

A COMPARATIVE CLINICAL STUDY OF AGNIKARMA WITH TAPTA KSHAUDRA AND PANCHADHATU SHALAKA IN THE PAIN MANAGEMENT OF JANUSANDHIGATA VATA

Priyanka Ganguly¹, Manjunatha Bhat²

¹Final year P.G. Scholar of Shalya Tantra Department, Alva's Ayurveda Medical College, Karnataka, India

²H.O.D in Shalyatantra, Alva's Ayurveda Medical College, Karnataka, India

Email: dr_priyanka11@rediffmail.com

ABSTRACT

Pain is an unpleasant sensory and Emotional experience associated with actual and potential tissue damage. In modern civilization, non-mechanical lethargic life style, overweight and obesity causing early degenerative changes in knee joint which is exposed to daily of wear and tear, so eventually which may result in Osteoarthritis of knee joint. Osteoarthritis of knee joint is found congruent with the clinical features of *Janu Sandhigata vata*. *Acharyas* enlisted various treatment procedures for *Janusandhigata Vata*, among them *Agnikarma* is one of the most Potential procedure in various disease due to its *Tivra ruja shamak*, *Sheeghrakaritwa* and *Roga Apunarbhavatwa*. *Panchadhatu shalaka* is most in practice for *Agnikarma* with very encouraging results on various *Asthi* and *Sandhi shula pradhana vyadhis*. *Acharya Sushruta* mentioned *kshaudra* as a *Dahana uprakarana* when *Sandhi*, *Asthi*, *Sira*, *Snayu* are involved. As *Sandhigata vata* is a degenerative process, complete control by *Agnikarma* is challenging. So, in this present study *Agnikarma* with *Tapta Kshaudra* will be compared with *Panchadhatu shalaka*, prefers to manage the pain and its related symptoms like stiffness and restriction of movement. Hence here an attempt is made to compare the efficacy of *Agnikarma* with *Tapta Kshaudra* in comparison with *Panchadhatu shalaka* in *Janusandhigata vata* for pain management.

Keywords: *Janusandhigatavata*; Osteoarthritis; *Agnikarma* ;*Tapta Kshaudra*; *Panchadhatu Shalaka*.

INTRODUCTION

Pain is the universal sensation which is being experienced by all human being once or several times in their whole life span. But the truth is pain is just like a friend who is indicating that something is going wrong inside the body, might be any potential tissue damage or any degenerative changes. Same as when mobility is affected by degeneration of knee joint or osteoarthritis, Pain also started over knee

joint. In modern civilization, non-mechanical lethargic life Style, overweight and obesity causing early degenerative changes, most complex weight bearing synovial joint, knee joint is one such structure which is exposed to daily wear and tear. Eventually which may result in discomforts and pain due to early degeneration of knee joint ¹ 45% people are suffering from osteoarthritis at the age of 65-85 age,

even though 30% people are suffering from the same in their early 40's. 2 in 3 people who are obese may develop symptoms in their life time. Females slightly dominate in the degenerative disorder of knee joint.² Being 2nd commonest musculoskeletal disorder in the world Osteoarthritis has the characteristics features like aching pain, restriction of movement, stiffness of the knee joint, feeling sharpening and spiking of the Joints margins.¹ Clinical feature of Osteoarthritis of knee joint is found congruent with the clinical features of *Janu Sandhigata vata*. *Janusandhigata vata* is the most *Rujapradhana Vatavyadhi*. Clinical features of *Sandhigata vata* are *Sandhishhula*, *Prasarana akhunchana vedana*, *Stambha*, *Sandhi shotha*, *Vatapurna Dhriti sparsha shotha*, *Atopa*.^{4,5,8} General Treatment of Osteoarthritis of knee joint are Analgesic Drug, Arthroscopy, Proximal Tibial Osteotomy, Autologous Chondrocytes, Total Knee Arthroplasty (TKA) and Knee transplantation. Limitation of these treatment are more expensive, need Hospitalisation, Facilities only in major Orthopaedic center.^{1,3} *Acharyas* enlisted various treatment procedures for *Janusandhigata Vata* like *Snehana*, *Svedana*, *Mridusamshodhana*, *Basti*, *Vatahara Ausadha*, *Upanaha*, *Agnikarma*, *Bandhana*, *Unmardana* and so on^{4,5}.

