

Puttur kattu (bandage) – A traditional bone setting practice in south India

Ashok Kumar Panda, Suwendu Rout¹

Department of Ayurveda Research, Ayurveda Regional Research Institute, Gangtok, Sikkim, ¹Department of Kayachikitsa, Sri Jayendra Saraswati Ayurveda Mahavidyalaya, Chennai, Tamil Nadu, India

ABSTRACT

Traditional bone setting practices are quite popular in India and nearly 6000 traditional bone setting Vaidyas (Practitioners) are practicing the same in our country. *Puttur kattu* is a traditional way of bone setting practice, invented accidentally by K. Kesava Raju in 1881. Now, the fourth generation of his family is practicing this bone setting practice in hospitals at Puttur, Andhra Pradesh, with 200–300 patients per day. A prospective study was undertaken to analyze the techniques in diagnosis, way of management, medicine preparation, plants used and way of applications by traditional bone setter (TBS) Vaidyas, with special reference to Puttur. We also tried to understand the reasons which make lots of people go to Puttur for getting treatment, means of contact for treatment, pathology of fracture and outcome of some treated cases through this study. 54% of the studied patients came to Puttur TBS on the advice of old patients. It is observed that more educated people are patronizing this therapy and 23% patients of the observed cases took discharge from modern hospital voluntarily to receive *Puttur kattu* treatment. 80% patients believed that this therapy with home remedy would fasten the healing process. 44% patients opted for this therapy due to fear of pain, heavy plaster of Paris bandage, prolonged period of immobilization, surgery and amputation. 71% patients of the followed cases were satisfied with the treatment of TBS of Puttur with minimum complications. The authors also attempted to put forth the legacy of the tradition, the way of management and the plant used for bone setting by the Puttur bone setting Vaidyas.

Key words: Bone, bandage, dislocation, fracture, Puttur, splint, Vaidya, Rachapalem, traditional bone setters

INTRODUCTION

Traditional bone setting is quite popular in India. Traditional bone setters (TBS) are one of the largest specialist groups practicing traditional medicine in our country.^[1] It is believed that there are about 70,000 traditional healers and bonesetters in India and they treat 60% of trauma.^[2] Among them, 3000 TBS Vaidyas are in various districts of Tamil Nadu, Pondicherry,

Kerala and Karnataka. There are also many well-known places for bone setting in Orissa like Kalupada, Kuleila, Athagoda, etc. But *Puttur Kattu* is famous in Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Kerala and other northern states. Many *Puttur Kattu* clinics are found in big cities like Chennai, Coimbatore, Hyderabad, Visakapatnam, Bangalore, Pune, Mumbai, etc. *Puttur Kattu*, the art of setting of fractures and dislocations, is being practiced hereditarily in Rachapalem village near Puttur in the state of Andhra Pradesh since 1881. It attracts a minimum of 200–300 patients per day with various fractures and dislocations. Education is not a barrier to patronize this traditional treatment for their fracture and dislocation of bones. TBS offer cheaper treatment and are believed to use faster healing methods. Fear of heavy plaster of Paris bandage, prolonged period of immobilization and amputation influence people to visit TBS.^[3,4] Specialized orthopedic operations require a up-to-date infrastructure and costly implants which are practically out of reach for the common people. In rural India, the condition is even worse as primary health centers practically lack any orthopedic services. Therefore, reorganization of TBS with proper training is necessary to utilize their services.

Address for correspondence:

Dr. Ashok Kumar Panda, Ayurveda Regional Research Institute, Tadong, Gangtok, Sikkim – 737 102, India.
E-mail: akpanda_06@yahoo.co.in

Received: 12-Jan-2011

Revised: 22-Mar-2011

Accepted: 29-Mar-2011

Access this article online

Quick Response Code:



Website:

www.jaim.in

DOI:

10.4103/0975-9476.90766

Although this is a long traditional practice, with detailed literature in Ayurveda, institutionally qualified Ayurvedic doctors are not able to practice bone setting management, perhaps due to lack of practical training during their undergraduate course. The Ayurvedic institutes or hospitals have no separate bone setting clinic or unit, except Government Ayurveda College, Trivandrum, Kerala. There is no postgraduate degree or diploma to support this century-old practice. This study is an attempt to reintroduce this traditional practice to Ayurvedic institutes.

