



Case Study

TRADITIONAL SRI LANKAN MEDICINE INTERVENTION IN THE MANAGEMENT OF KNEE OSTEOARTHRITIS (*JANU SANDIGATAVATA*): CASE SERIES

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ABSTRACT

Background: Osteoarthritis (OA) of the knee is a degenerative disease, which significantly restricts the functions of the joint. *Janu Sandigatavata* (JS) is considered to be the close equivalent in traditional medicine to OA in modern medicine. The aim of this case series was to report the effectiveness of Traditional Sri Lankan Medicine (TSM) on JS patients attend to National Ayurveda Teaching Hospital.

Method: Reported cases (n=10) were at the age range of 45years to 70years and both female (n=8) and male (n=2) patients were diagnosed as having JS of the knee joints. Radiology (X-Ray) reported by a radiologist confirmed that they were in Kellgren-Lawrence grade III or less. TSM treatments were given as regimens up to 86days. At the end point, external treatment of oleation and herbal immune enhancing drugs were further continued over 8weeks. Visual analogue scale for pain, knee scores in Knee Society clinical Rating System (KSS) and Ayurveda clinical assessment criteria were used to evaluate the effects of treatment.

Results: Reductions of visual analogue scale for pain was observed between baseline and the 86 days endpoint. Clinical assessment criteria and the KSS scores of pain, movement and stability were also improved up to good level and function score were improved up to excellent level. During the follow-up period, joint symptoms and signs and the knee scores were remaining unchanged.

Conclusions: Study explored that substantial decrease in clinical parameters of OA in knee and improved patients' quality of life by the intervention of the TSM.

KEYWORDS: Traditional Sri Lankan medicine, *Sandigata Vata*, Osteoarthritis.

INTRODUCTION

Osteoarthritis (OA) of the knee is a degenerative disease affecting joints, which, significantly restricts the functions of knee joints. Pain from OA is a key symptom in the decision to seek medical care and is an important antecedent to disability.^[1,2] Because of its high prevalence and the frequent disability that accompanies disease in major joints such as the knee and hip. OA is also the most common reason for total hip and total knee replacement^[3]. The rapid growth in the prevalence of this already common disease suggests that OA will have a growing impact on health care and public health systems in the future.^[4]

Osteoarthritis results from failure of chondrocytes to maintain homeostasis between synthesis and degradation of these extracellular matrix components.^[5] Molecules from breakdown of collagen and proteoglycan, also taken up by synovial

macrophages, cause release of proinflammatory cytokines, like TNF α , IL-1 and IL-6. These cytokines can bind to chondrocyte receptors leading to further release of metalloproteinases and inhibition of type II collagen production, thus increasing cartilage degradation.^[6] OA is a multifactorial disease of whole joint, with a complex pathomechanism involving interaction between the multiple joint tissues. Knowing of this complex process of producing osteoarthritis is essential for development of new methods of diagnostic and treatment.^[7]

Janu Sandigatavata (JS) of Traditional Sri Lankan Medicine (TSM) is considered to be the close equivalent to OA in Knee of modern medical science.^[8] According to the Ayurveda etiopathogenesis of JS describes as aggravation of main body humors viz. *Vata Dosha* and *Kapha Dosha* gives rise to pain (*Sandhishula*), swelling (*Sandhishotha*), hardness of

joints (*Stabdha*) and excruciating pain on movements (*Prasarana Akunchanayoho Vedana*). In old age, there is a progressive decaying in the body structures resulting in various degenerative disorders including OA due to the predominance of *Vata Dosha*.^[9] The main outcome of the treatment is to decrease pain while attempting to maintain or increase the range of knee motion and to minimize disabilities in daily living activities. The conventional pharmacological management of OA includes the administration of analgesics and non-steroidal anti-inflammatory drugs (NSAIDs) and local and systemic steroids, but their use neither provides adequate pain relief nor deceleration in disease process. Most of the time, the traditional medicine and Ayurveda have used individualized pharmacogenomical assessment (*Prakruti*) approach to the patient. In order to capture that concept into the picture, targeted individualized pattern based black box method^[10] of treatments for management of JS in this reported cases.

