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Case Study

Effect of Sri Lankan traditional medicine and Ayurveda on *Sandhigata Vata* (osteoarthritis of knee joint)

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Abstract

Reported case was a 63-year-old female with end-stage osteoarthritis (OA) (*Sandhigata Vata*) of the left knee joint accompanied by exostoses. Radiology (X-ray) report confirmed it as a Kellgren-Lawrence grade III or less with exostoses. At the beginning, the Knee Society Rating System scores of pain, movement and stability were poor, and function score was fair. Srilankan traditional and Ayurveda medicine treatment was given in three regimens for 70 days. After 70 days, external treatment of oleation and 2 capsules of *Shallaki* (*Boswellia serrata* Triana and Planch) and two tablets of *Jeewya* (comprised of *Emblica officinalis* Gaertn., *Tinospora cordifolia* [Willd.] Millers. and *Terminalia chebula* Retz.), twice daily were continued over 5 months. Visual analogue scale for pain, knee scores in the Knee Society online rating system and a Ayurveda clinical assessment criteria was used to evaluate the effects of treatments in weekly basis. After treatment for 70 days, the Knee Society Rating System scores of pain, movement and stability were also improved up to good level and function score was improved up to excellent level. During the follow-up period, joint symptoms and signs and the knee scores were unchanged. In conclusion, this OA patient's quality of life was improved by the combined treatment of Sri Lankan traditional medicine and Ayurveda.

Key words: Exostoses, osteoarthritis, *Sandhigata Vata*

Introduction

Main aims of the clinical trials are to show the efficacy and safety of a therapy after initial indications are determined in preclinical studies, but the results obtained from a clinical trial have become less important in identifying the specific indications of a therapy.[1] At present, "omics" based pharmacology contributes to individualized medicine, which attempts to find more specific indications for therapies by identifying biomarkers[2] rather considering cohorts of the population. Similarly, Ayurveda and Sri Lankan Traditional Medicine (STM) generally prescribe therapies based on the identification of individual or the specific patterns of the patient by analyzing the symptoms and other characteristics. Therefore, case studies give much more confidence to clinicians in traditional medical systems rather than analyzing different cohorts.

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Osteoarthritis (OA) of the knee is a degenerative disease of the knee joints which significantly restricts the functions of knee joints. *Janu Sandigatavata* is considered to be its close equivalent to OA in Knee of modern medical science. In old age, there is progressive decaying in the body structures resulting in various degenerative disorders including *Sandhigatavata* due to the predominance of *Vata*.[3] The objective 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 nonsteroidal antiinflammatory drugs (NSAIDs), but their use neither provides adequate pain relief nor deceleration in disease process. In addition, NSAIDs are associated with serious adverse effects, at least some of them may be may be related to the pharmacogenomical incompatibility. 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[4] of treatments for management of *Janu Sandigatavata* in this reported case.

Case Report

Reported case was a 63-year-old female patient with end-stage OA of the left knee joint accompanied by exostoses. When patient was 49 years old, developed a pain in the left knee joint, and early-stage OA of the knee joint was diagnosed by X-ray. Therefore, patient took NSAIDs and received conservative therapies and steroidal injections to the knee joint. However, pain in the knee joint progressively increased; on the other hand, activities of daily living (ADL) decreased with age while patient continued to receive the conservative therapies. At the age of 62, she consulted to Department of Indigenous Medicine, requesting STM. Patient reported pain in the left knee joint while walking and showing a Kellgren-Lawrence[5] grade III or less in the radiographs with exostoses [Figure 1]. Patient gave a self-reported visual analogue scale (VAS) pain score of between 7 and 8, which was moderate to severe pain according to the scale. Also, knee had a clinically detectable joint effusion. According to online Knee Society clinical rating system,[6,7] final grading score of pain and stability was 43 (i.e., poor) and knee function score was 60. Pateint was diagnosed as having OA of the knee.

