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A Comparative Study to Evaluate the Efficacy of *Gomutra Yukta Vaitarana Vasti* with *Dhanyamla Yukta Vaitarana Vasti* in the Management of *Katishoola* w.s.r. to Low Backache

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ABSTRACT

The present study was conducted to compare the efficacy of *gomutra yukta vaitarana vasti* with *dhanyamla yukta vaitarana vasti* in the management of *katishoola* in 40 patients (20 in each group) from Govt. Ayurveda College Hospital, Tripunithura. *Vaitarana vasti* is one of such treatment modalities of *Panchakarma* which is directly indicated for *vatavyadhis*. It is mentioned in *Chakradutta- Niruha-adhikara (73/32)* and *Vangasena - Vashtikarmadhikara (83/186-190)* for the treatment of *Katishoola*.

The selected patient will be subjected to *deepana* and *pachana* as *purvakarma* followed by *Vaitarana vasti* continuously for 5 days in both group of patients. After giving *vasti*, *paschat karma* and *pathya-apathya* will be followed accordingly. Base line data collection was done before and after treatment and during follow up in both the groups. As per the assessment criteria –Pain, Swelling, Stiffness, Tenderness, Range of movement and X-ray findings, *Vaitarana vasti* with *Gomutra* or *Dhanyamla* both were found to be effective in all the parameters taken for assessment statistically and clinically.

According to observations and results obtained it was concluded that the *Vaitarana vasti* with *Gomutra* or *Dhanyamla* both were found to be highly effective in all the parameters taken for assessment of *Katishoola*.

Key Words

Vaitarana vasti, Low Ache Back, *Katishoola, Dhanyamla, Gomutra*

INTRODUCTION

Back pain is a global issue with 60-80% of the world population experiencing at different ages in their lives. Low back ache is the second most common disease that people comes across. In about 78% of men and 89% of women the cause is unspecific. The work undertaken and modern lifestyle like food and hobbies added much adversity towards the disease. In modern science *Katishoola* is considered as LBA and it is treated with analgesic, NSAID etc. and lastly by surgical intervention. But the success rate is less, and the chance of recurrence is more.

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In *Ayurvedic* texts the term **"kati"** has been used to represent the low back part of human body and *Katishoola* is included as one among the *Vatananatmaja vikaras[1]*. Among the *chikitsa* of *Vatavyadhi, vasti* had great priority because of its multidimensional therapeutic effect.

Vaitarana vasti is one of such treatment modalities of *Panchakarma* which is directly indicated for *vatavyadhis*. It is mentioned in ***Chakradutta-Niruha-adhikara (73/32)[2]*** and ***Vangasena - Vashtikarmadhikara (83/186-190)5*** for the treatment of *Katishoola.* According to *Acharya Charaka dravyas* like *amla, gomutra, sura, payah* (milk), *kwatha* etc. can be used as *avapa dravyas* in *vasti[3]*.

Nowadays the chances of contamination of *gomutra* are high as cattle are fed with artificial pellets and husk which are contaminated by pesticides. *Dhanyamla* is the better option as it is safer and will have fewer complications than *gomutra.* Therefore for this study among *avapa dravyas, dhanyamla* is taken against *gomutra* because both are having same properties i.e. *ushna, tikshna, vata-kaphahara.Dhanyamla* is also mentioned as "*shasthamasthapane*"[4] i.e. it can be used as *avapa dravya* in *Asthapana vasti* (ref: Ah.Hr.Su-5/79, 80) and also it is easily available and cost effective.

Thus, considering all above facts, this study has been taken. So, in light of above references from classics, *Vaitarana vasti* protocol with *Gomutra or dhanyamla* was selected for the management of Low Back ache.

