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CLINICAL STUDY ON EVALUATION OF BASTI AND ABHYANGA WITH NARAYANA TAILA IN JANUSANDHIVATA (KNEE ARTHRITIS)

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ABSTRACT

Knee arthritis is the analogy of *Vatavyadhi* termed as *Sandhivata* in *Ayurveda* possessing similar symptoms like pain, limited range of motion, and crepitus with bony enlargement. Treatment option available in the contemporary field includes NSAID administration, Intra articular steroids, or eventually surgical interventions in the form of knee replacement. In this regard, there is a need for safe, effective, and affordable treatment options. In *Ayurveda* importance of *Sneha Chikitsa* in *Vata Vikara* have opined by all *Acharaya*. In the present case study, it is tried to explore the effectiveness of *Narayana Taila Abhyanga* and *Matra basti*, particularly in patients with knee arthritis, and significant results are found after careful evaluation. The trial drug showed significant results on patients of *Janu Sandhivata* in both groups and gives good results, especially in the symptoms of knee stiffness and range of motion when applied locally as *Abhyanga* along with *Basti* of *Narayana Taila*.

Keywords: *Janu Sandhivata, Knee arthritis, Narayana Taila, Matra basti, Abhyanga*

INTRODUCTION

Knee arthritis or Knee OA formerly referred to as osteoarthrosis or degenerative joint disease which is the most common form of arthritis *Sandhigatavata* is *Vāta* dominating disorder which creates inflammatory as well as degenerative changes in joints. Due to the involvement of *Gambhir Dhatus* (deep tissues) like *Asthi* and *Majja*. *Janu Sandhivata* is quoted as *Madhyama Rogamargagata Vataja Vikara*, where decline *Asthi Dhatu* gives shelter to vitiated *Vata Dosha* which promotes interruption in the *Dharana* and *Purana Karma* of *Asthi* and *Majjja Dhatu* and brings out the disarrangement of the particular *Janusandhi*. In this way, *Janu Sandhigatavata* notices as a *Dhatu Kshaya Janya Vikara* which is conceivable to manage hypothetically by giving *Brahmana Dravaya*. In *Ayurveda* importance of *Sneha Chikitsa* in *Vata Vikara* have opined by all *Acharaya*. As per the *Acharya Yogratnakar Abhyanga* is quoted as the main line of treatment for *Vata* disorders. It is a type of external *Snehana* which is *Jarahar-Sramahra-Vatahar, Drstiprasadakara, Pushtikara, Ayusyakara, Svapanakara, Tvakdardhayakara, Kleshasahatva* and quoted as the main line of treatment in *Sandhivata* by *Acharaya Yogratnakar* and is advocate as a nourishing treatment in a decayed state of the body by giving the analogy of oiling the axis of the wheel (Ca. Su. 5/85,86) Similar approach for *Matra Basti* is in it sustain nourishing character is described by all *Acharaya* in context of its unique preventive, promotive, rejuvenate and curative properties that help to alleviate *Vata* or nourishes *Aasti and Majja Dhatu*. Thus this clinical study it is tried to evaluate how naturally occurring growth factors and their various active chemical constituents can be used to induce cartilage repair so as to explore the representative examples of the novel, practical approaches in the furnishing of durable recovery of damaged cartilage to eventually effect the true regeneration of the specialized tissue.

AIMS AND OBJECTIVES OF THE STUDY-

1. Evaluation of the effect of *Basti* and *Abhyanga with Narayana Taila* in *Janu Sandhivata* (Knee arthritis).
2. Evaluation of the effect of only *Abhyanga* with *Narayana Taila* in *Janu Sandhivata* (Knee arthritis).
3. Comparison of *Basti* with *Abhyanga* and only *Abhyanga* with *Narayana Taila* treatment to evaluate the efficacy of *Basti* in *Janu Sandhivata* (Knee arthritis).

MATERIAL AND METHODS-

Source of Data: Patients suffering from *Janu Sandhigatavata* were selected from O.P.D and I.P.D, Department of *Panchakarma*, Gurukul Campus, Uttarakhand Ayurveda University, Haridwar while the Literary aspect of the study was collected from the *Ayurvedic* classics and modern texts with updated recent medical journals.

