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COMPREHENSIVE AYURVEDIC MANAGEMENT OF A MENISCAL TEAR: A SINGLE CASE STUDY

Dr. Dr Mallika *, Prof Dr Shreevathsa

*Department of Ayurveda Samhita And Siddhanta Government Ayurveda Medical College And Hospital Mysuru, Karnataka, India
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ABSTRACT

Meniscal tears involve disruption of the fibrocartilaginous menisci of the knee joint and are commonly associated with pain, swelling, stiffness, and functional limitation. From an Ayurvedic perspective, meniscal injury can be interpreted as *Sphutita* (Cracked/Fissured) type of *Asthi Bhagna* (Bone fracture), a condition predominantly caused by *Vata Dosha* with involvement of *Kapha Dosha* and *Asthi Dhatu* (Bone). This single case study reports a 35-year-old male presenting with pain and swelling of the left knee joint for six months, aggravated over the last one month. Magnetic Resonance Imaging (MRI) of the left knee demonstrated a medial meniscal tear, which, in correlation with the clinical findings and Ayurvedic evaluation, was diagnosed as *Sphutita Kandabhagna*. The therapeutic approach focused on *Samprapti Vighatana* (Disruption of the pathogenesis) and *Sandhana Karma* (Promotion of tissue healing). Accordingly, *Matra Basti* with *Sandhaniya Mahakashaya Ghrita* and *Janu Basti* with *Balashwagandha Lakshadi Taila* were administered, along with suitable *Shamana Aushadhi* (Palliative medications).The clinical outcomes were assessed using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scale before and after treatment. The post-treatment WOMAC scores showed significant reduction in symptoms with marked improvement in physical function and joint mobility. This case study demonstrates that the management of meniscal tears through comprehensive Ayurvedic principles, aimed at promoting tissue repair and functional recovery, underscores the potential role of Ayurvedic treatment modalities in musculoskeletal disorders.

KEYWORDS: Meniscal tear, *Sphutita Kandabhagna , Sandhaniya Mahakashaya Ghritha, Balashwagandha Lakshadi Taila, Matra Basti*

Corresponding Author:
Dr. Mallika
Email-id-mallikabhat33 5@gmail.com
PG Scholar Department of Ayurveda Samhita and Siddhanta Government Ayurveda Medical College And Hospital Mysuru, Karnataka, India

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INTRODUCTION:

The knee is a hinge-type synovial joint stabilized by bones, ligaments, tendons, and cartilage.[1] Among them, the lateral and medial menisci are critical component of healthy knee joint which are crescent-shaped fibrocartilaginous structures covering about 70% of the tibial plateau, playing a key role in load transmission and shock absorption across the tibiofemoral joint[2]. Meniscal tears occur at an estimated rate of 60 per 100,000 people and are increasingly common due to higher sports participation, improved diagnostics, male gender, and age over forty years.[3]

Based on clinical manifestations with contemporary diagnostic findings, meniscal tear can be conceptualized under *Asthi Bhagna* (Bone fracture) by interpreting menisci as *Asthi Dhatu* in view of their role in joint stability and their fibrocartilaginous structure. *Acharya Dalhana* defines *Bhagna* (Fracture) as structural disruption caused by vitiated *Vata Dosha*[4]. *Acharya Sushruta* categorizes *Bhagna* into *Sandhimukta* (Dislocation of a joint) and *Kandabhagna* (Fracture of a bone), each presenting with distinct clinical features[5]. Considering the nature of meniscal damage, it can be interpreted as *Sphutita* (Cracked/Fissured) type of *Kandabhagna* (Fracture of a bone). Management of *Asthi Bhagna* in Ayurveda emphasizes *Sandhana* (union or restoration) of the disrupted *Asthi Dhatu* along with correction of the underlying *Samprapti* (Pathogenesis).