OBJECTIVES

1.   To assess the efficacy of *Vaitarana vasti* with *Gomutra* in *Katishoola*.

2.   To assess the efficacy of *Vaitarana vasti* with *Dhanyamla* in *Katishoola*.

3.   To find out whether *Gomutra* can be substituted by *Dhanyamla* in *Vaitarana vasti*.

REVIEW OF LITERATURE

Vasti karma

Acharya *Charaka* has defined the *Vasti* as the procedure in which the drug prepared according to classical reference is administered through rectal route, reaches up to the *Nabhi, Kati, Parshva, Kukshi Pradesha* agitates the accumulated *Purisha* and *Dosha* and spreads the fulsomeness (potency of the drugs) all over the body and effortlessly comes out along with the churned *Purisha* and *Dosha*[5]. Among the *Panchakarma Chikitsa, Vasti Karma* has its unique importance in treating the major disease like *Vatavyadhis,* due to the power and advantages it confers on patients. It differs in many aspects like in principles, mode of administration and in wide advantages it renders. Among the various modalities of treatment described in Ayurveda, *Vastikarma* occupies prime position. *Vata* is the chief dominating factor because all *dhatus* and *doshas* become functionless without *Vayu. Pakvashaya* is the specific place of *Vata* and *vasti* specially acts on *pakvashaya*, so *vasti* therapy is specially indicated to treat *vata*[6]. *Vangasena* advised *sodhana* and administration of *vasti* in *Katishoola*.

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When used judiciously in different combinations *Vasti* accomplishes rejuvenation, happiness, longevity, strength, it also improves memory, voice, digestive power and complexion. It removes noxious materials from the tissues and pacifies the *Doshas*. Consequently, it provides stability and thus strengthens the reproductive capacity in man[7]. Acharya *Kashyapa* equates *Vastikarma* to *Amruta* because of its widespread application in both infants and adults including elderly people[8].

Vaitarana Vasti

The term *Vaitarana* came from the word "*Vitaranam*", which literary means go across, to donate, to leave which help to eject out the *Dosha*. Thus, we can say that *Vaitarana vasti* is helpful to expel out the morbid *Doshas* from the body and thus giving relief in the disease. *Vaitarana vasti* preparation is popular between the current generation of Ayurveda. *Kshara vasti* and *Vaitarana vasti* were not common in the routine clinical practice of *Ashtavaidya* tradition. Various formulations of *vaitarana vasti* are mentioned in the texts of Ayurveda. The *vasti* in which *chinch* (tamarind), *guda* (jiggery), *saindhava*, *gomutra* (cow urine) and oil are used is known as *vaitarana vasti*. This *vasti* is described in *cakradatta*[9] & *vangasena*[10]. It is very useful in abdominal pains (*vataja & kaphaja*), *anaha* (flatulence), *amavata*, all types of *vataja* pain like *katishoola*.

Indications

Cakradatta & vrindamadhava: - shoola, anaha, amavatahara

Vangasena: - katiurupristha shotha, shoola,

Vataroga, Urusthambha Gridhrasi,

Janu samkocha, Visama jwara, Klaibya

Table 1 *Vaitarana vasti in chakradatta – Niruha adhikar* (73/32)

INGREDIENTS	QUANTITY
Saindava[11]	*1 karsha*
Guda[12]	*1 sukti*
Amlika[13]	*1 pala*
Taila[14]	Little quantity
Gomutra[15]	*1 kudav*

Table 2 *Dhanyamla* as per *A.H.Su.* (5/79-80) & *C. Si.* (10/14-16)

INGREDIENTS	QUANTITY
Saindava	15 gm
Guda	30 gm
Chincha kalka	60 gm
Dhanyamla[16]	240 ml
Taila	120 ml

There is no direct reference of *Vaitarana vasti* using *dhanyamla* in Ayurvedic Classics. This *Dhanyamala Yukta Vaitarana Vasti* is prepared by replacing *gomutra* by *dhanyamla* from the reference of *Cakradutta- Niruha-adhikara* (73/32) and *Vangasena -Vastikarmadhikara* (83/186-190)

Katishool

A *Vyadhi* where there is *Shoola* or Pain in the *Kati* region is called *Kati Shoola*[17]. Synonyms like *Kati graha, Kati Toda, Kati Stambha, Trika Shoola, Trika Graha, Prushtha Graha* etc have been used in Ayurvedic texts in context with Low Back Ache.

Katishoola or Low Back Ache of musculoskeletal origin falls under the subcategory of *Vata Vyadhi*. It can present as a separate *vyadhi* or as *lakshana* of another *vata vyadhi*. Ayurveda says that *Shoola* or any type of pain is always due to *vaat*, hence where there is pain, there must be *vaat*[18].

Low back ache

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All structures in the spinal column, other than cartilage is pain sensitive, but the exact mechanism of pain production within individual structure is unknown. Amongst patients presenting with back pain, the main role of history and examination is to identify the small number who have serious or specific spinal disorder.