Inclusion criteria:

- Patients between the age group of 40-70 years of either sex.
- Patients suffering from classical signs and symptoms of *Sandhigata Vata* as described in *Ayurvedic* classics as well as a clinical feature of OA.
- Patients with radiological findings of Knee joint osteoarthritis.
- Patients fit for *Basti*.

Exclusion criteria:

- Severe Bursitis. Complete loss of articular cartilage
- Rheumatoid arthritis
- Gouty arthritis
- Patients have other systemic disorders which might interfere with the present study.
- Pregnant women and lactating mother
- Knee surgery (Metallic Implants), complete loss of joint space on X-ray
- Administration of chondroprotective drug, intra articular injection into the knee joint, or systemic corticosteroids medication during the 1-month preceding enrolment
- Obesity at Grade equal to or more than 2 WHO (BMI=30-39.9kg/m ^{2})
- Subjects with a congenital deformity, traumatic injuries, fractures, infections of the bone, and gross bone deformity.

Intervention:

- (Group-A) *Matrabasti* with *Narayana Taila* was given in 3 courses of 7 days with an interval of 3 days between each course. The patients of this group were also administered local *Abhyanga* with *Narayana Taila* at the knee joint.
- (Group-B) *Abhyanga* with *Narayana Taila* for 30 days two times a day was done over the knee joint for 15 min in each.

ASSESSMENT-

SUBJECTIVE PARAMETER-

Grade	*Sandhishula* (Knee Pain	*Akunchana Prasranajanya Vedana* (Pain during flexion and extension)	*Sandhishotha* (Swelling/ Synovitis)	*Sandhisputan* (Crepitus)
Grade- 0	No pain	No pain	Absent	No crepitus
Grade-1	Mild	Pain without winching the face during flexion and extension	Mild slightly swelling (covering only the bony prominence)	Mild (perception on touch)
Grade-2	Moderate pain but no difficulty in walking	Pain with winching of face & prevent complete flexion-extension of joint	Moderate (completely covering all the body prominence)	Moderate (audible on attention
Grade-3	Slight difficulty in walking due to pain	Severe & does not allow passive movement	Severe (completely covering the joint)	Severe (audible
Grade -4	Severe difficulty in walking			

OBJECTIVE PARAMETER-Pain, physical function, and stiffness of the patient were assessed by WOMAC INDEX (MODIFIED – CRD PUNE VERSION) with VISUAL ANALOGUE SCALE by giving a score before and after the treatment.

The range of motion is assessed by Goniometer-. Gradation of the different joints as under.

Gd 0	Normal range of flexion	130^0
Gd 1	Mild	101^0 - 120^0
Gd 2	Moderate	81^0 - 100^0
Gd 3	Severe	< 60^0

X-Ray of involved knee joint KELLGREN– LAWRENCE RADIOGRAPHIC GRADING SCALE OF OSTEOARTHRITIS for radiographic changes

Grade	Classification	Description
0	Normal	No radiographic findings of osteoarthritis
1	Minor	Minute osteophytes of doubtful clinical significance.
2	Mild	Definite osteophytes with unimpaired joint space.
3	Moderate	Definite osteophytes with moderate joint space narrowing
4	Severe	Definite osteophytes with severe joint space narrowing

OBSERVATIONS-

Age: A maximum of 45% of patients were found in the 40 - 49years of the age group which shows that usually symptoms of the disease start after the fourth decade of life which is the *Hani* stage of *Madhya Vaya*

Sex: The majority of the patients (76.66%) were females in the peri-menopausal period. Thus, post-