This case study presents a 35-year-old male with pain and swelling of the left knee joint, diagnosed with a meniscal tear, interpreted as *Sphutita* type of *Kandabhagna* as per Ayurveda was managed through an eight-day Ayurvedic treatment protocol involving *Matra Basti* (Low dose medicated Enema) and *Janu Basti* (Therapeutic oil bath for the knee) along with other *Shamana Aushadhi* (Palliative medicine) with the intention of restoring joint function and improving the patient's quality of life.

CASE REPORT:

Patient information:

A Male Patient aged 35 years working as Supervisor known case of T_2 DM, HTN, Thyroid dysfunction was reported to the outpatient department of Government Ayurveda Hospital on June 27,2025, with complaints of pain and swelling in the left knee joint for six months aggravated in the past one month. the past six months, he developed pain in the left knee joint. Pain was persistent and

was aggravating on walking, standing for long duration. The patient feels relief only

History revealed that, he had road traffic accident two years back. Gradually from

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on intake of medications (Painkillers). He consulted nearby hospital for the same complaints and prescribed with analgesics; but could not get permanent relief. In the past one month, pain in the left knee joint got aggravated associated with swelling which was interfering his daily activities. The patient reported a predominantly *Katu Rasa* (Pungent taste) diet with irregular meal timings. Bowel and micturition were regular, appetite was good, and sleep was adequate. There was no history of addictions or unhealthy habits.

Dashavidha Pariksha:

The patient had *Pitta-Vata Prakriti* (Body constitution). *Vikruti* assessment showed involvement of *Vata* (*Vyana Vata*) and *Kapha* (*Shleshaka Kapha*) *doshas* with involvement of *Rasa, Rakta, Mamsa, Meda* and *Asthi Dhatu* as *Dushyas*. The patient exhibited *Pravara Sattva* (Excellent psychic condition), while *Sara* (Essence of tissues), *Samhanana* (Compactness), *Pramana* (Body measurement), and *Satmya* were of *Madhyama* (Moderate). *Ahara Shakti* (Digestive power) was assessed as *Pravara* (Excellent) with both *Abhyavaharana* (Capacity to ingest food) and *Jarana Shakti* (Ability to digest) being good. *Vyayama Shakti* (Capacity for physical activity) was *Madhyama* (Moderate), *Vaya*(Age) was also *Madhyama* (Middle aged).

CLINICAL FINDINGS:

On General Physical examination, Pallor, Icterus, Cyanosis, Clubbing, Lymphadenopathy were absent. The swelling was present in left knee joint. His Built was normosthenic with height of 161 cm and weight of 67kgs. The Vitals were Stable.

On Musculoskeletal System examination, the right knee appeared normal with no swelling, discoloration, deformity, tenderness, or crepitus and was afebrile. Knee girth measured 38 cm and 33 cm, with negative patellar tap and bulge tests. Range of motion was full and painless, with flexion up to 140° and extension to 0°. The left knee showed visible swelling, grade-2 tenderness, and grade-1 crepitus, while temperature remained normal. Girth measurements were 38.5 cm and 34.2 cm, patellar tap and bulge tests were negative and range of motion was painful, with flexion limited to 130° and extension restricted to 10°.On special testing of the knee joint, McMurray's test was negative on the right side, while it was positive on the left knee, confirming the presence of a meniscal injury

MRI examination of the left knee using a 1.5-Tesla scanner revealed a horizontal tear involving the body and posterior horn of the medial meniscus with marginal fraying,

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along with a bucket-handle tear in the posterior horn and body showing medial displacement, evidenced by a double PCL sign. A subtle horizontal tear was also noted in the body and posterior horn of the medial meniscus. Additionally, mild oedema of the anterior cruciate ligament and minimal strain of the medial collateral ligament were observed. Minimal Hoffa's fat pad oedema with associated joint effusion was also present. Differential diagnoses considered included *Janu Sandhigata Vata* (degenerative joint disorder), *Asthigata Vata* (bone tissue disorder), given the presence of joint pain, swelling, and restricted mobility. Based on the clinical and investigative findings, the patient was finally diagnosed with a meniscal tear of the left knee, which, from an Ayurvedic perspective, was classified as *Sphutita Kandabhagna* (Cracked Bone fracture).