Pain and stiffness are particularly found in conditions such as Spondylosis, inter vertebral disc prolapse, osteo arthritis Ankylosing spondylitis and soft tissue disorders. Out of this pain which is mechanical in origin or soft tissue disorders in other words only is considered for the present study.

Lower back pain is the second most common complaint seen by physicians. Back pain is a human condition with 60-80% of the world's population experiencing pain at some time in their lives. Among this mechanical pain accounts for more than 90% of the back-pain episodes, usually affecting patients aged 22-55 years

Management of low back ache

Most back pain is caused by simple strains and the main focus of its treatment is how to prevent recurring back pain by firming the muscles that support the backbone with back workouts, along with correcting posture, using proper lifting methods, and considerate the physical restrictions of the back. There is also information on a wide range of back pain treatments, including complementary treatments, for the relief of both acute and chronic back pain.

MATERIALS AND METHODS

The study is a comparative clinical trial where the 40 patients 20 in each group suffering from the disease *Katishool* irrespective to their sex, caste religion & occupation were selected for this study from the OPD of Panchakarma Department.

Plan of study

The patient were selected from out-patient unit of Govt. Ayurveda College Hospital, Tripunithura as per inclusion and exclusion criteria and were admitted in the in-patient unit during the study period. The selected patients were subjected to *deepana* and *pachana* as *purvakarma* followed by *Vaitarana vasti* continuously for 5 days in both group of patients. After giving *vasti*, *paschat karma* and *pathya-apathya* were followed accordingly. *Deepana* and *Pachana* were done with *vaiswanara churna* with lukewarm water and *Gandharvahastadi kasayam*.

Selection criteria

Selection of patients - the patients were selected from the out-patient unit of Govt. Ayurveda College Hospital, Tripunithura as per inclusion and exclusion criteria and will be admitted in the in-patient unit during the study period.

i.   **Inclusion criteria**

• Patients having low backache

 • Age group: - 20-60 yrs.

 • Patients of both sexes.

• Patient with written informed consent.

 ii. **Exclusion criteria**

• *Vasti anarha.*

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• Patients with serious Cardiac disorders like M.I, Cardiac Failure

• Severe hepatic disorders.

• Pregnancy and lactation

• Patients having uncontrolled Diabetes Mellitus.

• Known case of renal insufficiency.

• Known case of Ulcerative colitis

• Patient below the age of 20 and above age 60 are to be excluded in this study.

• Patients having associated conditions like fibrositis, ankylosing spondylosis, RA.

Investigations: -

• Blood routine

• Urine routine and microscopic

• Blood sugar- FBS & PPBS

• X-ray of lumbar spine (AP & lateral view)

• RA factor, ASO titre (if needed)

Treatment plan

Table 3 *Vaitarana vasti* used for this study is taken from *Chakradatta* and *Vangasena*.

Contents of *Vaitarana vasti*	Group A	Group B
Saindhava	15gm	15gm
Guda	30gm	30gm
Chincha/Tamarind kalka	60gm	60gm
Tila thailam	120ml	120ml
Gomutra	240ml	-
Dhanyamla	-	240ml

Table 4 Clinical Evaluation

Particulars	Group A	Group B
Treatment Plan	*Vaitarana vasti* with *Gomutra*	*Vaitarana vasti* with *Dhanyamla*
Sample Size	20	20
Selection pattern	As per inclusion and exclusion criteria	As per inclusion and exclusion criteria

Assessment Criteria

Pain

0=No Pain

1= Mild pain of bearable nature

2= Moderate pain (no difficulty in moving)

3= Severe pain (slightly difficulty in moving)

4= Very severe pain (Much difficulty or no moving)

Stiffness

0=No Stiffness

1= Up to 15 minutes

2= Up to 30 minutes

3= Up to 60 minutes

4= More than 60 minutes

Tenderness

0=No tenderness

1=Mild pain on pressure

2=Pain & Wincing of the face on pressure

3=Pain & Withdrawal of the affected part pressure

4=Does not allow to touch

Swelling

0= No Swelling

1= Slightly Swelling

2= Moderate Swelling

3= Severe Swelling

Range of movements (Schober test)

0=5cm or >5cm range of movement

1= Up to 4cm range of movement

2= Up to 3cm range of movement

3= Up to 2cm range of movement

4= Up to 1cm or no range of movement

Schober Test It is a useful measure of forward flexion of the lumber spine to detect spinal stiffness. The patient stands erect with heels together a mark is made over the spine 5cm below and 10cm over the lumbosacral junction (recognized by a straight horizontal line between the posterior superior iliac spines) the patient then bends forward maximally and the distance between the two marks is measured. The distance increases 5cm or more in normal lumber mobility and less than 4cm case of decreased lumber mobility.