Being Tivra ruja shamak, *Agnikarma* is one of the most Potential procedures in various disease due to its *Sheeghrakaritwa* and *Roga Apunarbhavatwa*.⁴ As *Sandhigata vata* is a degenerative process, complete control of its pathology by *Agnikarma* is challenging, So in this present study *Agnikarma* with *Tapta Kshaudra* will be compared with *Panchadhatu shalaka*, prefers to manage the pain and its related symptoms like stiffness and restriction of movement. *Agnikarma* with *Tapta Kshaudra* and *Panchadhatu shalaka*, both the treatments are cost effective and can be done in OPD basis. *Panchadhatu Shalaka* is most in practice for *Agnikarma* with very encouraging results on Various *Asthi* and *Sandhi shula pradhan vyadhis*. *Acharya Sushruta* Mentioned *kshaudra* as a *Dahana*

uprakarana when *Sandhi*, *Asthi*, *Sira*, *Snayu* are involved.^{4,6,7,8}

Hence here an attempt is made to compare the efficacy of *Agnikarma* with *Tapta kshaudra* and *Panchadhatu shalaka* in *Janusandhigata vata*.

OBJECTIVES:

- 1) To conduct a comprehensive literary study on *Janusandhigata vata*
- 2) To evaluate the efficacy of *Agnikarma* with *Tapta Kshaudra* in pain management of *Janusandhigata vata*.
- 3) To evaluate the efficacy of *Panchadhatu Shalaka* in pain management of *Janusandhigata vata*
- 4) To compare and ascertain the effect of *Agnikarma* using *TaptaKshaudra* and *Panchadhatu shalaka* in pain management of *Janusandhigata vata*.

METHODOLOGY

Physical analysis of *Kshaudra*:

- Boiling point of *Kshaudra* was measured by direct method by using of pyrometer.
- The boiling point of the sample was determined to be 130⁰ C to 140⁰ C.
- On removing the heat source a gradual dissipation of temperature was noted at a rate of 3⁰ C to 4⁰ C per minute under normal atmospheric conditions.

Physical analysis of *Panchadhatu shalaka*:

- The temperature of *Panchadhatu Shalaka* was measured by using a pyrometer
- The temperature of the *Shalaka* when red hot the temperature was determined as 260⁰ c.
- The temperature decreased by an approximate rate of 3⁰ c to 4⁰ c per minute, under normal atmospheric conditions.

DIAGNOSTIC CRITERIA –

Patients presenting with signs and symptoms of *Janu Sandhigata vata* as

- *Sandhishhula*
- *Prasarana akhunchana vedana*
- *Stambha*,
- *Sandhi shotha*,
- *Vatapurna dhriti sparsha shotha*,

- *Atopa.*
- Test for range of movement
- WOMAC score

INCLUSION CRITERIA –

- Patients with age between 30 to 70 years irrespective of sex, religion, occupation, socio-economic status has been taken for study.
- Patients having classical signs and symptoms of *Janusandhigata vata* with a minimum history of 6 months

EXCLUSION CRITERIA-

- Patients having associated conditions like Fibrositis, infections of bones.
- Patients having Traumatic Injury.
- Patients with congenital deformities,
- Pregnancy.
- Patients with severe systemic disease like diabetes, hypertension, Rheumatic heart disease, Rheumatoid Arthritis, Gouty Arthritis.
- Patients contra indicated for *Agnikarma* as per classics.

SUBJECTIVE PARAMETERS:

- Knee pain (*Sandhi shoola*)
- Knee stiffness (*Stambha*)

OBJECTIVE PARAMETERS:

- Tenderness. (*Toda*)
- Swelling (*shotha*)
- Restriction of movement (*Prasarana akunchana Vedana*)
- Range of motion
- Flexion
- Extension
- Medial rotation
- Lateral rotation

PROCEDURE:

Purva karma: Group A and and Group B are same procedure

- Patients consent to undergo *Agnikarma* treatment.
- Patient was made to lie down in supine position.
- Maximum point of tenderness were identified and marked
- The selected site has been cleaned with antiseptic solution.
- The surrounding area was covered with sterile drape.