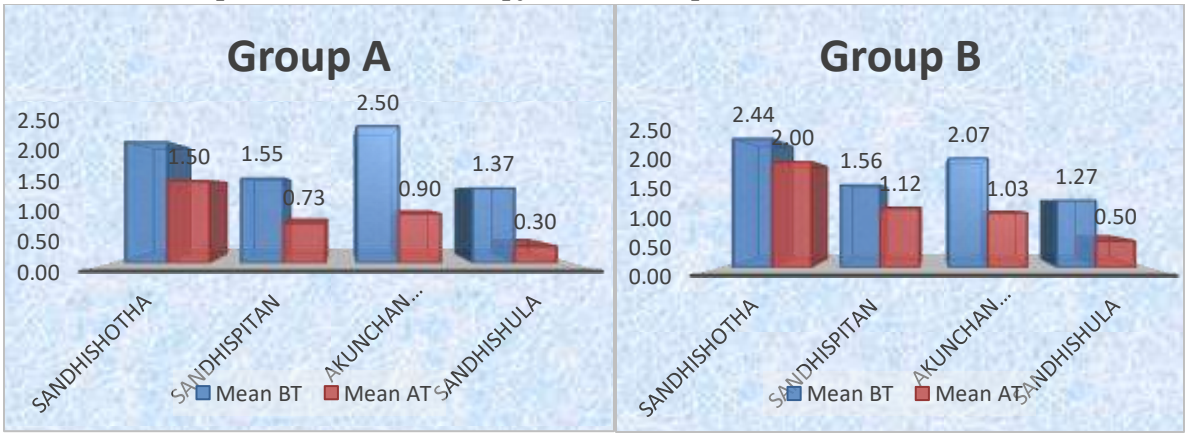
menopausal hormonal variations can depict to play role in bone mineralization.

Diet: Maximum i.e.,50% of patients were found doing *Vishamashana* while 25% of patients were found doings *Samshana* and *Adhyashana* in their daily food habits which leads to *Agni* V*aishamya* and *Vata Prakopa* resulting in *Dhatukshaya* which coupled with old age leads to *Sandhigatavata*. In the context of *Aharaja Nidana*, it has been observed that the maximum number of patients (65%) have *Ruksha* dominant *Guna* in diet followed by *Alpa Ahara Sevana*. 43%, *Katu Ahara Sevana* in 27% while *Sheetal* and *Laghu Ahara* depict in 23% or 22% of patients respectively which can be concluded as irrespective of diet pattern who ever consumes *Vata Vardhaka Aharas* in excess will result in the causation of *Janu Sandhigatavata***.**

Radiological interpretations: The above data shows that osteophytes were seen in the X-ray of 42% of patients while 80% of patients had a reduction in joint space. In 30% of patients, involvement of the medial compartment is observed in X-ray while 10% or 17% of patients have involvement of lateral compartment and Patello-femoral compartment is depicted in X-ray respectively. In the early stage, there is no radiological evidence whereas only 50-60% of patients were found symptomatic in radiology. Joint space narrowing is seen as the earliest feature of knee arthritis. The formation of osteophytes in Osteoarthritis is the hall mark. All these are seen in an advanced stage of Osteoarthritis. Although, osteophytes in x-rays reflect the chronic nature and stage of disease, many times the joint pain was not related to the X-ray findings in most of the patients