TIMELINE:

Table 1: Showing Timeline of Events, Clinical Observations, and Ayurvedic Interventions

Date	Events/ Observations
April 2023	Patient had a road traffic accident (RTA) involving the left knee.
January 2025	Gradual onset of pain in the left knee joint, persistent and aggravated by walking/standing.
May 2025	Pain intensified and was accompanied by swelling, interfering with daily activities. He consulted nearby hospital for the same complaints and prescribed with analgesics; but couldn't get permanent relief.
June 27, 2025	Patient reported to OPD of Ayurveda Hospital, examinations were done. The detailed history, general and Ayurvedic examination (*Dashavidha Pariksha*), and baseline WOMAC assessment were conducted. Advised for IPD admission for further course of treatment.
June 28- July 5, 2025	*Matra Basti* with *Sandhaniya Mahakashaya Ghrita* (70 ml) and *Janu Basti* with *Balashwagandha Lakshadi Taila* were planned and administered along with *Shamana Aushadhi* (Palliative medicines).
July 18, 2025 (Follow-up)	*Shamana Aushadhi* (Palliative medicines) were continued and assessment of WOMAC scale shown significant improvement in symptoms and joint mobility.

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DIAGNOSTIC ASSESSMENTS:

The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) was used to evaluate the patient's pain, stiffness, and physical function before, after, and during follow-up of treatment. Difficulty is graded on a scale of 0 = None, 1 = Slight, 2 = Moderate, 3 = Very, and 4 = Extremely severe. The total score ranges from 0, indicating optimal health, to 96, representing maximum impairment. Assessments were conducted on day 0 before treatment, day 9 after completion, and follow-up on day 21 to monitor symptom and functional improvement.

THERAPEUTIC INTERVENTIONS:

Table 2: Showing *Panchakarma* Procedures administered for *Sphutita Kandabhagna*

Sr.no	**Procedure**	**Drug**	**Duration**
1	*Matra Basti*	*Sandhaniya Mahakashaya Ghritha* - 70ml	8 days
2	*Janu Basti*	*Balashwagandha Lakshadi Taila*	8 days

Table 3: Showing *Shamana Aushadhi* (Palliative Medicines) administered for *Sphutita Kandabhagna*

Sr.no	***Shamanoushadi***	**Dosage**	***Aushadha Sevana Kala***	***Anupana/ Sahapana***	**Duration**
1	*Lakshadi Guggulu*	1 TID	*Adhobhakta* (After food)	*Ushnajala* (Hot water)	21 days
2	*Amrutadi Guggulu*	1TID	*Adhobhakta* (After food)	*Ushnajala* (Hot water)	21 days
3	*Yashtimadhu+ Amalaki + Gokshura Churna*	1 tsp BD	*Adhobhakta* (After food)	*Ushnajala* (Hot water)	21 days

Procedure of *Matra Basti*:

Poorva Karma: The patient received *Adhoshaka Abhyanga* followed by *Nadi Sweda*. After completing micturition and bowel evacuation, the patient was advised to lie on a table of appropriate height. Positioning was done in left lateral recumbent, with the right leg semi-flexed and the left leg fully extended.

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Pradhana Karma: *Sandhaniya Mahakashaya Ghritha* was filled into the *Basti Yantra* (Enema apparatus). The *Basti Netra* (Enema nozzle) was smeared with oil and gently introduced into the anal canal, which was oleated with ghee, inserted about 2-4 *Angulas* (Finger breadth) deep into the rectum. The *Basti* material was then administered, and the instrument was carefully withdrawn.