Many studies are conducted outside our country to know the strength and weakness of TBS.^[5-7] The integration of traditional practice in bone setting started in China.^[8,9] Some studies have reported about the science and tradition of bone setting.^[10,11] Foundation for revitalization of local health tradition has taken some initiatives to study the TBS.^[12] But no special study for Puttur TBS was undertaken. Therefore, this prospective observational study was undertaken to analyze the techniques in diagnosis, way of management, medicine preparation, plants used and way of applications by Traditional Bone Setting, with special reference to Puttur. We also tried to understand the reasons which make lots of people go to Puttur for getting treatment, means of contact for treatment, pathology of fracture and outcome of some treated cases.

MATERIALS AND METHODS

Study area

The present study was carried out at Puttur town and Rachapalem/Eswarapuram village in Chittur district of Andhra Pradesh state. It is nearly 125 km from Chennai and 25 km from Tirupati on the Chennai–Tirupati National Highway (No. 205).

This prospective observational study was conducted by the Department of Kayachikitsa with the help of interneers of Sri Jayendra Swaraswatee Ayurveda Mahavidyalaya, Chennai, between July 2005 and August 2008. Patients who came for treatment to Puttur out-patient clinic were recruited for the study. Puttur bone setting clinic was frequently visited for a period 3 years. An informed consent was obtained from the Puttur bone setters and their treated patients. After familiarizing with the practice of Puttur bone setters, preliminary information about the bone setting were obtained by watching their routine bone setting. Information about the legacy of the tradition, patient strength, hospital facilities, fees, diagnostic method, and way of management was collected with the help of questionnaire, from TBS. Information about the patients' biodata, reasons for patronizing TBS and result of treatment at bone center was obtained and filled into prepared proforma. The data obtained were recorded and analyzed on Microsoft Excel.

The herb used in the paste was collected tactfully, since the villagers were not willing to reveal its identity. The herb is preserved and identified by taxonomist of Madras University. The information was recorded, ascertaining further by repeated visits and interviews.

RESULTS

There are three bone setting clinics in Puttur city, run by the TBS Vaidya of Rachapalem village. The village Rachapalem/Eswarapuram is about 2 km away from Puttur town and has 170 houses of *Kshyatriya* community, but the bone setting practice is limited to people of only one caste with surname "Raju" and their close relatives of *Kshatriya* community. There are two bone setting hospitals with both out- and in-patient facilities in the Rachapalem village. The small hospital is managed by Kadallam Subramnu Raju and the big one by Suprapanaju Krishnanan Raju of the Raju community. The big hospital has 50 beds of its own, and the Tirupati Devasthanam Trust has donated an additional 25-bedded building.

The big hospital has a big hall for bone setting, computerized registration counter, waiting hall with TV and a pharmacy. There are 10 tables for bandage and plaster. They have 7 experts, 25 attendants and 4 office staff. They collect only ₹ 15.00 from the patients for registration, and the patients have to buy cloth, cotton and eggs from the pharmacy for another ₹ 10.00 to ₹ 30.00.

The consultation charge is free for poor people, but they are collecting a nominal fee ranging from ₹ 50.00 to ₹ 100.00 at the end of the treatment from all patients. The hospital is open on all seven days of the week from 7.30 AM to 6.30 PM with 1-hour lunch break from 1.30 PM to 2.30 PM. Like orthopedicians, they do not use expensive hospital equipments and medicine. They have no X-ray unit in their campus. Patients bring their X-rays, but X-rays are given less importance. Only the blood sugar levels of the patients are sometimes asked for.

A total of 146 patients were interviewed by our research team and 52 patients were followed up to the end stage of treatment. Most of the patients (65%) were in the age group of 0–20 years and there was a dominance of male patients (55.48%) in this study [Table 1]. Most of the patients [52 out of 146 (53%)] were from Tamil Nadu, 20% from Andhra Pradesh, 11% from Karnataka, 10% from Maharashtra and the rest 6% from other parts of India [Table 2]. Nearly 51% patients were educated above matric and 55% patients expressed that old treated patients were the means of contact of this center [Tables 3 and 4]. Fresh cases were 80 out of 146 (55%) which was dominant in this study and fracture of radius/ulna was found to be