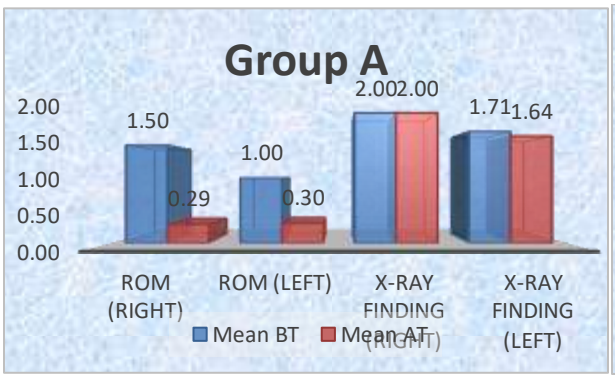
Chief complaints- *Sandhishula* (Knee joint pain) was found in 100% of cases. In *Sandhivata* there is an aggravation of *Vata Dosha* vitiated in the *Sandhi* which is responsible for *Shula. Sandhishula* may occur due to *Asthikshaya* developed as a result of *Laghu Ruksha Khara Guna Vriddhi*. In mild cases of OA, the joint pain may be due to inflammation of the synovial capsule, stretching of the ligaments, or muscle spasm. In some cases, it may be due to the stretching of nerve endings in the periosteum covering osteophytes. Similarly, *Akunchana Prasarana Vedana* (difficulty in joint movements) was found in 100 % of patients which occurs due to aggravation of *Vata Dosha* and *Kaphakshaya*. The pain and restriction during flexion and extension may be due to osteophytes which alter the contour of the joint and restrict the range of movements. *Sandhisphutana* (crepitus on moving the joint) was observed in 78% of cases which again indicates the *Vata Prakopa* especially its *Ruksha Guna Vriddhi*. This crackling sensation is likely to occur because of the roughening of the surface inside the joint. The crepitus in a joint indicates the degeneration of the cartilage also. *Sandhishotha* (Swelling) was found in 67 % of patients as swelling is a late feature of osteoarthritis which also indicates its advanced feature. It occurs due to the effusion caused by inflammation of the synovial tissues.

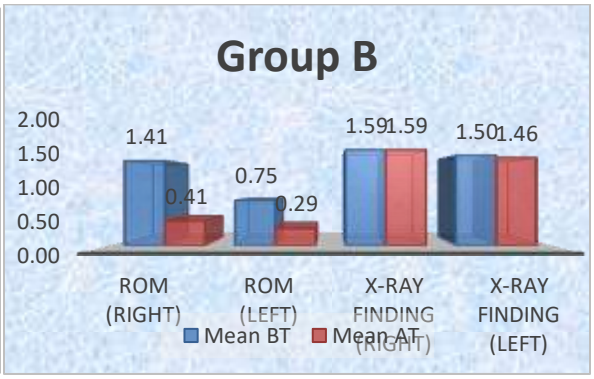
RESULTS- Comparative effect of therapy in chief complaints-



Symptoms	Group A	N	Mean Diff.	SD	Mean Rank	Sum of Rank	Mann- Whit-ney U	P-value
Sandhishotha	A	24	0.57	0.50	35.72	1071.50	Group A	0.00626
	B	10	0.23	0.50	25.28	758.50	Group B	
Sandhisputan	A	22	0.60	0.50	34.00	1020.00	Group A	0.07293
	B	25	0.37	0.49	27.00	810.00	Group B	
Akunchan Prasarana Janya Vedana	A	30	1.60	0.62	37.33	1120.00	Group A	0.00042
	B	30	1.03	0.49	23.67	710.00	Group B	
Sandhishula	A	30	1.07	0.25	34.77	1043.00	Group A	0.00227
	B	30	0.77	0.43	26.23	787.00	Group B	

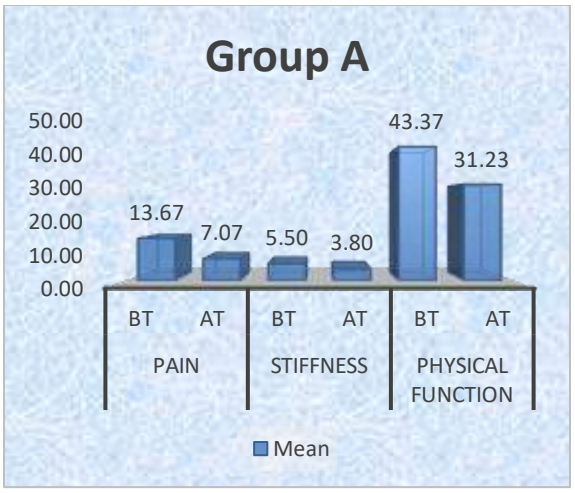
Comparative effect of therapy in ROM and X-RAY-