Case series

Methodology

Reported cases (n=10) were at age range of 45years to 70 years and both female (n=8) and male (n=2), patients diagnosed as OA of the knee joints were included in this study. When assessing the treatment history of these patients were on NSAIDs

and/or conservative therapies and/or steroidal injections to knee joint/s. Their quality of life (QOL) and activity of daily life (ADL) decreased with age. Radiology (X-ray) report confirmed that they were in Kellgren-Lawrence grade III or less. At the beginning, visual analogue scale for pain and the Knee Society clinical Rating System (KSS) score of pain, movement, stability and function score were measured. In this case series similar treatment plan was used for manage OA in knee. Traditional and Ayurveda medicine treatments were given as regimens up to 86 days end point. At the 86 days end point, external treatment of oleation and 2 capsules of *Shallaki* (*Boswellia serrate*) and two tablets comprised of *Emblica officinalis*, *Tinospora cordifolia*, and *Terminalia chebula*, twice daily were continued over 8weeks. Visual analogue scale for pain, knee scores in the KSS rating and Ayurveda clinical assessment criteria were used to evaluate the effects of treatments at 86 days endpoint. All the patients consent were obtained for publishing the data and study was conducted under normal clinical routings using patients' clinical records as a tool.

Treatment Regimens

As per the previous studies^[8] same treatment regimens were used in similar pattern for all the cases (Table 1).

Table 1: Treatment regimens

Period of treatment plan	Treatment modalities
First regimen (day 1-14)	A volume of 120ml of <i>Kwatha</i> (decoction) of <i>Eranda Saptaka</i> decoction and 120ml of <i>Punarnavashtaka</i> decoction twice a day before meals, two pills of <i>Yogarajaguggulu</i> (250mg) with lukewarm water and Chandra Kalka ^[11] (as pill of 250mg) with 40ml of <i>Mahadalu Anupana</i> ^[11] 2 times a day for 12 days twice a day after meals were given. <i>Nirgundi</i> oil (30ml) was applied on knee joints. Then, in every afternoon at 2.00p.m., 30g of paste of <i>Murungadi Paththu</i> ^[8] (Sri Lankan traditional herbal paste) was applied on the knee region and it was kept on for 4 h.
Second regimen (day 15-42)	Treated internally with 120ml of decoction made using <i>Nika</i> (<i>Vitex negundo</i> L.), <i>Katukaradu</i> (<i>Barleria prionitis</i> L.) and <i>Araththa</i> (<i>Alpinia calcarata</i> Roscoe.), mixed with Chandra Kalka (as pill of 250mg) twice a day after meals. <i>Nirgundi</i> oil (30ml) was applied on knee joints, and <i>Potali Sweda</i> (hot fomentation) was performed. In the afternoon at 2.00 p.m., 30g of paste of <i>Ketakela Paththu</i> ^[12] was applied and kept for following morning until 8 a.m.
Third regimen (day 43-86)	Treated internally with 120ml of decoction of <i>Dashamula</i> , <i>Bala</i> ^[8] mixed with <i>Chandra Kalka</i> (as a pill of 250mg) twice a day after meals. <i>Nirgundi</i> oil (30ml) was applied on knee joints, and <i>Janu Vasti</i> was performed at 10 a.m. for period of 1 h. In the afternoon at 2.00 p.m., 30g of paste of <i>Ketakela Paththu</i> was applied and kept for following morning until 8 a.m.

FOLLOW UP AND ASSESSMENT

After 86 days of main regimens, external treatment of oleation by *Nirgundi* oil and 2 capsules of *Shallaki* (*Boswellia serrata* Triana and Planch),

(two capsules, p.o./twice daily) and one tablet of *Jeewya*, (comprised of *Emblica officinalis* Gaertn., *Tinospora cordifolia* [Thunb]. Miers and *Terminalia*

Chebula, Retz.) (Two tablets, p.o./twice daily) were continued over 5 months without discontinuation. Within this period, patient made several regular visits (i.e., once per 2 weeks) and on evaluation there were no adverse effects observed.