Pradhana karma

Group A

- Required amount of *Kshaudra* has been taken in a sterile dish and heated .
- The *Tapta Kshaudra* was drawn using a Borossil glass pippete, poured on the pre- determined site as *bindu aakrithi* and wiped off after cooling
- Five to nine tender points has been chosen according to the tenderness.
- About 5mm gap was maintained between two *dagdha sthanas*.
- Minimum 30-45 seconds *Tapta Kshaudra* was kept over the predetermined tender points

Group B

- *Panchadhatu shalaka* is heated to red hot.
- Then *Agnikarma* done over the pre-determined site as *bindu aakrithi*.
- Five to nine in between maximum tender points has been chosen
- About 5mm gap should be maintained between two *dagdha sthanas*.

Paschat Karma:

Group A and Group B ,*Paschata Karma* are same Procedure

- *Madhu* and *Ghritha* are applied over the site of *Agnikarma*.
- If blebs develop, then *madhu* and *ghritha* application has been continued till healing.

Table 1: Interventions, assessment & follow up of *Janusandhigatavata*

| Group | Treatment day | Observation period | Assessment on Follow up |
|----------|----------------------|-----------------------|--|
| Group A: | 1 st Day 2 nd, 22 nd | Day 8 th,15 th 22 nd | Once in 15 Days up to 2 months after observation periods |
| Group B: | 1 st Day 2 nd, 22 nd | Day 8 th,15 th, 22 nd | Once in 15 Days up to 2 months after observation periods |

RESULT

In this present study, In Group A, 20 patients and in Group B 20 patients were treated. The observations procured from the assessment parameters as before and after treatment. Group A and Group B were

graded and the result was analysed with the statistical test as Average was found using mean and standard deviation and Pre- test and Post-test data was compared by using Paired ‘t’ test. Comparison of two groups was done by using Unpaired ‘t’ test

1) PAIN

Table 2: Effect of Group A on Pain

| Mean BT | Mean AT | Mean Diff | % Relief | SD | SE | Paired t | P value |
|---------|------------|-----------|----------|-------|------|----------|-----------|
| 1.55 | AT-D1 0.55 | 1 | 65 | 0.152 | 0.15 | 11.429 | P < 0.001 |
| 1.55 | D-8 0.2 | 1.35 | 87 | 0.152 | 0.15 | 15.429 | P < 0.001 |
| 1.55 | D-15 0.2 | 1.35 | 87 | 0.152 | 0.15 | 15.429 | P < 0.001 |
| 1.55 | D-22 0.2 | 1.35 | 87 | 0.152 | 0.15 | 15.429 | P < 0.001 |

Table 3: Effect of Group B on Pain

| Mean BT | Mean AT | Mean Diff | % Relief | SD | SE | Paired t | P value |
|---------|-----------|-----------|----------|-------|-------|----------|-----------|
| 1.6 | AT-D1 0.6 | 1 | 63 | 0.152 | 0.034 | 11.429 | P < 0.001 |
| 1.6 | D-8 0.25 | 1.35 | 84 | 0.152 | 0.034 | 15.429 | P < 0.001 |
| 1.6 | D-15 0.25 | 1.35 | 84 | 0.152 | 0.034 | 15.429 | P < 0.001 |
| 1.6 | D-22 0.25 | 1.35 | 84 | 0.152 | 0.034 | 15.429 | P < 0.001 |

EFFECT OF TREATMENT ON SIGNS AND SYMPTOMS IN GROUP A & B

The improvement pattern of both the methods shows that both methods individually are equally effective

and beneficial to the patients and statistically significant.

2) STIFFNESS OF JOINT

Table 4: Effect of Group A on Stiffness of Joints

| Mean BT | Mean AT | Mean Diff | % Relief | SD | SE | Paired t | P value |
|---------|-----------|-----------|----------|-------|-------|----------|-----------|
| 0.7 | AT-D1 0.4 | 0.3 | 43 | 0.166 | 0.037 | 3.133 | P < 0.001 |
| 0.7 | D-8 0.2 | 0.5 | 71 | 0.166 | 0.037 | 5.222 | P < 0.001 |
| 0.7 | D-15 0 | 0.7 | 100 | 0.166 | 0.037 | 7.311 | P < 0.001 |
| 0.7 | D-22 0 | 0.7 | 100 | 0.166 | 0.037 | 7.311 | P < 0.001 |

