees as splints, and wrap them around the injured part with help of cloth. Ninety (90%) TBS use some form of paste made up of herbal roots & leafs prior to the splintage and apply hot compression frequently [7, 8, 9] This study also revealed the extent of splintage in 94% of the fractures confined to the injured site of the limb letting the adjacent joints be free to move. The traditional bonesetters are giving various logical answers to justify their approach. According to them, liberation of joints prevents stiffness and favours early return of functional status of the limb. Movement of the fractured limb enhances the rate of union and callus formation. This concept justifies to some extent the modern Sarminto's concept of functional cast bracing, Khan AA (Journal of Bangladesh Ortho. Society 1981[10]. The most common complication observed in this series is malunion in 54 cases (46%) followed by impending ischemia (28%) contrary to observations made by Omololu, Bet.al [11], where nonunion is the most common complication (36.6%). The observations by Chowdury M [12] support results of this series where malunion is the predominant type of presentations. Non union (25%) has been observed as the second most common complication of traditional bone setting in their series. TBS hardly respect the soft tissue overlying the fractured bones. The lepa, heat applied irritate & scarify the skin badly. Enthusiastic application of tight splintage with intent to achieve rigid immobilization impairs vascularity. Early movements, inadequate extension of splints make the fractures unstable and impart repeated stress on the uniting bone. This delays the progress of union (which is observed in this series to be on average 9 months in lower limbs & 6 months in upper limbs) and also leads to union in various deformed positions Nwadiaro H et.al.[13,14] In the present study significantly 23% cases have apprehensions for surgery at hospitals. Ironically people harbour a false assumption that a visit to a hospital automatically means surgical treatment. The complications following surgery is pointed out every where even if the percentage is negligible. This very phobic psychology encourages many limb injury cases to approach TBS for non surgical managements.[15] It is apparent in this study that along with financial constraints, psychosocial beliefs, local traditions and cultures even do influence the common mass to a large extent for availing traditional methods of fracture

treatment[17]. Among various reasons cited by patients, Cost factor was the major reason (33%) followed by fear for surgery (23%). But at the same time, in the face of poverty, lack of infrastructure, illiteracy, this age old art becomes an easily accessible and affordable alternative for the common people at the door step as far as musculoskeletal injuries concerned. In countries like India, traditional bone setters are the largest specialist group practicing traditional medicine[18]. Due to scanty knowledge and prejudices ideas, TBS are unaware of wound toileting, use of anti tetanus and antibiotics. The hardly ever refer the cases to hospitals in case of emergency may be because of self ego. In our study only 2% received antibiotics and 3% cases offered referral advice.

Conclusion

Educational and social awareness are the key tools to impregnate the mind of common people with disastrous outcome of traditional bone setting. This indigenous art should not be criticized out right; rather the TBS may be educated & encouraged to follow the basic principles of fracture managements. Traditional bone setting may be integrated into primary health care. The medical regulatory bodies should design programs that can give basic training to TBS for safe application of splints and early identification of signs of ischemia so to say at the door step of injured. They may be urged to adopt the referral services in cases of complications. They should be permitted and encouraged to attend as orthopedic assistants in primary trauma departments as a part of rural health scheme. Taking the noble approach of converting traditional birth attendants (TBA) to trained birth attendants (TBA) as reference, efforts may be made to convert these traditional bone setters to trained bone setters which seems to be a feasible option . Finally, progressive improvement in the economy and general public awareness is rather mandatory to complement these actions to reduce the number of traditional bone setters and increase utilization of modern orthopedic services is the ultimate aim to be achieved.

Conflict of interest: None to declare.

References

1. D B .Chottopadhya. “Science & Society in ancient India” 1977: 35-45.
2. Eshete M. The prevention of traditional bone setter’s gangrene. J Bone Joint Surg Br. 2005; 87:102–103.
3. Agarwal A, Agarwal R. The Practice and Tradition of Bonesetting. Education for Health. 2010; 23 (1) : 1-8.
4. Bickler SW, Sanno-Duanda B. Bone setter's gangrene. J Pediatr Surg. 2000 Oct; 35(10):1431-3.
5. Nwachukwu BU, Okwesili IC, Harris MB, Katz JN. Traditional bonesetters and contemporary orthopaedic fracture care in a developing nation: Historical aspects, contemporary status and future directions. Open Orthop J. 2011; 5:20–26.
6. OlaOlorun DA, Oladiran IO, Adeniran A. Complications of fracture treatment by traditional bonesetters in Southwest Nigeria. FamPract. 2001;18: 635–637.
7. Umaru RH, Gali BM and Ali N. Role of inappropriate tradinationalSplintage in limb amputation in Maiduguni Nigeria. Journal of African Medicine.2004;3(3): 138-140.
8. Oginni LM. The use of Traditional fracture splint for bone setting. Nig Medical Practitioner 1992; 24 (3): 49 – 51.
9. Onuminya JE, Onabowale BO, Obekpa PO, Ihezue CH. Traditional Bonesetter’s Gangrene. International Orthopedics (SICOT) (1999); 23:111-112.
10. Khan AA. Treatment of Fractures of Long Bone by Cast Brace Method. Journal Of Bangladesh Ortho. Society 1981; 1(1): 19-22.
11. Omololu B, Ogunlade S and Alonge T. The Complications seen from the

treatment by traditional bone setters.WAJM. 2002; 21(4) : 335-337.

12. Chowdury M, Khandkher H, Ahsan, K and Mostafa D. Complications of Fracture Treatment by Traditional Bonesetters at Dinajpur, Dinajpur Medical Journal . 2011; 4 (1): 15-19.
13. Nwadiaro H, Nwadiaro P, Kidmas, A, Ozoilo K. Outcome of traditional bone setting in the Middle belt of Nigeria. Nigerian Journal of Surgical Research. 2006; 8(1) : 44-48.
14. Thanni LO. Factors influencing patronage of traditional bone setters. West Afr J Med. 2000; 19(3):220-4.
15. Thanni, L., Tade, A. Extremity amputation in Nigeria a review of indications and mortality.The Surgeon 2007;Volume 5 (4): 213-217.
16. Ikpeme IA, Udosen AM, Okereke, Okpa I. Patients Perception of traditional Bones Setting in Calabar. Port Harcourt Med J. 2007;1:104-7.
17. Dada A, Giwa SO, Yinusa W, Ugbeye M, Gbadegesin S: Complications of Treatment of Musculoskeletal Injuries by Bone Setters, WAJM: 2009; 28(i) :43 – 47.
18. World health organization. Promoting the role of traditional medicine in health systems: a strategy for the African region (2001-2010); World health organization 2000; (document reference AFR/RC50/Doc.9/R).