



Research Article

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AN AYURVEDIC MULTI MODAL INTERVENTION IN KNEE JOINT OSTEOARTHRITIS: A CASE STUDY

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ABSTRACT

Osteoarthritis is characterised by gradual loss of cartilage which mostly affects the weight bearing joints such as knees and hip. The symptoms of OA such as pain, swelling, stiffness of joint and restricted range of movements, resembles with Sandhigatavata mentioned in Ayurveda as a vatavyadhi (disorder of biological humour). The current management for this condition proves to be of little effect. Yogaratnakaram, treatise of Ayurveda, had specially mentioned a chikitsa soothra (line of treatment) for its management, which seems to be more practical and effective. This is the case study of a 61-year-old woman, who complained pain and swelling in mutual knee joints and had limited movements. By the clinical presentations, she was diagnosed as a case of Sandhigata vata and got screened based on Kellgrens radiological scale. Blood investigations was done to exclude other inflammatory conditions. Treatment planned was Swedana (sudation), upanaha (warm poultice), sthanika abhyanga (local massage with oil) and mardana (massage) externally and internally – mathravasthi (oil enema) and shamanoushadhi (pacifiers) - yogaraja guggulu tablet with Rasna kashaya (decoction of *Alpinia galanja*) as anupana (adjuvant). Assessment of the condition of the patient before and after treatment was done based on Visual analogue scale for pain, and Womac scale for physical activity grading in order to evaluate efficacy of the treatment. After assessing the parameters, noteworthy improvement was seen in the subjective symptoms and objective – womac scale, on the completion of 30 days programme of treatment. The physical activity grading also improved significantly suggesting the relevance of the present study on a commonest, chronic degenerative disorder.

Keywords: Osteoarthritis, Sandhigata vata, Swedana, Vata

INTRODUCTION

The degenerative conditions including osteoarthritis occurs by the wear and tear that happens to the body and may arrive prematurely due to the changing lifestyle. As per Ayurveda, vata dosha predominance in the body, happens naturally by vriddha/jara avastha (old age). In two ways vata can get vitiated abnormally – Avarana (combination) and Dhathukshaya (degeneration). When vata is vitiated, the asthi (bones) and sandhi (joints), are more prone for degenerative changes, as it is having ashraya - ashrayi bhava (interdependent factors) with asthi¹ dhathu (bone) and sandhi (joint) and also when there is khavaigunya (predisposing factor). If vata attains sthanasamsraya (dislodgement) in sandhi (joint), sandhigatavata happens with pain, difficulty in moving the joints, and swelling. Sandhigatavata is mainly due to dhathukshaya² (degeneration), happening due to the progressive depletion of dhathus (tissues) of body, in the process of ageing. This disease will hamper the daily activities and ultimately the person becomes disabled. Since sandhi (joint) comes under the madhyama roga marga³ (middle disease pathway), and jaravastha (old age), it is considered as a kashtasadhya vyadhi (difficult to cure). The regular approach of OA management consists of the use of NSAIDs and analgesics which are by now proved to be having many side effects. NSAIDs taken orally have substantial and frequent side effects, the most common of which is upper gastrointestinal toxicity, including dyspepsia, nausea, bloating, gastrointestinal bleeding, and ulcer

disease⁴. So, the management of such degenerative disorders, should be designed for giving relief to the agony of patients and to get better the symptoms, with the intention that, the patients can survive with least external bear and disabilities.

Since it is a dhathukshayajanya vyadhi⁵ (degenerative disorder), treatment procedures like Swedana (fomentation), upanaha (warm poultice), sthanika abhyanga (local massage using oil) and mardhana (massage) externally; and internally – mathravasthi (oil enema) and shamanoushadhi - yogaraja guggulu tablet along with Rasna kashaya (decoction of *Alpinia galanja*) as anupana (adjuvant) is given, and itself here with very hopeful outcomes.

MATERIALS & METHODS

A 61-year-old female patient of MRD No 64148 and Bed No :15 presenting with the subsequent complaints was admitted in our hospital on 20.1.17 for 30 days and discharged on 18.2.17.

She was complaining of gradual inception of pain in bilateral knee joint (Sandhi shoola) along with swelling (shotha) and limited movements for 1 year.

On examination, bilateral knee was showing restriction of movements and swelling. Kellgrens radiological scale⁶ was noted based on the X ray of both Knee joint and other blood investigations like Routine blood test, RA, ASO, CRP were done

to discard other disease conditions. Rooted in the signs, symptoms, examinations and investigations, she was identified as a case of Sandhigata vata (knee joint osteoarthritis) and management was started. Experiment on human subject was done after getting approval by the Institutional Ethical Committee. Informed consent was obtained before experimentation with the human subject. Study is carried out as per International conference of Harmonization-Good Clinical Practices Guidelines (ICH-GCP).