Table 5: Effect of Group B on Stiffness of Joints

| Mean BT | Mean AT | Mean Diff | % Relief | SD | SE | Paired t | P value |
|---------|-----------|-----------|----------|-------|-------|----------|-----------|
| 0.7 | AT-D1 0.4 | 0.3 | 43 | 0.163 | 0.037 | 3.179 | P < 0.001 |
| 0.7 | D-8 0.15 | 0.55 | 79 | 0.163 | 0.037 | 5.828 | P < 0.001 |
| 0.7 | D-15 0 | 0.7 | 100 | 0.163 | 0.037 | 7.417 | P < 0.001 |
| 0.7 | D-22 0 | 0.7 | 100 | 0.163 | 0.037 | 7.417 | P < 0.001 |

EFFECT OF TREATMENT ON SIGNS AND SYMPTOMS IN GROUP A & B

The improvement pattern of both the methods shows that both methods individually are equally effective

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3) JOINT SWELLING

Table 6: Effect of Group A on Joint Swelling

| Mean BT | Mean AT | Mean Diff | % Relief | SD | SE | Paired t | P value | |
|---------|---------|-----------|----------|----|-------|----------|---------|-----------|
| 0.4 | AT-D1 | 0.3 | 0.1 | 25 | 0.087 | 0.019 | 2.000 | P < 0.001 |
| 0.4 | D-8 | 0.1 | 0.3 | 75 | 0.087 | 0.019 | 6.000 | P < 0.001 |
| 0.4 | D-15 | 0.1 | 0.3 | 75 | 0.087 | 0.019 | 6.000 | P < 0.001 |
| 0.4 | D-22 | 0.1 | 0.3 | 75 | 0.087 | 0.019 | 6.000 | P < 0.001 |

Table 7: Effect of Group B on Joint Swelling

| Mean BT | Mean AT | Mean Diff | % Relief | SD | SE | Paired t | P value | |
|---------|---------|-----------|----------|----|-------|----------|---------|-----------|
| 0.55 | AT-D1 | 0.4 | 0.15 | 27 | 0.108 | 0.024 | 2.400 | P < 0.001 |
| 0.55 | D-8 | 0.15 | 0.4 | 73 | 0.108 | 6.400 | 6.400 | P < 0.001 |
| 0.55 | D-15 | 0.15 | 0.4 | 73 | 0.108 | 6.400 | 6.400 | P < 0.001 |
| 0.55 | D-22 | 0.15 | 0.4 | 73 | 0.108 | 6.400 | 6.400 | P < 0.001 |

EFFECT OF TREATMENT ON SIGNS AND SYMPTOMS IN GROUP A & B

The improvement pattern of both the methods shows that both methods individually are equally effective

and beneficial to the patients and statistically significant.

4) TENDERNESS

Table 8: Effect of Group A on Tenderness

| Mean BT | Mean AT | Mean Diff | % Relief | SD | SE | Paired t | P value | |
|---------|---------|-----------|----------|----|-------|----------|---------|-----------|
| 1.55 | AT-D1 | 0.35 | 1.2 | 77 | 0.087 | 0.019 | 24.000 | P < 0.001 |
| 1.55 | D-8 | 0.15 | 1.4 | 90 | 0.087 | 0.019 | 28.000 | P < 0.001 |
| 1.55 | D-15 | 0.15 | 1.4 | 90 | 0.087 | 0.019 | 28.000 | P < 0.001 |
| 1.55 | D-22 | 0.15 | 1.4 | 90 | 0.087 | 0.019 | 28.000 | P < 0.001 |

Table 9: Effect of Group B on Tenderness

| Mean BT | Mean AT | Mean Diff | % Relief | SD | SE | Paired t | P value | |
|---------|---------|-----------|----------|----|-------|----------|---------|-----------|
| 1.6 | AT-D1 | 0.45 | 1.15 | 72 | 0.108 | 0.024 | 18.400 | P < 0.001 |
| 1.6 | D-8 | 0.2 | 1.4 | 88 | 0.108 | 0.024 | 22.400 | P < 0.001 |
| 1.6 | D-15 | 0.2 | 1.4 | 88 | 0.108 | 0.024 | 22.400 | P < 0.001 |
| 1.6 | D-22 | 0.2 | 1.4 | 88 | 0.108 | 0.024 | 22.400 | P < 0.001 |

EFFECT OF TREATMENT ON SIGNS AND SYMPTOMS IN GROUP A & B

The improvement pattern of both the methods shows that both methods individually are equally effective

and beneficial to the patients and statistically significant.