Sri Lankan traditional and Ayurvedic medicine formulae were given in black box method in three treatment regimens. All the test drugs used in treatment were prepared according to the authentic texts and Ayurvedic Pharmacopeia.[8]

First regimen (day 1–14)

A volume of 120 ml of *Kwatha* (decoction) of *Eranda Saptaka* decoction and 120 ml of *Punarnavashtaka* decoction twice a day before meals, two pills of *Yogarajaguggulu* (250 mg) with lukewarm water and *Chandra Kalka* [Table 1][9] (as pill of 250 mg) with 40 ml of *Mahadalu Anupana* [Table 2][9] 2 times a day for 12 days twice a day after meals were given.

Nirgundi oil (30 ml) was applied on *Janu Pradesha* (knee joints). Then, in every afternoon at 2.00 p.m., 30 g of paste of *Murungadi Paththu* [Table 3] (Sri Lankan traditional herbal paste)[8] was applied on the knee region and it was kept on for 4 h.

Second regimen (day 15–42)

Treated internally with 120 ml of decoction made using *Nika* (*Vitex negundo* L.), *Katukaradu* (*Barleria prionitis* L.) and *Araththa* (*Alpinia calcarata* Roscoe.), mixed with *Chandra Kalka* (as pill of 250 mg) twice a day after meals. *Nirgundi* oil (30 ml) was applied on knee joints, and *Potali Sweda* (hot fomentation) was performed. In the afternoon at 2.00 p.m., 30 g of paste of *Ketakela Paththu* [Table 4][10] was applied and kept for following morning until 8 a.m.

Third regimen (day 43–70)

Treated internally with 120 ml of decoction of *Dashamula*, *Bala*, *Venivelgata* decoction mixed with *Chandra Kalka* (as a pill of 250 mg) twice a day after meals. *Nirgundi* oil (30 ml) was applied on knee joints, and *Janu Vasti* was performed at 10 a.m. for period of 1 h. In the afternoon at 2.00 p.m., 30 g of paste of *Ketakela Paththu* was applied and kept for following morning untill 8 a.m.

Follow up assessment

After 70 days of main regimens, external treatment of oleation with *Nirgundi* oil and 2 capsules of *Shallaki* (*Boswellia serrata* Triana and Planch), procured form Himalaya drug company (two capsules, p.o./twice daily) and one tablet of *Jeewya*, (comprised of *Emblica officinalis* Gaertn., *Tinospora cordifolia* [Thunb]. Miers and *Terminalia Chebula*, Retz.) procured form 4 Ever Skin Naturals (Pvt.) Ltd., (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

The formal assessment was conducted on days 1, 35 and 70 [Tables 5 and 6]. After 70 days of treatment, reduction in the left knee, joint pain was assessed by VAS, which marked up to level 2–3 along with the improvement of her ADL [Table 5]. Also clinically detected joint effusion and other discomfort symptoms were alleviated at this point. Assessed by the online Knee Society clinical rating system, final grading score of pain, movement and stability was improved up to 71 scoring level (good) and knee function score was also improved up to 70 [Table 5].

Discussion

In *Sandhigata Vata*, 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 and the joint capsule and the ligaments. When and if patient try to move the joint, which may result in excruciating pain (*Prasarana Akunchanayoho Vedana*). However, according to the description in Ayurvedic text the signs, symptoms and signs with a scoring system were noted to evaluate the severity. This assessment was done twice (i.e., in pre- and post-treatment phases). The severity of symptoms and sign was categorized as follows: Mild: 1, moderate: 2 and severe 3 [Table 6].

According to this evaluation based on Ayurvedic criteria also showed that the combined STM and Ayurveda treatment

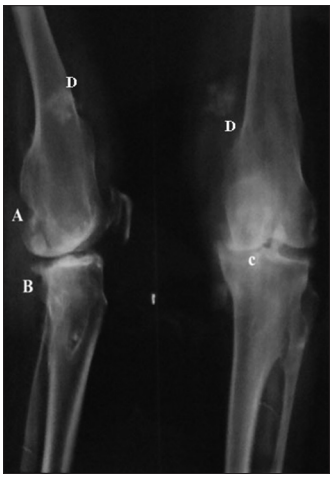

Figure 1: Radiograph Findings: Kellgren-Lawrence grade III or less: (a) Degenerations, (b) spurs, (c) narrowing bone space (d) exostoses