Treatment protocol

Treatment planned was Swedana (sudation), upanaha (warm poultice), sthanika abhyanga and marddhana externally and internally – mathravasthi (oil enema) for a period of 12 days. Yogaraja guggulu tablet⁷ with Rasna kashaya (decoction of *Alpinia galanga*) as anupana (adjuvant) was given as samanaushadhi (alleviating medicine) for 30 days. Subjective and Objective assessment was done before treatment and after treatment.

Table 1: Interventional Schedule

First 5 days	Swedanam (sudation) and Upanaham (warm poultice)	Nirgundi (<i>Vitex negundo</i> Linn.), – karanjadi (<i>Pongamia pinnata</i> Linn. Merr.) naadi swedam (sudation) and Sthanika Nirgundi – karanjadi upanaham ⁸ (local application of warm poultice with <i>Vitex negundo</i> Linn.) and (<i>Pongamia pinnata</i> Linn. Merr.)
Next 7 days	Sammardha (Massage) and Snehana (oleation)	Massage and Bahya snehana by sthanika abhyanga (local external oleation) and Janu pichu (cotton-soaked oil application over the knee) with Narayana thailam ⁹ and Abhyanthara snehana (internal oleation) by Mathra vasthi (oil enema) with Narayana thailam
From the 1 st day to the 30 th day	Shamanaoushadhi (alleviative drugs)	Yogaraja guggulu gulika (Dose: 1g, thrice daily with Rasna kashaya (<i>Alpinia galanga</i>), as Anupana (adjuvant).

Table 2: Ingredients of Narayana Tailam And Yogaraja Guggulu Gulika

Narayana Tailam (For Abhyanga, Janu pichu & Matra Vasthi)	Yogaraja Guggulu Gulika (As shamana oushadhi)
1) Bilva [<i>Aegle marmelos</i> Linn. Corr]	1) Chitraka [<i>Plumbago zeylanica</i> Linn.]
2) Agnimantha [<i>Clerodendrum phlomidis</i> Linn.f.]	2) Pippali moola [<i>Piper longum</i>]
3) Shyonaka [<i>Oroxylum indicum</i> (Linn.)Vent.]	3) Yavani [<i>Carum copticum</i>]
4) Patala [<i>Stereospermum sauealens</i> Dc]	4) Karavi [<i>Carum Carvi</i> Linn.]
5) Paribhadra [<i>Erythrina indica</i> Lamk.]	5) Vidanga [<i>Embelia ribes</i> Burm.f.]
6) Prasarani [<i>Paederia foetida</i> Auct non Linn]	6) Ajamoda [<i>Apium graveolans</i>]
7) Ashvagandha [<i>Withania somnifera</i> Dunal]	7) Jeeraka [<i>Cuminum cyminum</i> Linn.]
8) Bruhathi [<i>Solanum indicum</i> Linn.]	8) Suradaru [<i>Cedrus deodara</i> (Roxb.)Loud.]
9) Kantakarika [<i>Solanum surattense</i> Burm.f.]	9) Chavya [<i>Piper chaba</i>]
10) Bala [<i>Sida cardifolia</i> Linn.]	10) Ela [<i>Elettaria cardamomum</i> Maton]
11) Atibala [<i>Abution indicum</i> (Linn.)]	11) Saindhava [<i>Rocksalt</i>]
12) Swadamshttra [<i>Tribulus terrestris</i>]	12) Kushta [<i>Saussuria Lappa</i>]
13) Punarnava [<i>Boerhavia diffusa</i> Linn.]	13) Rasna [<i>Alpinia Galanga</i>]
14) Satapushpa [<i>Anethum sowa kurz</i>]	14) Gokshura [<i>Tribulus terrestris</i>]
15) Devadaru [<i>Cedrus deodara</i> (Roxb.)Loud.]	15) Dhanyaka [<i>Coriandrum sativum</i>]
16) Mamsi [<i>Nardostachys jatamansi</i> Dc.]	16) Triphala
17) Shaileyaka [<i>Parmelia perlata</i> Ach.]	a) Vibheethaki [<i>Terminalia bellerica</i>]
18) Vacha [<i>Acorus calamus</i>]	b) Amalaki [<i>Emblica officinalis</i>]
19) Candana [<i>Santalum album</i> Linn.]	c) Hareethaki [<i>Terminalia chebula</i>]
20) Tagara [<i>Valeriana wallichii</i> DC]	17) Musthaka [<i>Cyperus Rotundus</i> Linn]
21) Kushta [<i>Saussurea costus</i> (Fale) Lipsch.]	18) Vyosha
22) Ela [<i>Elettaria cardamomum</i> Maton]	a) Shunti [<i>Zyngiber officinale</i> Linn]
23) Four parnis	b) Maricha [<i>Piper nigrum</i> Linn]
a)Shalaparni [<i>Desmodium gangeticum</i>]	c) Pippali [<i>Piper Longum</i> Linn]
b)Prshni parni [<i>Uraria picta</i> Desr.]	19) Twak [<i>Cinnamomum zeylanica</i> Blume]
c)Mudgaparni [<i>Phaseolus trilobus</i> Ait.]	20) Usheera [<i>Vetiveria zizanooides</i> (Linn) Nash]
d)Mashaparni [<i>Teramnus labialis</i> Spreng.]	21) Yavagraja [<i>Hordeum vulgare</i>]
24) Rasna [<i>Alpinia galangal</i>]	22) Taalesapatra [<i>Abies webbiana</i> Lind.]
25) Turaga gandha [<i>Withania somnifera</i> Dunal]	23) Lavanga [<i>Syzygium aromaticum</i> (Linn.) Merrill & Perry]
26) Saindhava [<i>Rock salt</i>]	24) Sarjika [<i>Sodium salt/soda carbonate</i> ¹⁰]
27) Shatavari swarasa [<i>Asparagus racemosus</i> Willd.]	25) Shati [<i>Hedychium spicatum</i> Hamilt ex Smith]
28) Milk of cow/goat	26) Danthi [<i>Croton oblongifilius</i> Roxb.]
	27) Guduchi [<i>Tinospora cordifolia</i>]
	28) Hapusha [<i>Juniperus communis</i> Linn.]
	29) Vajigandha [<i>Withania somnifera</i> Dunal]
	30) Shatavari [<i>Asparagus racemosus</i> Willd.]
	31) Mrutha Aya: [Processed iron]
	32) Guggulu [<i>Commiphora mukul</i>]