Paschat Karma: The patient was positioned on his back and gently thumped three times on each sole and over the buttocks. Gentle massage, especially over the soles, was performed to complete the procedure. After the *Basti Dravya* (Enema substance) was expelled, the patient was allowed light, warm, and liquid food if desired.

Procedure of *Janu Basti*:

The patient is seated in a comfortable, relaxed position with the left knee exposed. A circular ring of black gram dough is formed around the knee and sealed to prevent leakage. Warm *Balashwagandha Laxadi Taila* is gently poured into the dough ring until it covers the patella. The oil is maintained at a consistent temperature throughout the session by reheating or replacing as needed and retained for 30–45 minutes. After the session, the oil is removed, the knee is gently massaged to enhance circulation and absorption, the dough ring is dismantled, and the area is cleaned with warm water.

FOLLOW-UP AND OUTCOMES:

The patient's total WOMAC score improved from 44 (45.83%) before treatment to 21 (21.88%) after treatment and further to 10 (10.41%) at follow-up (Table 4). This reflects a 35.42% overall improvement in health status, indicating significant reduction in pain and stiffness, along with enhanced physical function and mobility. Following treatment, the left knee joint exhibited complete restoration of its range of motion.

Table 4: Showing WOMAC Scale Assessment of Pain, Stiffness, and Physical Function Before Treatment, After Treatment, and at Follow-up

Symptoms		Before treatment	After treatment	On Follow-up
Pain	1.Walking	3	1	1
	2.Stair climbing	3	2	1
	3.Nocturnal	2	1	0
	4.Rest	2	0	0
	5.Weight Bearing	2	1	1

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Stiffness	1.Morning stiffness	1	0	0
	2.Stiffness occurring later in the day	0	0	0
Physical function	1.Descending stairs	3	3	1
	2.Ascending stairs	3	3	1
	3.Rising from sitting	2	1	0
	4.Standing	3	2	1
	5.Bending to floor	1	0	0
	6.Walking on a flat surface	1	0	0
	7.Getting in/out of car	2	1	1
	8.Going Shopping	2	1	0
	9.Putting on socks	1	0	0
	10.Lying in bed	1	0	0
	11.Taking off socks	1	0	0
	12.Rising from bed	1	0	0
	13.Getting in/out of bath	1	0	0
	14.Sitting	2	1	0
	15.Getting on/off toilet	3	2	1
	16.Heavy domestic duties	3	2	2
	17.Light domestic duties	1	0	0
Total score		44	21	10
Interpretation		44/96= 0.45	21/96= 0.21	10/96=0.104
Result from Interpretation in %		45.83 %	21.875%	10.41%
% of improvement		35.42%		

DISCUSSION

Menisci function to enhance joint stability and are structurally fibrocartilaginous, composed of fibro chondrocytes maintaining the extracellular matrix[6]. In Ayurveda, *Asthi Dhatu* provides *Deha-Dharana* (structural stability)[7]. As per *Acharya Dalhana*, *Taruna Asthi* a type of *Ashti*, the soft or immature form of bone, can be understood as cartilage[8]. Thus, based on both functional stability and fibrocartilaginous structure, menisci can be correlated with *Taruna Asthi* under *Asthi Dhatu*. Therefore, meniscal injury characterized by sharp pain at medial knee after a 'pop' sensation can be interpreted as *Asthi Bhagna*, particularly the *Sphutita* variety of *Kandabhagna* affecting *Asthi Dhatu* characterised by marked swelling of the bone, a sensation as if filled with thorns, and extensive splitting or fissuring[9]. In the manifestation of