Table 1: Age and sex distribution of the patients who attended Puttur traditional bone setting clinic

Age in years	Male (%)	Female (%)	Total (%)
0–20	36 (24.66)	28 (19.17)	64 (43.83)
21–40	24 (16.44)	19 (13)	43 (29.45)
41–60	17 (11.64)	15 (10.27)	32 (22)
Above 61	04 (2.72)	03 (2.05)	07 (4.8)
Total	81 (55.48)	65 (44.52)	146

Table 2: State wise inhabitation distribution of the patients who attended Puttur bone setting clinic

Name of the state	No of patients (%)
Tamil Nadu	77 (52.73)
Andhra Pradesh	29 (19.86)
Karnataka	16 (11)
Maharashtra	15 (10.27)
Rest of the country	09 (6.16)
Total	146

Table 3: Educational qualification of the patients who attended Puttur bone setting clinic

Educational qualification	No of patients (%)
Illiterate	27 (18.5)
Below matric	35 (24)
Above matric	54 (37)
Graduates and above	30 (20.54)
Total	146

Table 4: Means of contact for the patients who attended Puttur bone setting clinic

Means of contact	No of patients (%)
Direct contact	56 (38.35)
Old patients	80 (54.79)
Middle man	Nil
Refer by TBS/doctor	10 (6.8)
Total	146

more in this study [Tables 5 and 6]. Maximum patients responded that traditional skill is the only way to patronize this treatment [Table 7]. Maximum patients [i.e. 37 out of 52 (71%)] were satisfied with this treatment, and loss of joint movement was observed in only one case (2%) followed by malunion, nonunion and delayed union. No case complained about gangrene and Volkmann's ischemic contracture [Table 8].

Legacy of the tradition

The treatment was accidentally discovered by the forefather of the Raju clan of Puttur, named Kadallam Gopal Raju, in the year 1881. While hunting he found a herb that had good healing property. He brought a

Table 5: Types of patients who attended Puttur bone setting clinic

Treatment history	No of patients (%)
Fresh case	92 (63)
Treated by modern orthro doctor	34 (23.28)
Treated by other TBS	20 (13.7)
Total	146

Table 6: Pathologies of fractures and dislocations found in 146 attended patients

Pathology	Site	No of patients (%)
Fracture	Femur	07 (4.7)
	Tibia	10 (6.8)
	Radius/ulna	25 (17)
	Humerus	16 (11)
	Pott's	03
	Collis	18 (12.32)
	Barton	02
Dislocation	John's	19 (13)
	Hip	05
	Elbow	19 (13)
	Wrist	15 (10.27)
	Tarsal/meta tarsal	18 (12.32)
Total		146

Table 7: Reasons why the studied patients patronized Puttur bone setting practices

Reason	No of patients (%)
Quicker services	102 (70)
Cheap services	134 (92)
Fear of pain, immobilization/operation	65 (44.52)
Traditional skill and fame	1401 (96)
High cost of modern treatment	87 (60)

Table 8: Patients' satisfaction/complaints after treatment by Puttur TBS (n = 52)

Patients' satisfaction/complaints	No of patients (%)
Satisfied	37 (71)
Cellulites	05
Malunion	03
Nonunion	01
Delayed union	02
Stiffness of joint	03
Loss of joint motion	01
Volkmann's ischemic contracture	Nil
Gangrene	Nil
Total	52

rabbit with broken bones from the forest and tried the herb on it. The result was a surprise for him. Convinced that the leaves had some medicinal properties, he made a paste and applied on the same rabbit only to confirm the therapeutic values of the plant. The rabbit was completely cured. In the next few years, he experimented on chicken, calves and sheep. After that, he also followed

the *Susruta Samhita* of Ayurveda and he was convinced to treat human beings.

In World War I, his services were utilized by British Government. They took him to all places for treating the wounded soldiers and civilians. He practiced for 20 years with 10–15 patients per day. He had no children of his own but passed on the secret of the herb to his brother's and sister's sons. His brother's own grandson, Dr. K. Gopal Raju, an allopathic doctor, has enriched his skill of bone setting with this familiar herbal medicine and is the founder of a small hospital. On the other hand, his sister's son, Suprapanaju Subba Raju, who was the revenue officer in British government, laid the foundation stone of a big bone setting hospital in 1950. Now, the fourth generation of Raju family is practicing the skill of bone setting.

