EFFECT OF JANU BASTI USING POLYHERBAL MEDICATED OIL IN THE MANAGEMENT OF KNEE PAIN DUE TO SANDHIGATA VATA

May Zin Aung¹, Thein Zaw Linn², Win Naing¹, Si Thu Thein Tun¹, Nyan Tun, Maung Maung Thet¹, Dr Kyaw Oo³, Kyaw Thein Htay¹

- 1. University of Traditional Medicine, Mandalay
- 2. Department of Traditional Medicine, Nay Pyi Taw
- 3. Department of Human Resources for Health

- Knee pain is one of the musculoskeletal disorders, causes many problems in sitting and standing, mainly arises the largest single cause of lower limb disability (Sarvi S. C., 2006).
- Knee pain is a common musculoskeletal symptom among working-age people. The prevalence of knee pain varies from 10 to 60%, depending on age, occupation and the definition of knee pain (Miranda H. *et al*, 2002)

- The vitiated *vayu* reached in affected knee joint called *Sandhigata vata* presenting with knee pain. Signs and symptoms of knee pain due to *Sandhigata vata* (SGV) are pain, inflammation, crepitus, pain in movement and loss of function (Prasanth D., 2009-2010)
- Knee pain patients who visit to TMTH, Mandalay were classified by *amavata*, *vatarakta* and *sandhigata vata*. Among them knee pain due to *sandhigata vata* is largely seen.

•In *Kaya Cikitsa*, one of the *Ayurvedic* classical texts revealed the treatment for SGV as *snehana*, *svedana*, *upanaha*, *agnikarma*. *Sneha* alleviates *vata* because properties of *sneha* are just opposite to those of *vata*. *Snehana*, an ideal line of treatment play an important role for treating SGV such as degenerative disease rather than other treatments (Babu S. S., 2006).

• Janu basti is the procedure in which the sneha (medicated oil) is retained over the knee joint with the help of flour (Prasanth D., 2009-2010).

In a treatise of Madawanidan, the imbalance state of aggravated vayu in asthi (bone) and majja (bone marrow), treatment should be given such as snehana karma (internal administration of oil and external application of oil). Aggravated vayu in sandhi (joints), snayu (tendons) and nerves, sneha dravya (oleating substances) can be used as application and wrapping (ອິ(ລຊ) ເລງອີ(ລູເຊັ/ວິະ) (ລຊອ)

✤ In Traditional Medicine Teaching Hospitals, there are many treatment procedures such as massotherapy, *nadi sweda, janu basti*, external applications, hot fomentation and medication in the management of knee joint disorders.

✤ Janu basti is a treatment mainly used for knee pain due to SGV in panchakarma ward. According to the Ayuvedic text of yoga of herbs stated the externally medicated oil are good for any of three doshas⁴.

In this study, the ingredients of polyherbal medicated oil are Zingiber officinale, Vitex negundo, Sida cordifolia, Ricinus communis and sesame oil which can be easily available. It has been used for Janu basti treatment.

In Ayurvedic medicine 90% of the herbal oils are prepared with sesame oil base

(Hebber, 2013)

2/23/2017

- Pharmacological activities of Zingiber officinale Roscoe. in previous research, effects rheumatic pain and chronic lower back pain
 - experienced full or partial relief of pain
 - decrease in joint swelling, and improvement or recovery in joint function (WHO, 1999).

- Pharmacological activities of Vitex negundo L. in previous research established anti-inflammatory properties in acute and sub-acute inflammation (Vishwanathan & Basavaraju, 2010).
- Pharmacological activity of Sida cordifolia L. has anti-inflammatory activity. Externally used preparation the medicated oil of bala alleviates pain and swelling in vata disorders (Jain et al., 2011)

Pharmacological activitiy of *Ricinus* communis L. anti-inflammatory activities in previous research

Objectives

- 1) To assess the clinical presentations of knee pain due to SGV before treatment
- 2) To assess the clinical presentations of knee pain due to SGV during treatment (day 5, day 11, day 17)
- 3) To evaluate the serial effect of *Janu basti* on knee pain patients due to *Sandhigata vata* by comparing the clinical presentations at day 0 with day 5, day 11 and day 17

Materials and Methods





Study Population

41 Patients with with knee pain due to SGV who were in accordance with the inclusion and exclusion criteria.

Study period

The study period was started from 1st September 2014 to 31st August 2015

2/23/2017

Inclusion criteria

 Patients of both male and female with presenting symptoms of knee pain due to SGV, less than 1 year duration

- 2) Age of patients will ≥ 30 years and less than75 years
- 3) Unilateral knee pain

Exclusion criteria

- 1) Patient with co-morbid disease
- 2) Pregnant women and Lactating mother
- 3) Patients with diabetes mellitus
- 4) Patients with severe hypertension (SBP $\geq 180/DBP \geq 109 \text{ mmHg}$)
- 5) Excessive obesity patients (BMI >40)

Criteria for assessment

Pain
 Flexion (ROM)
 Tenderness
 Gait
 Crepitus
 Inflammation

Criteria for assessment

Symptomatic and functional improvement was measured with the following outcome parameters. They are Visual Analogue Scale (VAS). Intensity of the present knee pain was scored by visual analogue scale. VAS was used for rating the intensity of pain.