Treatment was administered according to the prescribed schedule.

The components of above said medications are given below in the tables.

- Drug for sthanika abhyanga, Janu pichu & matra vasthi – Narayana thailam

- Drug for shamana –Yogaraja guggulu gulika with Rasna kashayam (*Alpinia galanga*).
- Drug for swedana- Nirgundi, karanjadi leaves for naadi swedam

Nirgundi (*Vitex negundo* Linn.), Karanja (*Pongamia pinnata* Linn. Merr.), Kola (*Zizyphus jujube* Lam.), Kulatha (*Dolichos biflorus* Linn.), Suradaru (*Cedrus deodara*(Roxb.)Loud.), Rasna

(*Alpinia galanga*), Masha (*Phaseolus radiates* L.), Atasi (*Linum usitatissimum* Linn.), Tailaphala (*Eranda- Castor fruit*), Kushta (*Saussurea costus*(Fale) Lipsch.), Vacha (*Acorus calamus*), Shatahwa [*Anethum sowa kurz*], Yavachoorna (*Hordeum vulgare*) for sthanika upanaham with kanchika (as amla dravya).

All the above raw drugs were authenticated by the dravyaguna department of Amrita school of Ayurveda.

The total results such as, pain and swelling reduction, improvement of joint movements were graded on the basis of the following scales described in tables 3 and Visual analogue scale said in figure 1.

Table 3: Parameters Adopted for Assessment

Sl. No.	Symptoms	Parameters Adopted
1.	Pain	VAS SCALE [Visual analogue scale]
2.	Swelling	EFFUSION GRADING SCALE OF THE KNEE JOINT BASED ON THE STROKE TEST: Grade Test Result Zero No wave produced on downstroke Trace Small wave on medial side with downstroke 1+ Larger bulge on medial side with downstroke 2+ Effusion spontaneously returns to medial side after Upstroke (no downstroke necessary) 3+ So much fluid that it is not possible to move the effusion out of the medial aspect of the knee. Reprinted from Sturgill et al ¹¹
3.	Pain (On Movements & At Rest) Stiffness Physical Function	WOMAC SCALE [The Western Ontario and McMaster Universities Arthritis Index (WOMAC)]

Symptoms were assessed and graded according to the above parameters.