5) RANGE OF MOVEMENT

Table 10: Effect of Group A on Range of Movement

| Mean BT | Mean AT | Mean Diff | % Relief | SD | SE | Paired t | P value | |
|---------|---------|-----------|----------|----|-------|----------|---------|-----------|
| 0.95 | AT-D1 | 0.7 | 0.25 | 26 | 0.265 | 0.059 | 1.631 | P < 0.001 |
| 0.95 | D-8 | 0.25 | 0.7 | 74 | 0.265 | 0.059 | 4.567 | P < 0.001 |
| 0.95 | D-15 | 0.05 | 0.9 | 95 | 0.265 | 0.059 | 5.872 | P < 0.001 |
| 0.95 | D-22 | 0.05 | 0.9 | 95 | 0.265 | 0.059 | 5.872 | P < 0.001 |

Table 11: Effect of Group B on Range of Movement

| Mean BT | Mean AT | Mean Diff | % Relief | SD | SE | Paired t | P value | |
|---------|---------|-----------|----------|----|-------|----------|---------|-----------|
| 0.9 | AT-D1 | 0.7 | 0.2 | 22 | 0.267 | 0.060 | 1.298 | P < 0.001 |
| 0.9 | D-8 | 0.2 | 0.7 | 78 | 0.267 | 0.060 | 4.542 | P < 0.001 |
| 0.9 | D-15 | 0.05 | 0.85 | 94 | 0.267 | 0.060 | 5.516 | P < 0.001 |
| 0.9 | D-22 | 0.05 | 0.85 | 94 | 0.267 | 0.060 | 5.516 | P < 0.001 |

EFFECT OF TREATMENT ON SIGNS AND SYMPTOMS IN GROUP A & B

The improvement pattern of both the methods shows that both methods individually are equally effective

and beneficial to the patients and statistically significant.

COMPARATIVE EFFECT OF TREATMENT BETWEEN GROUP A AND B ON ALL SIGN-SYMPTOMS

Table 12: Comparative effect of treatment between Group A and B on all sign-symptoms

| Sign/ Symptoms | BT-AT Mean | | Mean Difference | Standard Deviation | | t value | P value |
|--------------------|------------|---------|-----------------|--------------------|---------|---------|---------|
| | Group A | Group B | | Group A | Group B | | |
| Pain | 1.263 | 1.263 | 0 | 0.152 | 0.152 | 0.000 | 0.5 |
| Stiffness of Joint | 0.55 | 0.5625 | 0.0125 | 0.166 | 0.163 | 0.234 | 0.41 |
| Joint Swelling | 0.25 | 0.3375 | 0.0875 | 0.087 | 0.108 | 2.750 | 0.0045 |
| Tenderness | 1.35 | 1.3375 | 0.0125 | 0.087 | 0.108 | 0.393 | 0.348 |
| Range of Movement | 0.6875 | 0.65 | 0.0375 | 0.265 | 0.267 | 0.435 | 0.333 |

In all parameters like pain, stiffness of joints, range of movement, and tenderness, both groups individually shown more or less equivalent effective result so individual group statistically highly

significant but in comparison of two groups, the difference of effectiveness is statistically insignificant.

OVERALL EFFECT ON TREATMENT OF GROUP A AND GROUP B ON ALL SIGN-SYMPTOM

Table 13: Overall effect on treatment of Group A and Group

| Relief | Group A | % | Group B | % | Total | % |
|----------|---------|----|---------|----|-------|------|
| Major | 17 | 85 | 16 | 80 | 33 | 82.5 |
| Moderate | 3 | 15 | 4 | 20 | 7 | 17.5 |
| Minor | 0 | 0 | 0 | 16 | 0 | 0 |

Overall effect on treatment of Group A and Group B on all sign symptoms as 82.5% patient got major relief whereas 17.5% got moderately relief and not a single patient got who had received no effects or minor change.