Table 1: Ingredients of *Chandra Kalka*

Local name	Sanskrit name	Botanical name	Part used
Higurupiyalli	*Chandramula*	*Hedychium spicatum* Buch. Ham.	Rhizome
Inguru	*Nagara*	*Zingiber officinale* Roscoe.	Rhizome
Heenarata	*Rasna*	*Alpinia galangal* (L.) Willd.	Rhizome
Kaladuru	*Mustaka*	*Cyperus rotundus* L.	Tuber
Kaluduru	*Karave*	*Cumimum cyminum* L.	Seed
Valagashal	*Vidanga*	*Embellica ribes* Burm. f.	Seed
Sududuru	*Jeeraka*	*Nigella sativa* L.	Seed
Heenensal	*Pala*	*Elettaria cardamomum* (L.) Maton.	Seed
Nelli	*Amalaki*	*Phyllanthus embelica* L.	Pericarp
Shathapushpa	*Madurika*	*Anethem graveolenes* L.	Seed
Asamodagam	*Ajamoda*	*Trachyspermum roxburghianm* (DC.) Craib.	Seed
Kothamalli	*Dhanyaka*	*Coriandrum sativum* L.	Seed
Kelida	*Kutaja*	*Holarrhena antidysenterica* (L.) R.Br.	Seed
Suvada kottam	*Suvadahota*	*Saussurea lappa* Clarke	Root
Sarana mul	*Punarnava*	*Boerhavia diffusa* L.	Root
Katukarosana	*Katurohini*	*Picrorrhiza kurrooa* Benth.	Root
Athividayam	*Ativisha*	*Acconitum heterophyllum* Wall.	Root
Bulu	*Bibhitaki*	*Terminalia bellirica* Roxb.	Pericarp
Aralu	*Haritaki*	*Terminalia chebula* Retz.	Pericarp
Thippili	*Pippali*	*Piper longum* L.	Fruit
Valthibbatu	*Kudawulli*	*Solanum trilobatum* L.	Fruit
Sadikka	*Jathipala*	*Myristica fragrans* Houtt.	Seed
Vasavasi	*Jathipala*	*Myristica fragrans* Houtt.	Mace
Nika	*Nirgundi*	*Vitex negundo* L.	Leaves
Upulkola	*Kamala*	*Nelumbo nucifera* Garten.	Leaves
Sadhun	*Chandana*	*Santalum album* L.	Heart wood
Valmi	*Madhuyashti*	*Glycyrrihizia glabra* L.	Root
Dewvadara	*Suradaru*	*Cedrus deodara* (Roxb.) G. Don f.	Heart wood
Karabu nati	*Lavanga*	*Syzygium aromaticum* (L.) Merr. and L.M. Perry	Flower bud

Table 2: Ingredients of *Mahadalu Anupana*

Local name	Sanskrit name	Botanical name	Part used
Dhei	*Nimbuka*	*Citrus aurantifolia* (Cristm.) Swingle	Tender leaves
Dodam	*Picchilla*	*Citrus aurantium* L.	Tender leaves
Nika	*Nirgundi*	*Vitex negundo* L.	Tender leaves
Elabatu	*Bruhati*	*Solanum melongena* L.	Tender leaves
Yakinaran	*Atavejambera*	*Athlantic ceylanica*	Tender leaves
Heennaran	*Naranga*	*Citrus reticulate* Blanco.	Tender leaves
Vanapala	*Vasa*	*Adathoda vasica* L.	Tender leaves
Olida	*Gunja*	*Abrus precatorius* L.	Tender leaves
Kuppamaniya	*Mukthavarsi*	*Acalypha indica* L.	Tender leaves
Kuburu	*Putikaranja*	*Caesalpinia bonduc* L.	Tender leaves
Kuburu	*Putikaranja*	*Caesalpinia bonduc* L.	Seed kernel
Garlic	*Rasona*	*Alium sativum* L.	Bulb
Igini	*Kataka*	*Strychonos potatorum* L.	Seed
Suduhadun	*Chandana*	*Santalum album* L.	Heart wood

was very effective in alleviating the symptoms and signs of OA [Table 5]. According to the long-term (i.e., 5 months later) records, also joint symptoms have not aggravated both by the knee society clinical scores and Ayurvedic criteria. Patient's remission remained unchanged with the improvement of the clinical symptoms and signs along with ADL.