Objective Criteria

X-ray Lumbar spine

0= Normal findings

1= Unlikely narrowing of disc space, possible osteophytes.

2 = Identified small osteophytes, possible narrowing of disc space.

3 = Multiple, moderate sized osteophytes, definite disc space narrowing, some sclerotic areas, possible deformation of bone ends.

4 = Multiple greater osteophytes, severe disc space reduction, marked sclerosis and definite bone deformity.

OBSERVATION AND RESULTS

The above said subjective and objective parameters of the study were recorded without any bias and the gained results were tabularized and the outcomes are evaluated statistically and are stated in terms of "Z" value and "p" values for expression of the significance of the study. The results of the study are as follows

Pain

Table 5 *Gomutra* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	0(0.0)	2(10.0)	3(15.0)	7(35.0)
1	3(15.0)	4(20.0)	8(40.0)	7(35.0)
2	6(30.0)	9(45.0)	4(20.0)	3(15.0)
3	9(45.0)	5(25.0)	5(25.0)	3(15.0)
4	2(10.0)	0(0.0)	0(0.0)	0(0.0)
Total	20(100)	20(100)	20(100)	20(100)

Table6- *Dhanyamla* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	1(5.0)	1(5.0)	2(10.0)	5(25.0)
1	1(5.0)	5(25.0)	11(55.0)	10(50.0)
2	10(50.0)	11(55.0)	4(20.0)	5(25.0)
3	6(30.0)	3(15.0)	3(15.0)	0(0.0)
4	2(10.0)	0(0.0)	0(0.0)	0(0.0)
Total	20(100)	20(100)	20(100)	20(100)

Table7- Wilcoxon Signed Rank Test

Pair	Type	Mean difference	Z-value	P-value
BT vs. AT	*Gomutra*	0.65	-3.18	0.001
	Dhanyamla	0.55	-2.93	0.001
BT vs. FU1	*Gomutra*	0.95	-3.62	0.0001

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	Dhanyamla	0.95	-3.72	0.001
Bt vs.FU2	*Gomutra*	1.40	-3.82	0.0001
	Dhanyamla	1.35	-3.82	0.0001

The results within the group were assessed by using Wilcoxon Signed Rank test. The mean changes in the *Gomutra* Group and *Dhanyamla* group BT & AT, BT & FU1 were statistically highly significant in both the groups whereas it showed highly significant results in BT & FU2.

The p-value of BT & AT in *Gomutra* Group was 0.001 and *Dhanyamla* Group was 0.001, BT & FU1 in *Gomutra* Group was 0.001& *Dhanyamla* Group was 0.0001 and that between BT & FU2 in *Gomutra* Group & *Dhanyamla* Group was 0.0001 in both the groups.

Swelling

Table8 *Gomutra* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	0(0.0)	0(0.0)	7(35.0)	10(50.0)
1	1(5.0)	7(35.0)	7(35.0)	7(35.0)
2	12(60.0)	11(55.0)	5(25.0)	2(10.0)
3	7(35.0)	2(10.0)	1(5.0)	1(5.0)
4	0(0.0)	0(0.0)	0(0.0)	0(0.0)
Total	20(100)	20(100)	20(100)	20(100)

Table9 *Dhanyamla* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	0(0.0)	3(15.0)	3(15.0)	9(45.0)
1	5(25.0)	8(40.0)	9(45.0)	7(35.0)
2	12(60.0)	7(35.0)	7(35.0)	4(20.0)
3	3(15.0)	2(10.0)	1(5.0)	0(0.0)
4	2(10.0)	0(0.0)	0(0.0)	0(0.0)
Total	20(100)	20(100)	20(100)	20(100)

Table10 Wilcoxon Signed Rank Test

Pair	Type	Mean difference	Z-value	P-value
BT vs. AT	*Gomutra*	0.55	-2.93	0.001
	Dhanyamla	0.50	-2.80	0.002
BT vs. FU1	*Gomutra*	1.30	-3.82	0.0001
	Dhanyamla	0.60	-3.06	0.001
Bt vs.FU2	*Gomutra*	1.60	-3.82	0.0001
	Dhanyamla	1.15	-3.82	0.0001

The results within the group were assessed by using Wilcoxon Signed Rank test. The mean changes in the *Gomutra* Group and *Dhanyamla* group BT & AT, BT & FU1 were statistically highly significant in both the groups whereas it showed highly significant results in BT & FU2.