No	Assessment		Score
1	Pain	 Nil Mild Moderate Severe 	1 2 3 4
2	Flexion (ROM)	- 135° - 100°-134° - 99°-75 - 74°-0°	1 2 3 4
3	Tenderness	 No tenderness Tenderness on active movement Tenderness on passive movement Inability to move 	1 2 3 4
4	Gait	 No limping Limping with no additional support Limping with support Inability to walk 	1 2 3 4
5	Crepitus	 No Crepitus Palpable crepitus Audible crepitus 	1 2 3
6 2	Inflammation (23/2017 May 2	- Absent	1 19

Assessment Chart

SI. No	Signs and Symptoms for Assessment	Score for Assessment			
		Day-0	Day-5	Day-11	Day-17
1.	Pain				
2.	Flexion (ROM)				
3.	Tendernes				
4.	Gait				
5.	Crepitus				
6.	Inflammation				
8.	X- ray for diagnosis		_	_	_

Figure 1: measurement of ROM of knee with goniometer



Sample Size Calculation

Sample size was calculated with Epi Info version – 7.1 as follow: Expected knee pain patients admitted to TMTH during study period - 100 Expected proportion of patient cured - 80 % Worst Accepted % - 10% - 0.08 Power Confidence level - 95% Confidence limit - 5% Required sample size - 36

Material

- Flour (500 grams)
- Polyherbal medicated oil that was collected from Panchakarma Center in 100 Bedded TMTH, Mandalay
- metallic cup
- > Towel
- Iuke warm water
- Facility for heating
- spittoon and thermometer
- > Table with facility to perform *Janu basti*
- ≻ X- ray

Stethoscope and Sphygmomanometer

Figure 2. Ingredients of Polyherbal medicated oil



Ricinus communis



Zingiber officinale



Sida cordifolia



Sesame oil May Zin Aung



Vitex negundo



Polyherbal medicated oi[#]



2/23/2017

Radiological assessment (X-ray of knee region – anterioposterior and lateral view) were carried out.

Registered patients of knee pain were prescribed for oral administration of TMF-33, 5 tablets (2g) × two times after meal per day with lukewarm water during the period of study.

The patients were performed detailed procedure of Janu basti.

The Janu Basti procedure includes

 (1)Purva Karma (Preparation of the patients)
 (2) Pradhana Karma (Operative procedure), and
 (3) Pashchat Karma (Post – operative therapy)

- The treatment duration of was taken 17 days and every 6th day was the rest day in this study
- The outcome data were collected and observed before treatment (on day 0) and on 5th day, 11th day and on 17th day of the treatment in this study



Detail procedure of the Janu Basti

(1) Purva karma (Preparation of the patient)

- Patient was asked to lie in supine position and extend the lower limbs on the table, whichever more comfortable.
- The affected knee was exposed properly. Limbs were supported properly that they are placed horizontally and comfortably.

(2) Pradhana karma (Operative procedure)

Making Frame: The flour paste was made a frame as a ring approximately 3 inches in diameter and 1.5 inches in high. It was placed on the patient's knee on the affected part. The gap between the skin and paste was sealed by pressing at both inside and outside surface of the ring.

(2) Pradhana karma (Operative procedure)

> **Pouring oil:** Polyherbal medicated oil was heated at 50° C and poured into the frame and the upper level of the oil was approximately 1 inch above the skin.

➢ Performing gentle massage: For performing gentle massage, the therapist dips one of thumb in the oil inside the frame and moves the thumb in circular fashion on the knee joint applying gentle and firm pressure about 10 minutes.

(2) Pradhana karma (Operative procedure)

➤ Changing the oil: When the oil cooled, it was taken out from the frame and fresh warm oil was poured into the frame for three times.

➢ Removing the oil and frame: The warm oil was put on the knee continued for 30 minutes. And then medicated oil and frame was removed.