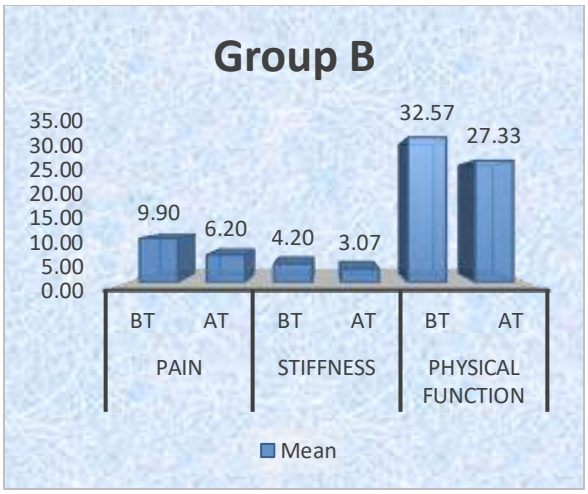




	Group	N	Mean Diff	SD	Mean Rank	Sum of Ranks	Mann-Whit-ney U	P-Value
ROM (Right)	Group A	28	1.13	0.51	37.37	1121.00	244.000	0.00092
	Group B	17	0.57	0.77	23.63	709.00		
ROM (Left)	Group A	30	0.70	0.47	34.50	1035.00	330.000	0.03876
	Group B	28	0.43	0.50	26.50	795.00		
X-Ray Finding (Right)	Group A	27	0.00	0.00	30.50	915.00	450.000	1.00000
	Group B	27	0.00	0.00	30.50	915.00		
X-Ray Finding (Left)	Group A	28	0.07	0.25	31.00	930.00	435.000	0.55694
	Group B	26	0.03	0.18	30.00	900.00		

Comparative Effect of therapy in WOMAC INDEX-





Variable	Group	N	Mean Diff	SD	SE	t-Value	P-Value	Result
Pain	Group A	30	6.60	2.42	0.44	5.250	0.000	Hs
	Group B	30	3.70	1.82	0.33			
Stiffness	Group A	30	1.70	0.65	0.12	4.209	0.000	Hs
	Group B	30	1.13	0.35	0.06			
Physical Function	Group A	30	12.13	6.15	1.12	5.030	0.000	Hs

WOMAC Index		Mean	N	SD	SE	t-Value	P-Value	% Effect	Result
Group A	BT	62.53	30	10.02	1.83	15.146	0.002	32.68	Sig
	AT	42.10	30	7.98	1.46				
Group B	BT	46.67	30	12.54	2.29	11.720	0.008	21.57	Sig

Effect of therapy in Investigation findings- There were no significant changes observed in both group.

DISCUSSION

***Sandhishula* (Knee Joint Pain):** In Group-A Pain in the Knee joint was improved by 78.05% which is statistically highly significant (p0.001) while in Group-B it was improved by 60.53% which is also highly significant as P- the value is less than 0.001. On comparing the effects of therapies by Mann Whitney test in both groups the mean rank of group A is more than group B by which we can draw the inference that *Matra Basti* with *Abhyanga* has exhibited significant improvement over the other group. As it is stated that without *Vata, Shula* doesn't occur *& Basti* is quoted as the best remedy for *Vatika* disorders. The *Rukshata* of *Vata* is hampered by *Snigdhata* or *Ushna Viryata* of *Taila*. Also, it is the active principals of the use of *Narayana Taila* which by giving *the Basti* route make accessibility of all its content in maximum bioavailability to the target knee joint site as compared to the transdermal route in *Abhyanga.*

***Sandhishotha* (Knee Joint Swelling):** In Group-A Swelling in the Knee joint was improved by 32.08% which is statistically significant (p0.001) while in Group-B it was improved by 17.95% which is also significant as P- value is less than 0.05. On comparing the effects of therapies by Mann Whitney test in both groups it was found that % of improvement i.e. mean rank of *Matra Basti* with *Abhyanga* in group perceive higher as compared to only *Abhyanga* in group B. By these values of improvement, we can deduce the interpretation that as the major contents use in *Narayana Taila* are anti-inflammatory and analgesics in action

therefore on administering them by per rectum route provides a superior healing effect to the target site in contrast of trans dermal route.