RESULTS AND DISCUSSION

In OA/JS joint inflammation initially causes pain (*Sandhishula*) and later swelling (*Sandhishotha*). Mainly due to pain and swelling, the mobility of joints is restricted (*Stabdha*) at the initial stage, and later it is aggravated by the anatomical changes that occur in the articular surfaces, joint capsule and the ligaments

and when the patient try to move the joint, which may result in excruciating pain (*Prasarana Akunchanayoho Vedana*)^[8]. However, according to the description in Ayurvedic text the severity of signs, symptoms of JS cases were evaluated with a scoring system. This assessment was done twice (i.e., in pre- and post-treatment phases). The severity of symptoms and sign was categorized as absence: 0, Mild: 1, moderate: 2 and severe 3 when assessing. The formal baseline assessment was conducted on day 1 (Table 1 and 2).

Table1: At the point of diagnosis patient assessments

Case No	Age	M/F	X-ray Kellgren Lawrence grade	VAS- Pain	Knee society score
OA-201	45	F	I	6	Fair
OA-202	54	F	I	7	Fair
OA-203	56	M	I	6	Fair
OA-204	62	F	III	7	Poor
OA-205	64	M	II	6	Fair
OA-206	65	F	II	7	Fair
OA-207	65	F	III	8	Poor
OA-208	67	F	I	6	Fair
OA-209	68	F	II	8	Poor
OA-210	70	F	III	8	Poor

Table 2: Ayurveda criteria for severity of signs at the point of diagnosis (signs: absence: 0 mild: 1, moderate: 2 and severe 3)

Case No	<i>Sandishula</i> (Joint pain)	<i>Sandhishotha</i> (Joint swelling)	<i>Prasarana Akunchanayoho Vedana</i> (Pain during movements)	<i>Sthabdha</i> (Stiffness)
OA-201	2	2	2	2
OA-202	2	1	2	1
OA-203	2	2	2	2
OA-204	3	2	3	2
OA-205	2	2	2	1
OA-206	2	1	2	1
OA-207	3	1	3	2
OA-208	2	2	2	1
OA-209	3	1	3	2
OA-210	3	1	3	2

After 86 days of treatment, reduction in the knee joint pain was assessed by VAS and according to Ayurvedic tool. Reduction in knee joint pain was detected by both tools with the improvement of activities of daily living (ADL) (Table 3 and Figure 1). Assessed by the online Knee Society clinical rating system, final grading score of pain, movement and stability was improved up to good scoring level and knee function score was also improved up to standard level (Table 3). The joint swelling, knee joints pain during movement of knee joints, stiffness and other symptoms of discomfort were alleviated at this point (Figure 2- 4).

Table 3: 86 days end point (n=10) patients prognosis

Case No	Age	M/F	VAS- Pain	Knee society score
OA-201	45	F	1	Good
OA-202	54	F	2	Good
OA-203	56	M	1	Good
OA-204	62	F	3	Good
OA-205	64	M	1	Good
OA-206	65	F	2	Good
OA-207	65	F	2	Good
OA-208	67	F	2	Good
OA-209	68	F	2	Good
OA-210	70	F	3	Good