Figure 3. preparation and performing Janu basti procedure



preparations of materials



medicated oil was heated by boiling water via metal cup

Figure 4. Performing Janu basti procedure



making frame



performing janu basti



changing the oil

(3) Pashchat karma (Post operative procedure)

- After removing the oil and frame, *Abhyanga* (external application of oil) was done over the knee joint for about 5 min
- Performing the body parts was cleaned by towel which was heated by boiling water

Figure 5. Performing *Abhyanga*



performing abhyanga

body parts was cleaned by

towel which was heated by boiling water



Result



Table 1. Age distribution of study population

Age (group)	No. of patients	Percentage (%)
≤40	4	9.8
41 – 50	15	36.6
51 – 60	14	34.1
61 – 70	7	17.1
71+	1	2.4
Total	41	100.0

Table 2. Distribution of knee pain patients by sex

Sex	Frequency	Percentage (%)
Male	9	22
Female	32	78
Total	41	100.0

Distribution of knee pain patients by occupation



BMI distribution of knee pain patients



Distribution of knee pain patients by site

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X Ray Findings

Assessment of Pain on knee pain due to SGV Patients



Assessment of flexion (ROM) on knee pain due to SGV Patients



Assessment of tenderness on knee pain due to SGV Patients



Assessment of gait on knee pain due to SGV Patients



2/23/2017

Assessment of crepitus on knee pain due to SGV Patients



Assessment of inflammation on knee pain due to SGV Patients



Serial effect of Janu basti by comparing mean score of signs and symptoms



2/23/2017



May Zin Aung

The effect of Janu basti on pain, ROM (flexion), gait, crepitus, inflammation and tenderness were relieved about 57%, 55%, 33%, 42%, 34% and 56% respectively

* statistically significant p < 0.001.

Table 5. Percent improvement of each clinical presentationafter treatment

Impro	vement level	No. of patients	%
Marked	61-72 of score	3	7.8
Moderate	49-60 of score	21	50.4
Mild	31-48 of score	15	37
Failed	< 30 of score	2	4.8
Total		41	100

Discussion

❑ According to the traditional medicine view, the pathological condition of knee pain due to *sandhigata vata* means vitiated *vayu* affecting the knee joint produces pain, swelling and impairment of the function of knee joint

The most presenting signs and symptoms of knee pain due to SGV were imbalance on functional properties of *tezo* and *vayu mahabhutas*.

- ✓ the principle of treatment was to subdue or calm *tezo* and *vayu* elements.
- ✓ Janu basti is a method of unction and the oleated substances calm the vayo mahabhuta and the oil is the most permeable substance to administer the affected joint area through the skin.
- ✓ For this reason, the results of this study can be clearly proved that the concept of traditional medicine formulate the evidence for the principle of treatment in traditional medicine

 the more incidence of age group in knee pain due to SGV was between 40 to 60 years old in this study
 gender and age-related prevalence patterns are

consistent with a role of post-menopausal hormone deficiency in increasing the risk of OA. ✓ On analyzing of signs and symptoms of knee pain due to SGV, there were highly statistically significant in serial effect of *Janu basti* using polyherbal medicated oil in the management of knee pain due to SGV by comparing day 0 with day 5, day 11 and day 17. *p value* is < 0.001.</p>

✓ The serial effect of clinical presentations of knee pain due to SGV by comparing day 0, day 5, day 11 and day 17 were decreased and statistically significant *p*<0.001. Therefore, all signs and symptoms were improved clinically and statistically.

2/23/2017

. On reviewing the overall effect of knee pain due to SGV, 4.8% were failed, 15 patients 37% were mild improvement, 50.4% were moderate improvement and 7.8% were marked improvement \checkmark Between two patients who were failed in this study, the first patient had tibial calcification and the second patient had OA who had been treated with steroid injection to knee joint before the clinical trial and whose signs and symptoms were not changed distinctly.

2/23/2017

> Moreover, the clinical signs and symptoms of the patients who had knee pain due to tibial calcification according to X-ray report were similar to those who had knee pain due to SGV. But, there was no improvement of treatment effect in the patients who had knee pain due to tibial calcification in this study.

Therefore, on reviewing the overall effect of this study it can be stated that it was clinically and statistically significant

did not find any other adverse effect on these patients.

Conclusion and Suggestion

The findings obtained from this study could be proved that the polyherbal medicated oil. *Janu basti* treatment is safe and effective in the management of the patients with knee pain due to *SGV*

This treatment could be used in any traditional clinic hospitals

This treatment procedure can be rationally prescribed on the basic signs and symptoms of knee pain due to SGV within 17 days course.

Conclusion and Suggestion

- It is recommended that further study should be done with large sample size, long course because of sample size was small and study period was limited.
- It is proved that the properties of this treatment using polyherbal medicated oil can be relieved the most signs and symptoms of knee pain due to SGV
- For patients who still complain of pain in walking and crepitus the combination of treatments such as combining external application of medicinal paste and *Janu basti* procedure should be done.

Conclusion and Suggestion

• Finally, the follow up study should also be continued for slowing down disease process and preventing of recurrent symptoms that may lead to disability.

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