The p-value of BT & AT in *Gomutra* Group was 0.001 and *Dhanyamla* Group was 0.002, BT & FU1 in *Gomutra* Group was 0.0001& *Dhanyamla* Group was 0.001 and that between BT & FU2 in *Gomutra* Group & *Dhanyamla* Group was 0.0001 in both the groups.

Tenderness

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Table11 *Gomutra* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	0(0.0)	1(5.0)	3(15.0)	5(25.0)
1	3(15.0)	8(40.0)	9(45.0)	8(40.0)
2	9(45.0)	8(40.0)	6(30.0)	6(30.0)
3	6(30.0)	3(15.0)	2(10.0)	1(5.0)
4	2(10.0)	0(0.0)	0(0.0)	0(0.0)
Total	20(100)	20(100)	20(100)	20(100)

Table 12 *Dhanyamla* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	0(0.0)	0(0.0)	2(10.0)	8(40.0)
1	0(0.0)	4(20.0)	9(45.0)	7(35.0)
2	7(35.0)	14(70.0)	5(25.0)	5(25.0)
3	11(55.0)	2(10.0)	4(20.0)	0(0.0)
4	2(10.0)	0(0.0)	0(0.0)	0(0.0)
Total	20(100)	20(100)	20(100)	20(100)

Table 13 Wilcoxon Signed Rank Test

Pair	Type	Mean difference	Z-value	P-value
BT vs. AT	*Gomutra*	0.60	-3.30	0.0004
	Dhanyamla	0.85	-3.62	0.0001
BT vs. FU1	*Gomutra*	1.85	-3.92	0.0001
	Dhanyamla	0.20	-3.72	0.0001
Bt vs.FU2	*Gomutra*	1.05	-3.92	0.0001
	Dhanyamla	1.65	-3.92	0.0001

The results within the group were assessed by using Wilcoxon Signed Rank test. The mean changes in the *Gomutra* Group and *Dhanyamla* group BT & AT, BT & FU1 were statistically highly significant in both the groups whereas it showed highly significant results in BT & FU2.

The p-value of BT & AT in *Gomutra* Group was 0.0004 and *Dhanyamla* Group was 0.0001, BT & FU1 in *Gomutra* Group was 0.0001 & *Dhanyamla* Group was 0.0001 and that between BT & FU2 in *Gomutra* Group & *Dhanyamla* Group was 0.0001 in both the groups.

Stiffness

Table14 *Gomutra* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	0(0.0)	0(0.0)	2(10.0)	3(15.0)
1	3(15.0)	3(15.0)	5(25.0)	11(55.0)
2	7(35.0)	8(40.0)	8(40.0)	4(20.0)
3	8(40.0)	7(35.0)	3(15.0)	2(10.0)
4	2(10.0)	2(10.0)	2(10.0)	0(0.0)
Total	20(100)	20(100)	20(100)	20(100)

Table 15 *Dhanyamla* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	0(0.0)	0(0.0)	1(5.0)	2(10.0)
1	3(15.0)	4(20.0)	5(25.0)	10(50.0)
2	7(35.0)	8(45.0)	10(50.0)	6(30.0)
3	8(40.0)	6(30.0)	2(10.0)	2(10.0)
4	2(10.0)	2(10.0)	2(10.0)	0(0.0)

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Total	20(100)	20(100)	20(100)	20(100)

Table 16 Wilcoxon Signed Rank Test

Pair	Type	Mean difference	Z-value	P-value
BT vs. AT	*Gomutra*	0.05	-1.00	0.158
	Dhanyamla	0.15	-1.60	0.054
BT vs. FU1	*Gomutra*	0.55	-2.93	0.001
	Dhanyamla	0.50	-2.80	0.002
Bt vs.FU2	*Gomutra*	1.20	-3.92	0.0001
	Dhanyamla	1.05	-3.82	0.0001

The results within the group were assessed by using Wilcoxon Signed Rank test. The mean changes in the *Gomutra* Group and *Dhanyamla* group BT & AT was not statistically significant in both the groups whereas it showed highly significant results in BT & FU1 and BT & FU2.