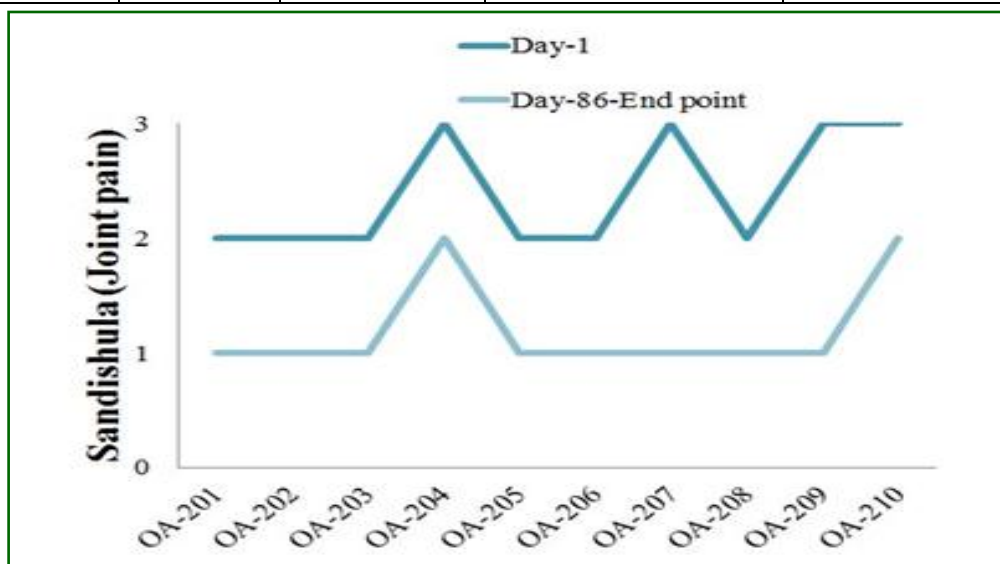


Figure 1: Comparison of knee joint pain by Ayurveda tool of cases before the treatment and at the treatment end point (Pain: absence: 0 mild: 1, moderate: 2 and severe 3)

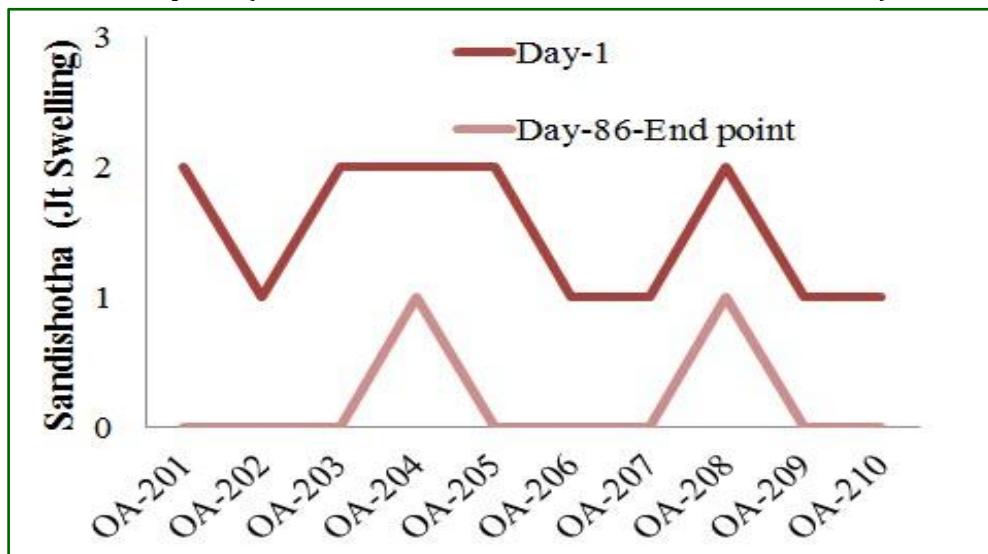


Figure 2: Comparison of knee joint swelling by Ayurveda tool of cases before the treatment and at the treatment end point (Swelling: absence: 0 mild: 1, moderate: 2 and severe 3)