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Bhagna, *Vata Dosha* plays a primary role, as *Asthi* is its *Sthana*(Location)[10] and having *Ashraya-Ashrayi Bhava*[11]. *Vata* is also the root cause for provocation of other *Doshas (Pitta* and *Kapha*)[12]. *Shleshaka Kapha* maintains *Sandhi Samshlesha (*Joint cohesion)[13], and its impairment due to *Vata Vriddhi* and *Kapha Kshaya* results in loss of joint stability in *Bhagna*. Hence as a prime line of treatment, *Samanya Vatavyadhi Chikitsa* is adopted focusing on attainment of *Sandhana Karma* in the site of *Bhagna.* In the present case, the primary treatment modalities adopted for the management of *Asthi Bhagna* were *Snehana*(Oleation therapy) and *Swedana*(Sudation therapy). As both *Bahya*(External) and *Abhyantara Snehana* (Internal Oleation therapy) are indicated in *Asthi-Majjagata Vata*[14]*, Basti Karma* with *Sandhaniya Mahakashaya Ghritha* was administered as a form of *Abhyantara Snehana*, while *Janu Basti* with *Balashwagandha Lakshadi Taila* was performed as *Bahya Snehana*.

In *Asthi Pradoshaja Vikara*, the administration of *Basti* prepared with *Ksheera* (Milk) or *Sarpi* (Ghee) processed with *Tikta Dravya* (Bitter substances) is indicated[15] , therefore, *Matra Basti* with *Ghrita* prepared with *Sandhaniya Mahakashaya* was adopted in the present case. Similar to watering the roots of a tree, which revitalizes dry and withered leaves and ultimately promotes flowering and fruiting, *Matra Basti* nourishes the body, restores strength, and enhances overall health[16]. The *Basti Dravya*, administered through the *Basti Yantra*, reaches the *Pakvashaya* (Colon), where an part of *Jatharagni* (Digestive fire) is present. From there, the *Adhogami Dhamanis* (Downward moving vessels) absorb the *Virya* (Potency) of the *Basti Dravya* and transport it through the *Urdhvagami* (Upward moving vessels) and *Tiryakgami Dhamanis* (Sideways moving vessels) , enabling systemic distribution and exerting its therapeutic effect[17]. According to *Acharya Sushruta*, a total of eight number of *Basti Karmas* are recommended to effectively reach and exert a therapeutic effect on the *Asthi Dhatu* (Bone tissue)[18].

Sandhaniya Mahakashaya is one among fifty *Mahakashayas* (Group of ten drugs)[19].*Acharya Gangadhara* states, *Sandhaniya* refers to the property of drugs responsible for *Bhagna Samyojana*, i.e., the union and healing of fractures[20]. The ten drugs of *Sandhaniya Mahakashaya- Madhuka, Guduchi, Prishniparni, Pata, Manjishta, Mocharasa, Dhataki, Lodhra, Priyangu, and Katphala* [21]- possess properties such as *Sandhaniya* (Tissue healing), *Rasayana* (Rejuvinative),

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Deepaniya (Digestive Stimulant), *Shothahara* (Anti-inflammatory), *Vedanasthapana* (Analgesic), *Raktaprasadana* (Blood-purifying), and *Balya* (Strength promoting), among others, which collectively aid in the management of *Bhagna*. Additionally, *Ghrita*, by virtue of its *Madhura Rasa* (Sweet taste), *Snehana* (Lubrication), *Shulaprashamana* (Analgesic), *Agnideepana* (Digestive stimulant), and *Shleshma Abhivardhana* (Promoting *Kapha*) properties[22], enhances the therapeutic efficacy of these drugs and plays a significant role in the treatment of fractures.