The p-value of BT & AT in *Gomutra* Group was 0.158 and *Dhanyamla* Group was 0.054, BT & FU1 in *Gomutra* Group was 0.001& *Dhanyamla* Group was 0.002 and that between BT & FU2 in *Gomutra* Group & *Dhanyamla* Group was 0.0001 in both the groups respectively

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Range of movement

Table 17 *Gomutra* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	0(0.0)	1(5.0)	4(20.0)	7(35.0)
1	7(35.0)	8(40.0)	8(40.0)	7(35.0)
2	6(30.0)	7(35.0)	6(30.0)	5(25.0)
3	4(20.0)	4(20.0)	2(10.0)	1(5.0)
4	3(15.0)	0(0.0)	0(0.0)	0(0.0)
Total	20(100)	20(100)	20(100)	20(100)

Table 18 *Dhanyamla* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	2(10.0)	2(10.0)	4(20.0)	8(40.0)
1	3(15.0)	6(30.0)	11(55.0)	9(45.0)
2	6(30.0)	7(35.0)	3(15.0)	1(5.0)
3	7(35.0)	5(25.0)	2(10.0)	2(10.0)
4	2(10.0)	0(0.0)	0(0.0)	0(0.0)
Total	20(100)	20(100)	20(100)	20(100)

Table 19 Wilcoxon Signed Rank Test

Pair	Type	Mean difference	Z-value	P-value
BT vs. AT	*Gomutra*	0.45	-2.67	0.003
	Dhanyamla	0.45	-2.67	0.003
BT vs. FU1	*Gomutra*	0.85	-3.52	0.0002
	Dhanyamla	1.05	-3.62	0.0001
Bt vs.FU2	*Gomutra*	1.15	-3.92	0.0001
	Dhanyamla	1.35	-3.72	0.0001

The results within the group were assessed by using Wilcoxon Signed Rank test. The mean

changes in the *Gomutra* Group and *Dhanyamla* group BT & AT, BT & FU1 were

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statistically highly significant in both the groups whereas it showed highly significant results in BT & FU2. The p-value of BT & AT in *Gomutra* Group was 0.003 and *Dhanyamla* Group was 0.003, BT & FU1 in *Gomutra* Group was 0.0002 & *Dhanyamla* Group was 0.0001 and that between BT & FU2 in *Gomutra* Group & *Dhanyamla* Group was 0.0001 in both the groups, respectively

X – ray Grading

Table 20 *Gomutra* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	0(0.0)	0(0.0)	1(5.0)	1(5.0)
1	6(30.0)	6(30.0)	5(25.0)	5(25.0)
2	7(35.0)	7(35.0)	6(30.0)	6(30.0)
3	3(15.0)	3(15.0)	5(25.0)	5(25.0)
4	4(20.0)	4(20.0)	3(15.0)	3(15.0)
Total	20(100)	20(100)	20(100)	20(100)

Table 21 *Dhanyamla* Group

	Before treatment	After treatment	After 1st follow up	After 2nd follow up
0	0(0.0)	0(0.0)	1(5.0)	1(5.0)
1	5(25.0)	5(25.0)	4(20.0)	4(20.0)
2	8(40.0)	8(40.0)	8(40.0)	8(40.0)
3	4(20.0)	4(20.0)	4(20.0)	4(20.0)
4	3(15.0)	3(15.0)	3(15.0)	3(15.0)
Total	20(100)	20(100)	20(100)	20(100)

Table 22 Wilcoxon Signed Rank Test

Pair	Type	Mean difference	Z-value	P-value
BT vs. AT	*Gomutra*	0.00	0.00	1.000
	Dhanyamla	0.00	0.00	1.000
BT vs. FU1	*Gomutra*	0.05	-0.53	0.296
	Dhanyamla	0.05	-1.00	0.158
Bt vs.FU2	*Gomutra*	0.05	-0.53	0.296
	Dhanyamla	0.05	-1.00	0.158

The mean changes in the *Gomutra* Group and *Dhanyamla* group before treatment and after treatment, before treatment and first follow up and among before treatment and second follow up were not statistically significant in both the groups. The p-value of BT & AT in *Gomutra* Group was 1.000 and *Dhanyamla* Group was 1.000, BT & FU1 in *Gomutra* Group was 0.296 & *Dhanyamla* Group was 0.158 and that between BT & FU2 in *Gomutra* Group was 0.296 & *Dhanyamla* Group was 0.158 in both the groups, respectively.