DISCUSSION

DISCUSSION ON AGNIKARMA

PROBABLE MODE OF ACTION OF PANCHADHATU SHALAKA

Janusandhigata Vata is produced by vitiated *Vata Dosh*a with or without *Anubandha* of *Kapha* Therapeutic heat which is transferred to *Twak Dhatu* may act in three ways,

1) *Agni* possess *Ushna*, *Tikshna*, *Sukshma*, and *Ashukari Guna* which are opposite to the properties of *Vata* and *Kapha*. *Agnikarma* is most preferred therapy to pacify the *Srotavarodha*, the vitiated *Vata* and

*Kapha Dosh*a maintains equilibrium state. Thus Patient gets relief from symptoms.

2) Therapeutic heat increases the blood circulation to the affected site which leads stimulation of descending pain inhibitory (DPI) fibres so release endogenous Opioid peptide more blood circulation flushes away the pain producing substances (P substance) so, patient gets relief from symptoms.

3) Therapeutic heat may increase tissue metabolism which may leads to excretion of the unwanted metabolites and toxins and increases the *Dhatvagni*, which cause *Ama pachana* patient gets relief.

PROBABLE MODE OF ACTION OF TAPTA KSHAUDRA

Tapta Kshaudra is as a *snigdha dravya* for *agnikarma* more having penetration power, thus the therapeutic heat is transferred to *Twak Dhatu*, then aid the penetration of heat through *Sukshma Sira* by the *Ushna* quality of *Kshaudra*.it pacifies both *Vata* and *Kapha*. By the *Laghu*, *Ruksha* and *Sukshma* properties which alleviates *Kapha*. Patient gets relief from symptoms.

PROBABLE MODE OF ACTION OF AGNIKARMA ON ALL SIGN AND SYMPTOM

Probable mode of action of Agnikarma over Pain

Using of *Agnikarma* with *Tapta Kshaudra*, reducing pain markedly due to it is *Snehadravya* which is having more penetration power. So it's penetrating through *sukshma sira* and removes all *srota avarodha* or any obstruction in channels, *Tapta kshaudra* and red hot *Panchadhatu shalaka* having *ushna* quality so therapeutic heat is transferred to *Twak Dhatu*, pacifies both *vata* and *kapha*, By the *Laghu*, *Ruksha* and *Sukshma* properties which alleviates *Kapha* also, Heating effect of both modalities are regulating tissue metabolism by increasing *dhtwagni* of *Asthi*. So, patients are getting relief instantly.

Probable mode of action of Agnikarma over Stiffness of knee joint

Stiffness is occurring due to the aggravation of *Kapha* over particular the area, so by using of *Agnikarma* with *Tapta Kshaudra* or red hot *Panchadhatu shalaka*, alleviates *kapha* immediately due to their *Ushma guna*. So, stiffness of joint gets reduced.

Probable mode of action of Agnikarma over joint swelling

Swelling of Knee joint is occurring due to the aggravation of *Kapha* over the particular area, so by using of *Agnikarma* with *Tapta Kshaudra* or red hot *Panchadhatu shalaka*, alleviates *kapha* due to their *Ushma guna*. So, swelling of knee joint gets reduced.

Probable mode of action of Agnikarma over Tenderness

Tapta Kshaudra, reducing Tenderness due to it is *Sneha dravya* which is having more penetration power through *sukshma sira* and remove all *srota avarodha* or any obstruction in channels. *Tapta kshaudra* and red hot *Panchadhatu shalaka* having *ushna* quality so pacifies both *vata* and *kapha*, by the *Laghu*, *Ruksha* and *Sukshma* properties which

alleviate *Kapha*. Heating effect of both modalities are regulating tissue metabolism by increasing *dhtwagni* of *Asthi*. So patients are getting relief instantly.

Probable mode of action of *Agnikarma* over Range of Movement

Pain, Tenderness, Stiffness and Swelling of the knee joint are getting reduced by the using of *Agnikarma* with *Tapta kshaudra* or *Panchadhatu shalaka*, because of that flexibility of knee joint is improved.

CONCLUSION

Group A (*Agnikarma* using *Tapta Kshaudra*) and Group B (*Agnikarma* using *Panchadhatu Shalaka*) Both group individually showing statistically significant improvement observed on all the parameters but difference between Group A and Group B is statistically Insignificant. Therefore we can conclude that both group as *Panchadhatu Shalaka* and *TaptaKshaudra* are equally effective in case of pain management of *Janusandhigata vata*.

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