Table 4: Assessment Chart of Objective Parameters

Sl. No	Scale	Grading BT	Grading AT	
i.	VAS (Pain scale): Right Knee joint	7	2	Objective parameters show improvement in the table.
	Left Knee joint	7	2	
ii.	Effusion grading scale: Right Knee joint	2	0	
	Left Knee joint	2	0	
iii.	WOMAC Scale	Sum = 72	Sum = 34	

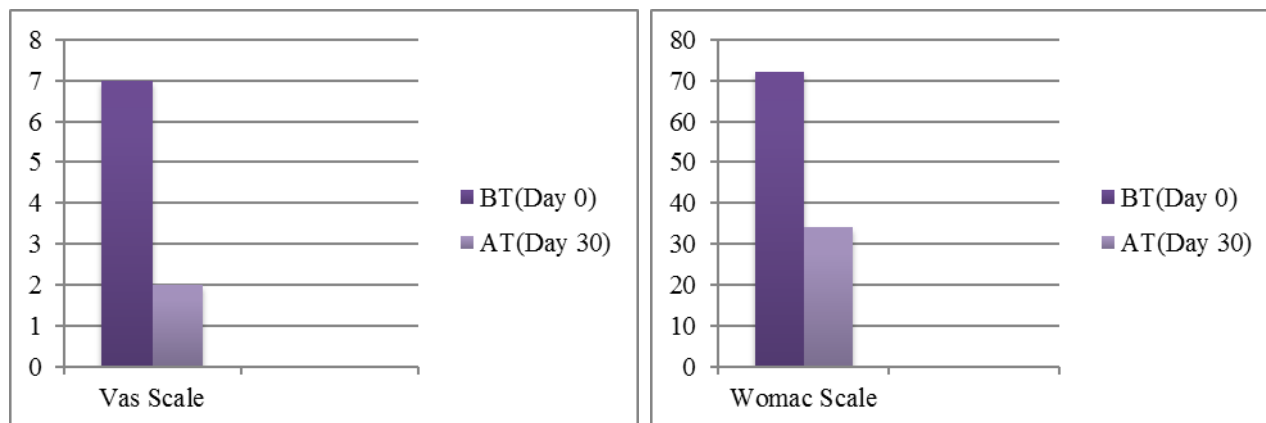


Figure 1: VAS Scale, WOMAC Scale

RESULTS

After the treatment plan of 30 days, the patient started receiving a gradual relief of symptoms from the 3rd day of admission and has considerably decreased in the subsequent days. The assessment of symptoms is given in the tables 4 and figure 1.

Visual analogue scale and Womac (Western Ontario And Mc Master Universities) Scale represented in bar diagram shows radical improvement.

DISCUSSION

Dhathukshaya (degeneration) causes Sandhigata vata, which is a nirupasthambhitha vata vyadhi. Osteo arthritis is a disability causing disease due to injury, progressing age, under nourishment etc. Here rooksha guna (quality of dryness) of vata (biological air humour) get increased and vedana (pain) is the main symptom. Since Asthi (bone) and sandhi (joint) are the majjavaha srotomula¹² (root of channels for bone marrow), these sites are prone for sandhigatavata. Vatasamana (alleviation of biological air humour) is the main aim of the chikitsa (treatment) which is done through abhyanthara snehana (internal oleation) – mathra

vasthi (oil enema), and bahya snehana (external oleation) - by sthanika abhyanga (local massage), and janupichu (oil-soaked cotton pad over the knee). Abhyanthara and bahya snehana¹³ is the exclusive treatment for asthimajagata vyadhis (disorders of bone and marrow). It alleviates the pain, loosens the mala (metabolic waste) in the body, pacifies the rooksha guna (quality of dryness) of vata (biological air humour) and brings back the mrudutva (softness). Mridu sweda [Nadi sweda] will help in maladravatva¹⁴ (liquefaction of waste products). The stiffness can be removed by the repeated application of Snehana (oleation) and swedana (sudation), and it will provide flexibility also. Guggulu which is one of the core ingredient in the Yogaraja guggulu tablet act as Vatakaphahara (that which pacifies the biological air and phlegm humour). Yogaraja guggulu with Rasna kashaya (decoction of *Alpinia galanga*) as anupana (adjuvant) is vatahara and rasayana (rejuvenator). Along with that the Snigdha guna (unctuous property) of Narayana thailam which is used in the form of matravasthi (oil enema), sthanika abhyanga (local massage) and janupichu (oil-soaked cotton pad over the knee) helps in asthiposhana. Upanaha (poultice) helps for alleviating swelling. Sammardana (massage) enhances blood circulation to the knees. The Ksheera (milk), the most important ingredient, of Narayana taila act as balya (strengthner) and rasayana (rejuvenator).

CONCLUSION

From the case study, it is evident that Sweda (sudation) – Upanaha (warm poultice) – Sammarda (massage) – Snehana (oleation) has a vital and valuable role in the management of Osteoarthritis. The case illustrated significant improvement in symptoms immediately after the management. However joint effusion is not a typical attribute of osteoarthritis, the pathological situation in knee joint allied with osteoarthritis can also be managed effectively by this treatment. But a large sample size study has to be done to get more precise conclusions.

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