DISCUSSION

Vaitarana vasti has certain specific features of its own. A *nirooha* invariably contains ingredients that are common to all *vastis*. They are *makshika, lavana, sneha, kalka,* and *kwatha* which are mixed according to this sequence. But in *Vaitarana vasti* the ingredients are described above previously.

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The study was conducted on 40 patients of 20 in each group from OPD of Panchakarma, Government Ayurveda college hospital, Tripunithura. Preliminary procedures like *deepana-pachana*, were done in both groups and then *Vaitarana Vasti* is done for 5 days in both groups on the day of *vasti*, the patients were asked to take light food around 7-8 A.M. *Vasti* was then administered between 10:30 A.M and 11:30 A.M. Left lateral position was maintained during administration of *vasti*. *Paschat karma* like bathing and taking food was followed. All the participants took full course of treatment successfully without any interruption, so there was no dropout in this study.

Pain The statistical analysis showed highly significant results in both *Gomutra* Group and *Dhanyamla* Group after treatment, first follow up which was statistically significant at $p < 0.001$ and the second follow up which was statistically highly significant at $p < 0.0001$. While comparing the efficacy of treatments, they were significant with $p < .0001$ that means both these treatment groups had given best efficacy in relieving pain, just after the treatment and during follow up period. As shown in Table 5,6 and 7.

Swelling

The statistical analysis showed highly significant results in both *Gomutra* Group and *Dhanyamla* Group after treatment, first follow up which was statistically highly significant at $p < .001$ and $p < .002$ first follow up which was statistically significant at $p < .001$ and The second follow up which was statistically significant at $p < .0001$. So

Vaitarana vasti with *Gomutra* and *Vaitarana vasti* with *Dhanyamla* both are effective in reducing the swelling. While comparing the efficacy of both treatments, they were significant with $p < .0001$ that means both these treatment groups had given best efficacy in relieving swelling, just after the treatment and during follow up period. As shown in Table 8,9 and 10.

Tenderness

The statistical analysis showed highly significant results in both *Gomutra* Group and *Dhanyamla* Group after treatment which was statistically significant at $p < .0001$ & $p < .0004$, first follow up which was statistically significant at $p < .0001$ and the second follow up which was statistically significant at $p < .0001$. So *Vaitarana vasti* with *Gomutra* and *Vaitarana vasti* with *Dhanyamla* both are effective in reducing the tenderness. While comparing the efficacy of both treatments, they were significant with $p < .0001$. That means both these treatment groups given best efficacy in relieving tenderness, just after the treatment and during follow up period. As shown in Table 11,12 and 13.

Stiffness

The statistical analysis showed varying results in both *Gomutra* Group and *Dhanyamla* Group after treatment, which was not statistically significant at $p < .158$ & $p < .054$, first follow up which was highly statistically significant at $p < .001$ & $p < .002$ and the second follow up which was statistically significant at $p < .0001$. So *Vaitarana vasti* with *Gomutra* and *Vaitarana vasti* with *Dhanyamla* both are effective in reducing the stiffness. While

comparing the efficacy of both treatments, they were highly significant with p<.0001. That means both these treatment groups had given best efficacy in relieving stiffness, just after the treatment and during follow up period. As shown in Table 14, 15 and 16.

Range of movement

The statistical analysis showed highly significant results in both *Gomutra* Group and *Dhanyamla* Group after treatment which was highly statistically significant at p<0.003& p<0.03, first follow up which was highly statistically significant at p<0.002& p<0.001 and the second follow up which was statistically significant at p<.0001. So *Vaitarana vasti* with *Gomutra* and *Vaitarana vasti* with *Dhanyamla* both are effective in relieving the restricted range of movement. While comparing the efficacy of both treatments, they were highly significant with p<.0001 that means both these treatment groups had given best efficacy in relieving restricted range of movement, just after the treatment and during follow up periods. As shown in Table 17,18 and 19.