Table 3: Ingredients of *Murungadi Pathtu* (paste)

Local name	Sanskrit name	Botanical name	Part used
Lunuwarana	*Varuna*	*Crateva adansonii* DC.	Stem bark
Haran-kaha	-	*Curcuma albiflora* Thwaites.	Rhizome
Murunga	*Sigru*	*Moringa oleifera* Lam.	Stem bark/leaf juice

Table 4: Ingredients of *Ketakela pathtu* (paste)

Local name	Sanskrit name	Botanical name	Part used
Ketakela	*Ekavira*	*Bridelia retusa* (L.) Spreng.	Stem bark
Kaha	*Haridra*	*Curcuma longa* L.	Rhizome
Iguru	*Shunti*	*Zingiber officinale* Rosc.	Rhizome
Gammiris	*Maricha*	*Piper nigrum* L.	Dried unripe fruit
Aba	*Katutaila*	*Brassica alba* (L.) Rabenh.	Seed
Vadakaha	*Vacha*	*Acrous calamus* L.	Rhizome
Kithul	*Sreetala*	*Caryota urens* L.	Treacle
Kurakkan	*Madhulika*	*Eleusine coracana* (L.) Gaertn.	Starch

Table 5: VAS and online knee society clinical rating system

Assessing method	Day 1	Day 35	Day 70	Five months
VAS for pain	7-8 (moderate to severe)	5-6 (moderate)	2-3 (mild)	2-3 (mild)
Online knee society clinical rating system				
Pain, movement and stability score	43 (poor)	61 (fair)	71 (good)	71 (good)
Function score	60 (fair)	70 (good)	80 (excellent)	80 (excellent)

VAS: Visual analogue scale

Table 6: Ayurveda criteria for severity of signs during the treatment

Sign of left knee joint	Day 1	Day 35	Day 70
Sandishula (Joint pain)	3	2	1
Sandhishotha (Joint swelling)	3	2	1
Prasarana akunchanayoho vedana (pain during movements)	2	1	1
Sthabdha (stiffness)	2	1	1

Grading system-1: Mild, 2: Moderate, 3: Severe

With effective integration of "omics," *Prakriti*-based medicine can play a vital role in this changing scenario of global health wisdom as Ayurveda offers its modalities by way of *Ahara* (diet), *Vihara* (lifestyle) and *Aushadhi* (medication) which are the three pillars of *Prakriti*-based medicine making it a holistic science.[11] Ayurveda and STM emphasize the treatment of disease in a highly individualized manner as it believes that every individual is unique having different constitution. Therefore, pattern of treatment regimens should towards personalized medical system. This is independent of racial, ethnic, or geographical considerations and may provide appropriate treatment plan. Similarly, these traditional systems classified the drugs according to the *Rasapanchaka* (Ayurvedic pharmacology), which states that the drug action is ascribed to certain attributes present in the drug namely *Rasa* (taste), *Guna* (property), *Virya* (potency), *Vipaka* (Post digestive taste) and *Prabhava* (effect) while in modern pharmacology the drug action is attributed to the chemical structure of a molecule.[12] The *Rasapanchak* modality can deliver treatment as it takes into consideration the *Prakriti* of the person as well as the pharmacodynamics and pharmacokinetic properties of a drug unlike a modern treatment that elicits varied response from person to person having same drug for the same disease. Explored results seem to support understanding connectivity of phenotypic features (*Prakriti*) connect with genotype as personalized medicine which given maximum efficiency and safety for a particular disorder.

Conclusion

The reported patient with end-stage OA (left knee) accompanied by exostoses got relief and improved quality of life by STM and Ayurveda combination therapy. The present case study may open the gate to the achievement of randomized controlled trials to evaluate the effectiveness of this treatment regimen. Chemical analysis of these remedies using modern fractionation and molecular methods may be another avenue, which can be explored in the future.