Ways of management

When a patient arrives in the bandage room, Puttur bonesetters ascertain the nature of injury. They feel the arm or leg for dislocated joint or fracture. In some cases, despite the protests from the patients, they twist, pull and poke the arm or leg to locate the exact dislocation or fracture. Once they are sure about the diagnosis, they dip a piece of gauze into the paste of the medicinal herb and tie it around the area of dislocation or fracture. To immobilize the area of injury, they tie up short pieces of bamboo sticks with a bandage. A sling around the neck is fixed and instruction to apply sesame oil on the bandage everyday and advice to visit the clinic after 15 days is given to the patients. The patients are required to visit the bonesetter twice. Very rarely, the patient visits the bonesetter thrice. The second time, the medicinal herb is mixed with the white of egg and turmeric and applied in the affected area. The patient himself can remove the second bandage after 1 month at home. They are known to cure the fractures and dislocations of almost any part of the body including backbone, skull, patella, ribs, clavicle and nose. Sometimes, the patients are administered oral calcium and analgesic also. They take only 5–10 minutes for completion of all fracture and dislocation cases, but in case of compound fracture, they take more time for suturing the wound and putting the bone inside. They prepare the paste from a single herb that is collected from nearby places the previous day and use them fresh every day. They are not cultivating the plant although there is a high requirement but are totally dependent on wild growths.

The herb used for making paste for bandage is *Kasamarda* [latin name: *Cassia accidentalis* (Caesalpinaceae); Telugu: *Kasinda*; Tamil: *Ponnairai*, *Nattam takarai*; Sanskrit and Oriya: *Kasamarda*]. However, the specialty does not lie with the herb but with the skill in manipulating the bones and setting the alignment in the right order.

DISCUSSION

This study reveals that males account for a large portion of patients seeking TBS treatment and shows that males are predominantly injured, just like in any other trauma. The mean age was 48.6 ± 29.2 years; this shows that young adult patients mostly patronize the bone setters. It is interesting that 23% of studied cases opted for this treatment after receiving the modern treatment. More educated people are receiving this treatment, which is contrary to that reported in earlier studies of Thanni.^[3] A highly remarkable degree of expertise and skill of Puttur TBS was observed in this study, as there are no radiological aids employed in their practice. Many investigators have attributed arguable competence to the TBS earlier like this *Puttur kattu*.^[7] Puttur bone setting practice is a very low cost treatment as pointed out earlier by scholars of TBS.^[13-16] The middle man was not chosen as the means of contact with the Puttur TBS, whereas previous studies stated that 41% people from West Indies came for treatment to TBS through middle-men.^[4] It has minimum complications and satisfaction rate, but many failures of bone setting procedures have been reported with minimum success rate, leading to a bad reputation of the traditional bone setting providers. Bonesetters have been widely criticized for their use of “irrational” methods.^[17-19] Accurate statistics about traditional bonesetters is still very limited and the prospective role of bonesetters in the healthcare system remains uncertain.^[20]

Puttur bonesetters claim a nearer to 100% recovery in most of the cases of dislocations and fractures. They say that the recovery depends on how cooperative the patients are. The first time, when the injury is fresh, the application of herbal paste acts as an anti-inflammatory agent and reduces the pain and swelling fast. The second time, the paste along with the white portion of egg is applied for enhancing the bone healing by accelerating the hard callus formation and remodeling.

CONCLUSION

The wide acceptance of this TBS practice may be due to the non-invasive techniques and low price. This study is an example of traditional bone setting practices in our country. More systematic studies of bonesetters' practices and their role in the healthcare system of our country may be undertaken to fill up the rural needs.

REFERENCES

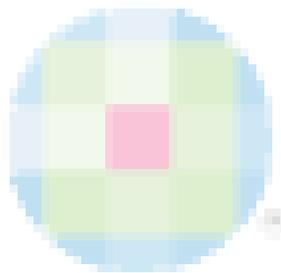
1. Shanker D. Traditional bone setting. Planning Commission Report on Health Systems. [Last accessed on 2007 July 16. Available from: http://planningcommission.nic.in/reports/sereport/ser/seeds/seed_helth.pdf.