Janu Basti is a form of *Snehapurvaka Swedana* (Sudation preceded by Oleation) and *Sthanika Shamana Chikitsa* (Local Palliative treatment). During the procedure, the *Sneha* (Oil) retained over the knee joint comes in direct contact with the skin surrounding the joint. According to Ayurvedic principles, the four *Tiryak Dhamanis*, along with their numerous subdivisions, open into the *Romakupas* (Pore of the skin) of the *Twak* (Skin). Through these *Dhamanis*, the *Virya* of the *Sneha* penetrates into the deeper tissues of the knee joint after undergoing *Paka* by *Bhrajaka Pitta* present in the skin[23].This process produces the beneficial effects of *Snehapurvaka Swedana*, thereby effectively alleviating conditions such as *Harsha* (Tingling numbness), *Toda* (Pricking pain), *Ruja* (Ache), *Ayama* (Convulsions), *Shotha* (Swelling), *Stambha* (Stiffness), and *Graha* (Rigidity)[24]. Additionally, *Snehana* helps in the rapid replenishment and nourishment of *Shuṣka Dhatus* (Depleted tissues), contributing to improved strength and functional recovery of the joint.

The ingredients of *Balashwagandha Lakshadi Taila*[25], including *Bala, Ashwagandha, Manjishta, Laksha, Chandana, Rasna, Kushta, Madhuka,* and other, possess multiple therapeutic properties such as rejuvenation and strengthening of joints, anti-inflammatory and anti-oxidant actions, and support for healthy bones. These drugs are beneficial in promoting fracture healing, improving digestion and carminative activity, and exhibiting *Vatahara* (Balancing *Vata Dosha*), *Shothahara* (Anti-inflammatory), and *Shulahara* (Analgesic) effects, thereby contributing significantly to the successful management of *Bhagna.*

Lakshadi Guggulu[26] helps prevent bone deterioration by supplying essential natural calcium, promoting faster healing in fractures. Ingredients such as *Arjuna* and *Laksha* reduce swelling and pain, while

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Asthishrinkhala, Nagabala, and *Ashwagandha* support muscle relaxation and bone healing through their natural calcium and vitamin D content. *Shuddha Guggulu* enhances metabolism and mineral absorption, further aiding in bone repair and joint health. Most of the ingredients in *Amrutadi Guggulu*[27] possess *Katu* (Pungent), *Madhura* (Sweet) and *Tikta Rasa* (Bitter taste), along with *Ushna Veerya* (Hot potency). These attributes impart *Deepana* (Digestive stimulant), *Pachana* (Metabolism promoting), *Shulahara* (Analgesic), *Vayasthapana* (Anti-aging), and *Rasayana* (Rejuvinative) actions, which help pacify aggravated *Vata* and support healthy joint function. *Yashtimadhu Churna*[28] possesses *Madhura Rasa, Guru-Snigdha Guna*, and *Pitta-Vatahara* properties, along with *Balakara* (Strength promoting), *Kshayahara* (Anti-degenerative), and *Vranashothahara* (Anti-inflammatory for wounds) actions. *Amalaki Churna*[29] has *Tridoshahara, Keshya* (Hair strengthening), and *Bhagna-Sandhanakara* (Fracture-union promoting) properties. *Gokshura Churna*[30] is characterized by *Madhura Rasa, Deepana, Balakara,* and *Vatarogahara* effects. Collectively, the combination of these three *Churnas* supports the enhancement of overall body functions and promotes strength and vitality.

CONCLUSION:

A comprehensive clinical examination, supported by contemporary diagnostic tools, is essential for establishing a precise diagnosis and formulating an appropriate treatment plan. In the present case, based on this principle, the condition was diagnosed and treatment was planned and executed in accordance with the principle of *Samprapti Vighatana*. The therapeutic approach, which included the comprehensive utilisation of proper Ayurvedic treatment principles, demonstrated greater effectiveness than symptomatic management alone, resulting in a 35.42% overall improvement in the patient's health status. This outcome highlights the potential of Ayurvedic treatment strategies aimed at addressing the underlying pathogenesis rather than merely alleviating symptoms. Furthermore, the findings suggest that the fifty *Mahakashayas*, particularly *Sandhaniya Mahakashaya* described by *Acharya Charaka*, possess a wide range of clinical applications and warrant further exploration through systematic clinical studies to enhance evidence-based Ayurvedic practice.

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