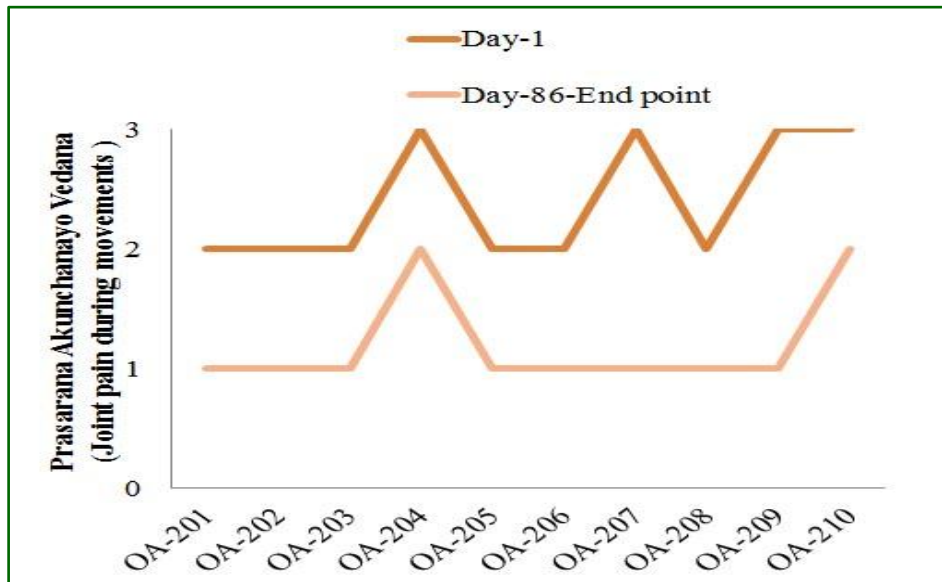


Figure 3: Comparison of knee joint pain during movement by Ayurveda tool of cases before the treatment and at the treatment end point (knee joint pain during movement: absence: 0 mild: 1, moderate: 2 and severe 3)

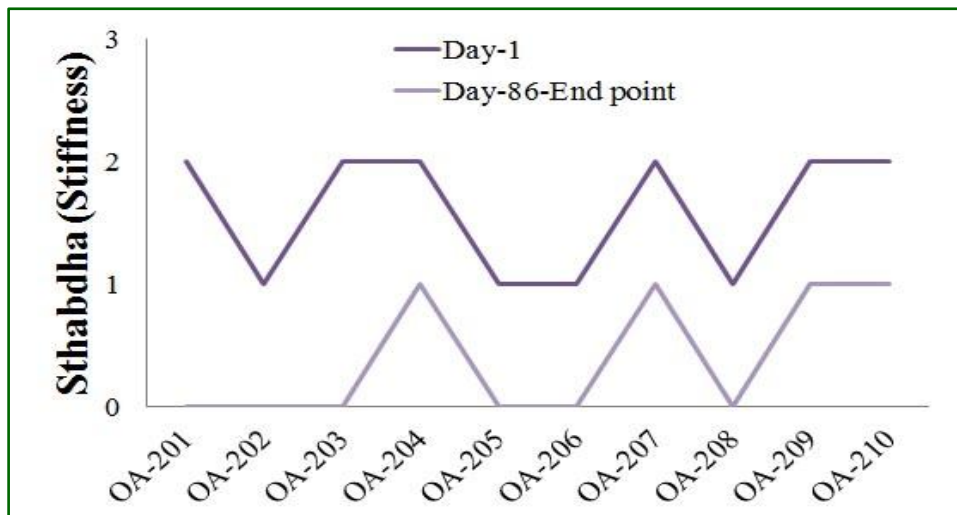


Figure 4: Comparison of knee joint stiffness by Ayurveda tool of cases before the treatment and at the treatment end point (knee joint stiffness: absence: 0 mild: 1, moderate: 2 and severe 3)

According to the evaluations based both on modern and Ayurvedic criteria it was obvious that the combined Sri Lankan Traditional Medicine and Ayurveda treatment were very effective in alleviating the symptoms and signs of OA. Long-term (i.e., 5 months later) monitoring records, also showed joint symptoms have not aggravated. Patients' remission remained unchanged with the improvement of the clinical symptoms and signs along with ADL.

CONCLUSION

The reported patients with OA (JS) in knee joints showed improved quality of life and relief of symptoms by using Sri Lankan Traditional Medicine and Ayurveda combined therapy. The present case series may open the gate for the further exploration of the phenomenon by randomized controlled trials to evaluate the effectiveness of this treatment regimen in future.

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