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TRADITIONAL BONESETTERS;
FREQUENCY OF COMPLICATIONS WITH TREATMENT BY TRADITIONAL BONESETTER

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ABSTRACT… Objectives: To analyze the reasons for treatment by Traditional Bone Setters (TBS) and the frequency of complications in patients treated by traditional bone setters in our set up. **Study Design:** Descriptive case series**. Place and Duration of Study:** District Headquarter Hospital (DHQ) Temargarah & Lady Reading Hospital Peshawar and, Ghurki Trust Teaching Hospital, Lahore from Dec 2014 to Nov 2015**. Material and Methods:** Patients of either gender or all ages received in outpatient department or accident and emergency of DHQ Temargarah, Lady Reading Hospital Peshawar and Ghurki Trust Teaching Hospital, Lahore with history of trauma followed by treatment by local bonesetters were included in our study. After proper history, examinations and investigations, appropriate treatment were given and complications were noted. **Results:** We received a total of 267 patients who were treated by Traditional bone setters.186 were males and 81 were females. Age ranges from 1.5 years to 87 years. In majority Advice or pressure from family/friends taking the lead. 77(28.84%) of patients suffer because of family or friends. 66(24.72%) of patients affected because of socio cultural beliefs, 46(17.23%) because of low cost, 35(13.11%) because of ignorance, 24(8.98%) because of fear of operation, 19(7.12%) because of fear of amputation took their treatment from bone setters. The most frequent complication we received was malunion were found in 67(25.10%) and non-union in 55(20.60%), **Conclusion:** Pressure from friends and family was the main reason for consulting Traditional Bone Setters for treatment in our set up and complications caused by their treatment were frequent and ranged from immediate compartment syndrome and gangrene of the limb to late onset mal union, non-union and avascular non-union.

Key words: trauma, bonesetter, gangrene, compartment syndrome

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INTRODUCTION

Injury is one of the leading causes of mortality and disability worldwide.[1] The main aim of fracture management by orthopedic surgeons are to obtain proper anatomic reduction, healing of the fracture, restoration of physiology up to maximum as like pre injury state.[2] Traditional bone setting is an art that has been survived since more than 3000years, mostly in the face of urbanization, lack of public attention and lack of modern.[3] The traditional bonesetter's practice is a highly specialized form of traditional medicine.[4] In this modern world Traditional Bonesetters are very popular in developing countries because of low cost, easy accessible, cultural believes and mostly advices from families and friends. It usually passes from one generation to another generation of the same family like from father to son but some outsiders also receive their training via apprenticeship. In many developing countries, the traditional care of diseases and injuries remain popular among the citizens despite civilization and the existence of modern health care services[5] The TBS's have not any knowledge of anatomy, physiology, imaging, and principles of infection prevention and control, that's why their treatment having high failure rates and complications[5,6] The different complications include compartment syndrome, non-union, malunion, Volkmann's ischemic contracture, Osteomyelitis, amputations and even death. They used different materials for immobilization like bamboo stick or wooden pieces along with cotton and different types of oils for healing. Majority of these complications are caused by the methods used in managing these fractures such methods include the use of rattan

cane, and palm stick wrapped round fracture segments with consequent tourniquet effect. Others include massaging and excessive traction causing heterotopic calcification, mal-union and non-union. There is also the use of incantations and scarifications, which can cause infection and osteomyelitis.[9] The commonest problems treated by them are fractures and dislocations.[7] These complications not only increases disease burden but also create a lot of problems in terms of management for the orthopedic surgeons.[8] Like many other developing countries of the world, bonesetters are part of healthcare delivery system throughout Pakistan. In this study we analyzed the reasons for treatment by Traditional Bonesetters and the frequency of complications in patients treated by traditional bone setters in our set up.

MATERIAL & METHODS

This descriptive study was carried out simultaneously in District Headquarter Hospital Timargarh, Ghurki Hospital Lahore and Lady Reading Hospital Peshawar from December 2014 to Nov 2015.The research protocols were approved from all 3 hospital ethics committees. Patients of either gender or all ages treated by traditional bone setters after musculoskeletal injuries presented to the OPD or Accident and emergency Department for treatment were included. Complete history, physical examination and X-ray of the affected part was done in all the included subjects. Patients in which complication could not be established clinically and radio logically were excluded from the study. A total of 310 patients presented at the Accident and Emergency department and at the orthopedic outpatient clinic of the hospital from Dec 2014 to November 2015 after attending traditional bone setting centers. However, only 267 patients gave consent to participate in the study and were subsequently recruited. Informed written consent was obtained from all the patients or their parents. Patients were managed according to protocol. Data was entered into SPSS version 18. Frequencies and percentages were calculated. Data presented in tables where necessary.