Panda and Rout: Puttur bandage –A traditional bone setting practice in south India

2. Church J. Regional news. World Orthopaedic Concern Newsletter; 1998.
3. Thanni LO. Factors influencing patronage of traditional bone setters. West Afr J Med 2000;19:220-4.
4. Ogunlusi JD, Okem IC, Oginni LM. Why patients patronize traditional bone setters. Internet J Orthop Surg 2007;4
5. Oyebola DD. Yoruba traditional bone setters: The practice of orthopaedics in a primitive setting in Nigeria. J Trauma 1980;20:312-22.
6. Hatipoglu S, Tatar K. The strengths and weaknesses of Turkish bone-setters. World Health Forum 1995;16:203-5.
7. Tella A. The practice of traditional medicine in Africa. Niger Med J 1979;9:607-12.
8. Fang HC, Wu YW, Shang TY. The integration of modern and traditional Chinese medicine in the treatment of fractures. Clin Orthop Relat Res 1996;323:4-11.
9. Tahzib F, Daniel SO. Traditional medicine and the modern curriculum. Lancet 1986;2:203-4.
10. Panda AK, Reddy V. Science and tradition behind bone setting. Amrut 2005;1: Dec.2005;27-28
11. Tuli SM. The art and science of orthopaedics in developing countries. J Bone Joint Surg 1985;67:840-2.
12. Unikrishnan PM, Santhana R, Parivallal T, Hafeel A. Traditional orthopedic practices in South India- a pilot study. Traditional knowledge system of India and Sri Lanka. Available from: <http://www.compasnet.org>.
13. Aries MJ, Joosten H, Wegdam HH, Van der Geest S. Fracture treatment by bonesetters in central Ghana: Patients explain their choices and experiences. Trop Med Int Health 2007;12:564-74.
14. Smith AJ. Best of the old and the new. Br Med J 1974;2:367-70.
15. Weston PM. Care of the injured in the third world - What can we learn. Injury 1987;18:297-303.
16. Udosen AM. Traditional bone setting in Africa: Counting the cost. Internet J Altern Med 2009;7(1).
17. OlaOlorum DA, Oladiran IO, Adentran A. Complications of fracture treatment of traditional bone setters in southwest Nigeria. Fam Pract 2001;18:635-7.
18. Omololu B, Ogunlade SO, Alonge TO. The complications seen from the treatment by traditional bone setters. West Afr J Med 2002;21:335-7.
19. Memon FA, Saeed G, Shaikh FB, Bhutto I, Laghari A, Siddique KA, et al. Complication of fracture by traditional bone setter at Hyderabad. J Pak Orthop Assoc 2009;21:58-64.
20. Agarwal A, Agarwal R. The practice and tradition of bonesetting. Educ Health 2010;23:1. Available from: <http://www.educationforhealth.net/>

How to cite this article: Panda AK, Rout S. *Puttur kattu* (bandage) - A traditional bone setting practice in south India. J Ayurveda Integr Med 2011;2:174-8.

Source of Support: Nil, **Conflict of Interest:** None declared.



Author Help: Online submission of the manuscripts

Articles can be submitted online from <http://www.journalonweb.com>. For online submission, the articles should be prepared in two files (first page file and article file). Images should be submitted separately.

1) **First Page File:**

Prepare the title page, covering letter, acknowledgement etc. using a word processor program. All information related to your identity should be included here. Use text/rtf/doc/pdf files. Do not zip the files.

2) **Article File:**

The main text of the article, beginning with the Abstract to References (including tables) should be in this file. Do not include any information (such as acknowledgement, your names in page headers etc.) in this file. Use text/rtf/doc/pdf files. Do not zip the files. Limit the file size to 1024 kb. Do not incorporate images in the file. If file size is large, graphs can be submitted separately as images, without their being incorporated in the article file. This will reduce the size of the file.

3) **Images:**

Submit good quality color images. Each image should be less than **4096 kb (4 MB)** in size. The size of the image can be reduced by decreasing the actual height and width of the images (keep up to about 6 inches and up to about 1800 x 1200 pixels). JPEG is the most suitable file format. The image quality should be good enough to judge the scientific value of the image. For the purpose of printing, always retain a good quality, high resolution image. This high resolution image should be sent to the editorial office at the time of sending a revised article.

4) **Legends:**

Legends for the figures/images should be included at the end of the article file.