References

1. Zhang C, Jiang M, Lu A. A traditional Chinese medicine versus Western combination therapy in the treatment of rheumatoid arthritis: Two-stage study protocol for a randomized controlled trial. Trials 2011;12:137.
2. Evans WE, Relling MV. Moving towards individualized medicine with pharmacogenomics. Nature 2004;429:464-8.
3. Vagbhatta, Ashtanga Hridayam - Vol. 1, Sutrasthana, Ayushkamiya Adhyaya, 1/7. English translation by Murthy KR. 2nd ed. Chaukhambha Sanskrit Samsthan, Varanasi, 2009; 6.
4. WHO/EDM/TRM/2000.1. General Guidelines for Methodologies on

Research and Evaluation of Traditional Medicine. Geneva: World Health Organization (WHO); 2000. Available from: http://www.whqlibdoc.who.int/hq/2000/WHO_EDM_TRM_2000.1.pdf. [Last accessed on 2014 Feb 10].
5. Kellgren JH, Lawrence JS. Radiological assessment of osteo-arthrosis. Ann Rheum Dis 1957;16:494-502.
6. Insall JN, Dorr LD, Scott RD, Scott WN. Rationale of the Knee Society clinical rating system. Clin Orthop Relat Res 1989;248:13-4.
7. Asif S, Choon DS. Midterm results of cemented Press Fit Condylar Sigma total knee arthroplasty system. J Orthop Surg (Hong Kong) 2005;13:280-4.
8. Anonymous. Ayurveda Pharmacopoeia. Vol. 1. Colombo: Department of Ayurveda; 1994. p. 276.
9. Illiyakperuma A. Vatika Prakarana/Deshiya Beheth Guli Kalka Potha. Panadura, Sri-Lanka: Modern Press; 1879. p. 23.
10. Ponnamperuma A. Efficacy of Ketakela Pathtuva and Lakshadi gugulu for *Sandhigata Vata*. Sri Lanka: Deepani Publisher; 2005. p. 61, 97.
11. Chatterjee B, Pancholi J. Prakriti-based medicine: A step towards personalized medicine. AYU 2011;32:141-6.
12. Rastogi S. Building bridges between Ayurveda and Modern Science. Int J Ayurveda Res 2010;1:41-6.

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हिन्दी सारांश

जानु संधिगतवात मे श्रीलंका की पारंपारिक एवं आयुर्वेद चिकित्सा का प्रभाव

पथिरगे कमल परेरा, मनरम परेरा, निशांत कुमारसिंगे

प्रतिवेदित रुग्णा ६३ वर्ष की महिला अस्थिवृद्धिसह वाम जानु के अंतःस्तर संधिगत वात (ऑस्टिओआर्थ्रायटिस–OA) की रुग्णा थी। क्ष–किरण परिक्षण में 'केलग्रेन लॉरन्स ग्रेड ३' एवं अस्थिवृद्धि यह सिद्ध हुआ। प्रारंभ में 'नी सोसायटी रेटिंग सिस्टिम स्कोअर ऑफ पेन', क्रिया एवं स्थैर्य अत्यल्प था एवं 'फन्क्शन स्कोअर' प्राकृत था। ७० दिनों के बाद स्नेहन युक्त बाह्य चिकित्सा एवं शल्लकी की २ कैप्सूल एवं जीव्य की २ टैबलेट्स (आमलकी, गुडुचि, हरितकी युक्त) ५ महिनों के लिए दिन में २ बार कायम रखी गई। चिकित्सा के प्रभाव के परिक्षण के लिए प्रति १ सप्ताह के बाद 'व्हिज्युअल ॲनॅलॉग स्केल फॉर पेन', नी सोसायटी रेटिंग सिस्टिम के नी स्कोअर एवं आयुर्वेदिय परिक्षण पद्धती का उपयोग किया गया। ७० दिनों की चिकित्सा के बाद नी सोसायटी रेटिंग सिस्टिम स्कोअर ऑफ पेन; क्रिया एवं स्थैर्य में महत्वपूर्ण सुधार देखा गया एवं कर्म में उत्कृष्ट सुधार पाया गया। 'फॉलो–अप' काल में रुग्ण के लक्षण एवं चिन्ह, 'नी स्कोअर' अपरिवर्तित रहे। निष्कर्ष के स्वरुप में यह संधिगत वात के रुग्ण के जीवन की गुणवत्ता मे वृद्धि का कारण श्रीलंका की चिकित्सा एवं आयुर्वेद के सम्मिश्रण है।