X-ray

In spite of the treatment given in both the groups, there was no statistically significant improvement radiologically. As shown in Table 20,21 and 22.

Probable mode of action of the procedure

Vasti **therapy** is a complex process in which several factors take active part for completing its action. Instead of pinpointing to one type of mechanism it is presumed that various factors work in collaboration with each other to produce the beneficial effects of *Vasti* therapy.

katishool

In the *samprapthi* of *Katishoola*, *Apana vayu* is vitiated due to specific *nidanas* like *Vegaavarodha*, continuous walking and prolonged sitting due to which it gets localized in *Trikasandhi* of *Kati* region and in turn vitiates *Kapha* in that *sandhi*. *Samana vayu* also gets vitiated and may result in *agnidushti* leading to the development of *ama*. This *vata* associated with ama and *kapha* can lead to painful conditions of lower lumbosacral spine. Since *Katishoola* is closely associated with *pakwasayagata Vata dusti* with definite *Apana vaigunya*, *Vaitarana Vasti* which is clearly indicated in the diseases of *Katipradesa* with *ama, anaha and shoola*, is preferred as the mainstream of treatment.

Vaitaran vasti

In this study, *Vaitarana vasti* is done with ingredients such as *Saindavam,Guda,chinch , tila taila* in common and, *Gomutra* or *Dhanyamla* specific for each group. *Saindhava* due to its *Sukshma* and *Tikshna* property help the *Vasti Dravya* to reach up to the molecular level. It is capable to liquefying the viscid matter and breaking it into minute particles. *Purana Guda* is *Laghu, Pathya, Anabhishyandi*, *Agnivardhaka* and *Vata-pittaghna* and it possess the same qualities as that of *Madhu* as per Bhavaprakasha. So, it is used instead of madhu in this vastikrama. Tila taila has anti-inflammatory action and it is *vatakaphasamana* in nature. *Chincha* to be taken in *Vaitarana Vasti* should be in *pakva* stage with

Madhura Rasa having *Vatakaphashamaka* properties.

Gomutra [15]

According to classics, *Gomutra* possess the following properties - *Katu Rasa, Katu Vipaka, Ushna Virya, Laghu, Ruksha, Tikshna Guna*. The *rooksha guna* of *Gomutra* is very much helpful in the diseased condition with *amavastha*. *Gomutra* pacify *kapha* by *katu rasa, katu vipaka, ushna virya* and *laghu ruksha, tiksha, guna*. It may act as *vatanulomaka* due to its *madhura rasa* and *ushna virya*. It is useful for *asthapana vasti* because of its *tridoshahara, agni deepana, pachana, srotovisodhana* and *vatanulomana* properties.

Dhanyamla [16]

Dhanyamla possess *amla rasa, laghu, snigdha, tikshna, vyavayi, vikashi Guna, ushna* in *veerya* and *seethasparsa*. It is *sristha vina-mutra* in nature, *vasthi sodhana* and *vibhandhaghna*. As it is a preparation from *dhanyas*, properties like *tarpana, balya,* and *vatahara* are also supplemented. In brief *dhanyamla* with its *Amla rasa* is *srotoshodhana* and *shoolahara*. In *Khilasthana, Kashyapa* has fortified the purificatory capability (*srotoshodhana* and hence *vata anulomana*) of *amla rasa* where he has mentioned the opening and restoration of normal functions of the *srotas* by the use of amla rasa due to its *teekshna guna*. *Vagbhata* has also mentioned *muda vathanulomana* property of *amla rasa*. Hence *Dhanyamla* by virtue of its amla rasa and *ushna veerya* not only does *srotosodhana* and alleviation of *vata* but also does *anulomana* of *vata*.

CONCLUSION

The conclusion may be drawn based on the analysis of the conceptual part and observations made in the clinical study. *Dhanyamla yukta Vaitarana vasti* and *Gomutra yukta Vaitarana vasti* are equally effective in management of *Katishoola*. *Vaitharanavasti* is an effective treatment in the management of *Katishoola* and it shows long lasting result. It is easy to constitute, less time consuming and gives least discomfort to both patient and physician.

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