RESULTS

A total of 267 patients were included in the study. Out of them 186(69.67%) were males and 81(30.33%) were females (Male: Female = 2.78:1). Age ranges from 1.5 years to 87 years (mean age of 28.8 years). Most of the patients were in the range of second and fourth decades of life. (Table-I)

Mechanism of injury was different in different patients. 123(46.07%) patients presented with history of road traffic accidents, 76(28.46%) patients with history of fall, 31(11.62%) with pathological fractures mainly osteoporosis, 25(9.36%) with violence and 12(4.49%) with miscellaneous causes. (Table-II)

Areas involvements were different in different patients. 54(20.23%) patients had Ankle injuries, 58(21.72%) patients had humerus fracture, 49(18.35%) patients had Radius/Ulna fracture, 34(212.73%) patients had Femur fracture, 27(10.11%) patients had Soft Tissues injuries, 23(8.61%) patients had Tibia fracture, 2(0.76%) patients had Scaphoid fracture, 7(2.62%) patients had shoulder dislocation, 4(1.50%) patients had clavicle fracture, 4 (1.50%) patients had Elbow dislocation, 3(1.12%) patients had Patella fracture and 2(0.76%) patients presented with hip dislocation. (table III).

Factors responsible for making a decision to take treatment from bone setters are many. Advice or pressure from family/friends taking the lead. 77(28.84%) of patients suffer because of family or friends. 66(24.72%) of patients affected because of socio cultural beliefs, 46(17.23%) because of low cost, 35(13.11%) because of ignorance, 24(8.98%) because of fear of operation, 19(7.12%) because of fear of amputation took their treatment from bone setters. (Table-IV)

In our study 77(28.84%) of patients were civil servants, 33(12.34%) were govt. servants, 56(20.97%) were students, 39(14.62%) were farmers, 21(7.87%) were drivers, 27(10.12%) were shop keepers and 14(5.24%) were doctors and engineers. (Table-V)

Malunion were found in 67(25.10%), non-union in 55(20.60%), Volkmann ischemic contracture in (2.62%), neglected dislocation in 11(4.12%), joint stiffness in 29(10.86%), osteomyelitis in 8 (3.00%), gangrene in 15(5.62%), avascular necrosis in 9(3.37%), compartment syndrome in 14(5.24%), heterotrophic calcification in 4(1.50%), soft tissue injury 28(10.49%), and osteoarthritis were found in 20(7.50%) of patients. (Table-VI)

Age	Frequency	Percent
0-10	35	13.11
11-20	64	23.96
21-30	30	11.24
31-40	58	21.72
41-50	24	8.99
51-60	19	7.12
61-70	21	7.87
71-80	9	3.37
81-87	7	2.62
Total	267	100

Table-I. Distribution of Patients by Age

Mechanism	Frequency	Percent
RTA	123	46.07%
Fall	76	28.46%
Pathological	31	11.62%
Violence	25	9.36%
Miscellaneous	12	4.49%
Total	267	100

Table-II. Frequency of Mechanism of injury

	Frequency	Percent
Ankle injuries	54	20.23
Humerus fracture	58	21.72
Radius/ulna fracture	49	18.35
Femur fracture	34	12.73
Soft tissue involvement	27	10.11
Scaphoid fracture	2	0.76
Clavicle fracture	4	1.50
Elbow dislocation	4	1.50
Tibia fracture	23	8.61
Shoulder dislocation	7	2.62
Hip dislocation	2	0.75
Patella fracture	3	1.12
Total	267	100

Table-III. Frequency of bone and soft tissue involvement;

	Frequency	Percent
Socio cultural beliefs	66	24.72
Advice from family/friends	77	28.84
Low cost	46	17.23
Ignorance	35	13.11
Fear of operation	24	8.98
Fear of amputation	19	7.12
Total	267	100

Table-IV. Frequency of factors that influenced the patients decision to patronized TBS

	Frequency	Percent
Civil servants	77	28.84
Govt servants	33	12.34
Pupils/students	56	20.97
Farmers	39	14.62
drivers	21	7.87
Shop keepers	27	10.12
Doctors and engineers	14	5.24
Total	267	100

Table-V. Frequency of patients by their occupations

Complication	Frequency	Percent
Malunion	67	25.10
Non Union	55	20.60
Volksman Ischemic Contracture	7	2.62
Neglected Dislocation	11	4.12
Joint Stiffness	29	10.86
Osteomyelitis	8	3.00
Gangrene	15	5.62
Avascular Necrosis	9	3. 37
Compartment Syndrome	14	5.24
Heterotrophic Calcification	4	1.50
Soft tissue injury	28	10.49
Osteoarthritis	20	7.50
	267	100

Table-VI. Frequency and percentages of complications due to treatment by traditional bone setters.

DISCUSSION

Traditional bonesetters use different methods while treating these patients. Some use massage, Traction, splint age with wooden bars and bamboos stick. They apply old clothes socked in egg

Yolk which becomes hard when dry. Bonesetters use a term dislocation (Khathal in Pashto language) and convince the patient and attendants that it's a condition not visible on X-ray and reduction with traction is the only option. Some bonesetters uses X-rays for diagnosis and prognosis. Musculoskeletal injuries are most common in developing countries, but access to high quality orthopedic care is not. Traditional bone setters (TBS) serve to fill the gap in developing countries, but the nature and quality of their treatment are largely unsatisfactory. The reasons for patronizing the bonesetters were many in our study.