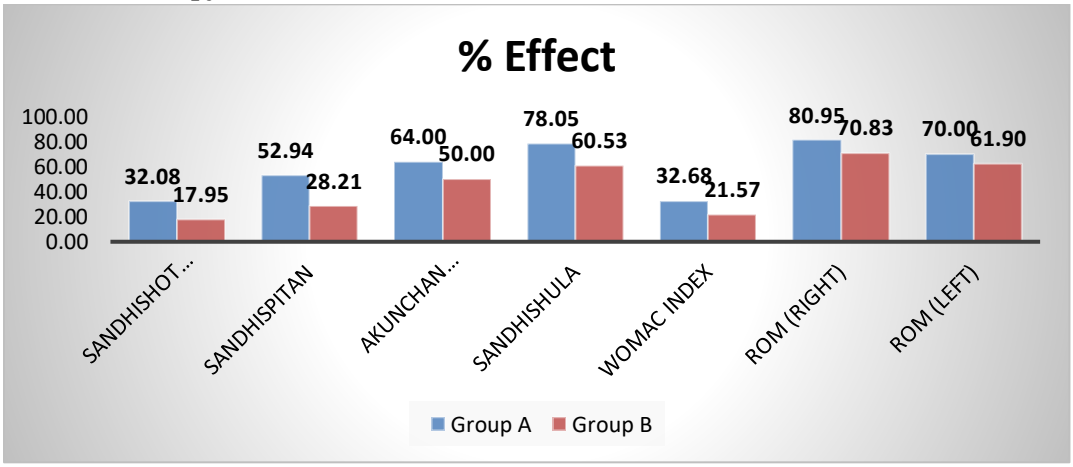
***Akunchana Prasarana Janya Vedana* (Pain During Flexion and Extension Of the Joint):** As a result, Group-A and Group B show 64% and 50% improvement in pain during flexion or extension of the knee joint respectively which is demonstrated by their significant P-value which is less than 0.001. On analysis of comparative effect group, A again demonstrates more improvement than group B. Hence it suggests lubrication of knee joint by *Snigdha Guna* of *Narayana Taila* through *Basti* with *Abhyanga* achieve considerably higher than solely *Abhyanga.*

***Sandhisphutana* (Crepitus)-** As a result, Group-A and Group B show 52.9% and 28.21% improvement in the crepitus of the knee joint respectively which is demonstrated by their significant P-value which is less than 0.001. On analysis of comparative effect group, A convey augmented improvement than group Crepitus is produced due to reduction in synovial fluid and cartilage loss *Sandhi sthita Shleshaka Kapha Kshaya* due to *Ruksha Guna Vriddhi* of *Vata* results in *Sandhisputan* which assume to nourish by *Snigdhta* of *Narayana Taila* thereby reducing the *Janu Sandhisputan.*

Effect of therapy on WOMAC (Western Ontario and McMaster Universities Osteoarthritis Index)- Pain, stiffness, and difficulty in movement were assessed by using the Womac score. All the above scores have shown good improvement after the *Matrabasti* and *Abhyanga* with *Narayana Taila.* As there is a significant difference between Group A and Group B which on comparison by unpaired t-test exhibits greater mean difference in Group A as compared to Group B

Effect of therapy on Range of motion: In Group-A knee joint ROM in the right and left knee was improved by 80.9% and 70% respectively which is statistically significant (p0.05) while in Group-B right and left knee shows improvement by 70% and 61% respectively which is also significant as P- value is less than 0.05 and on comparing the effect group A shows better result than group B. *Sandhigati* means mobility of the joints, which was hampered due to degeneration as well as a reduction in *Shleshaka Kapha* in sandhi with reduce the functioning of adjacent muscles or ligaments and tendons. This was fulfilled by using *Matra Basti* with *Abhyanga*, by means of which restoration of *Sandhigati*.

The overall effect of therapy-



CONCLUSION

Thus, it can be concluded that *Abhyanga* as an external application play an important role in *Janu Sandhivata* but with *Matra Basti* the resultant effect boosts up as *Basti* works on *Dhatu Poshana* and *Srotoshodhana* as an internal application.

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