In our study 186(69.67%) were males and 81(30.33%) were females (Male: Female = 2.78:1). Age ranges from 1.5 years to 87 years (mean age of 28.8 years). There is higher percentage of males as compared to females in other studies also.[5,9,10,11,13] The male preponderance recorded in this series as in most trauma series emphasizes the fact that males are more often exposed to injuries than females. They are more often exposed to traffic as either drivers or travelling long distances to work and are more active in sports.

The highest percentage of patients found in our study were in second (23.96%) and forth decade of life. (21.72%). In Chaudhry et all[12] and Krug EG et all[1] study similar findings were noted, while in Imad et all study children between 6-20 years constitute 50%.[13]

In our study different mechanism of injury were noted in different patients.123(46.07%) patients presented with history of road traffic accidents mainly motor cycle, 76(28.46%) patients with history of fall, 31(11.62%) with pathological fractures mainly osteoporosis, 25(9.36%) with violence and 12(4.49%) with miscellaneous causes. Road traffic accidents remain the leading cause in our study as well as in other studies.[14,15,16,17]

Areas involvements were different in different patients. 58(21.72%) patients had humerus fracture which has maximum number who were treated by bone setters, 54(20.23%) patients had Ankle injuries, 49(18.35%) patients had Radius/ Ulna fracture, 34(12.73%) patients had Femur fracture, 27 (10.11%) patients had Soft Tissues injuries, 23(8.61%) patients had Tibia fracture, 2(0.76%) patients had Scaphoid fracture, 7(2.62%) patients had shoulder dislocation, 4(1.50%) patients had clavicle fracture, 4 (1.50%) patients had Elbow dislocation, 3(1.12%) patients had Patella fracture and 2(0.76%) patients presented with hip dislocation. Pelvic, spinal and head injuries were not encountered in the studied population In Abass Alhassan et al study the shaft of femur were most common fractures managed by bone setters.[18] while in Chowdhury MA et all[12] study tibia fractures were managed mostly.

Factors responsible for making a decision to take treatment from bone setters were many. Advice or pressure from family/friends in our study taking the lead. In this study, 77(28.84%) of patients suffer because of family or friends. 66(24.72%) of patients affected because of socio cultural beliefs, 46(17.23%) because of low cost, 35(13.11%) because of ignorance and lack, 24(8.98%) because of fear of operation, 19(7.12%) because of fear of amputation took their treatment from bone setters. Among these 267 patients, 61 patients initially went to Govt. hospitals but due to long operation lists and no proper counseling, they avail the option of bone setters. The opinion of relatives and friends is an important factor in Pakistan because of the existing social system In Ndubuisi OC Onyemaechi et all[5] study similarly relatives and family were the most influential persons for taking decision regarding treatment from bone setters. In our study no single patient took treatment from these bone setters due to easy accessibility like our study Owumi et all[15]study showed that 33% of the patients initially went to hospitals but due to un-satisfaction they visited to bone setters.

In our study 77(28.84%) of patients were civil servants, 33(12.34%) were govt. servants, 56(20.97%) were students, 39(14.62%) were farmers, 21(7.87%) were drivers, 27(10.12%) were shop keepers and 14(5.24%) were doctors and

engineers. In P Kumma et all[17] study the farmers were the most, who took treatment from bone setters while govt. employees were the least. However in Udosen et all study as compared to our study the civil servants only 13.9% of the patients seek TBS treatment.[16]

Malunion and non-union are the most common complications of the patients managed by the bone setters in most study.[2,12,13,18] In our study malunion were found in 67(25.10%), non-union in 55(20.60%), volksmann ischemic contracture in (2.62%), neglected dislocation in 11(4.12%), joint stiffness in 29(10.86%), osteomyelitis in 8 (3.00%), gangrene in 15(5.62%), avascular necrosis in 9(3.37%), compartment syndrome in 14(5.24%), heterotrophic calcification in 4(1.50%), soft tissue injury 28(10.49%), and osteoarthritis were found in 20(7.50%) of patients. The study of P kumma et all[17] showed stiffness of joint, the leading complication and in 52.87% while malnunion and non-union were found only in 8.57% and in 5.71%. In OlaOlorun DA et all study the stiffness of the joints were the most important complication encourted.[2]

CONCLUSSION

Pressure from friends and family was the main reason for consulting Traditional Bone Setters for treatment in our set up and complications caused by their treatment were frequent and ranged from immediate compartment syndrome and gangrene of the limb to late onset mal union, non-union and avascular non-union. Proper training of traditional bonesetters and public health education may reduce these complications.

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"Beware of false knowledge;
It is more dangerous than ignorance."

George Bernard Shaw

AUTHORSHIP AND CONTRIBUTION DECLARATION

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