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A Successful Case Study on Meniscal Tear via Ayurvedic Treatment Protocol

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Abstract: ***Meniscus is an important part of the knee that helps with lubrication, stability, shock absorption, and sharing load. Meniscal tears are common sports injuries, affecting about 60 out of 100,000 people. Symptoms include swelling, stiffness, and pain when twisting the knee. Surgery is often needed but can lead to post-traumatic osteoarthritis (PTOA) and worsen meniscus function. Hence, better treatments are sought. Ayurveda offers methods like Panchakarma and others to relieve pain and lower PTOA risk. A 39 years male suffering from severe pain, tenderness and restricted movements along with swelling in the left knee joint since 1 week was diagnosed with grade 3 posterior horn meniscal tear and grade 2 anterior horn meniscal tear. A treatment plan included medications and therapies like Sneha Agnikarma, Snigdha Lepam, Abhyangam, Patra Pinda Swedam, Yoga Vasti, and Janu Vasti, along with rehabilitation. Sneha Agnikarma relieves pain, Snigdha Lepam reduces swelling and Abhyangam improves stability and balance.At the end of treatment, pain reduced to be mild with Visual Analogue Scale reading as 2 with no tenderness and swelling. Hence, Ayurvedic treatment protocol proves to help in reducing pain and increase the joint stability without the involvement of invasive procedures and rehabilitation in decelerating the risk of developing early osteoarthritis.***

Keywords: Sports medicine, Panchakarma, Bhagna chikitsa, Marmachikitsa

1. Introduction

The knee joint is the largest and one of the most complex joints in the human body, playing a vital role in supporting weight and facilitating movement. Anatomically classified as a synovial hinge joint, it enables flexion, extension, and a limited degree of rotation. The stability and function of the knee are dependent not only on the bony structure but also on its extensive network of ligaments and cartilage structures, particularly the menisci.

1.1 Anatomy of knee joint:

1.1.1. Articulating Surface: The knee joint is created by the connection of three bones:

- Femur (distal end) – has the medial and lateral condyles.
- Tibia (proximal end) – holds the femoral condyles.
- Patella – a sesamoid bone located within the quadriceps tendon that shields the front part of the joint[2].

1.1.2. Menisci:
Two crescent-shaped, partially connected fibrocartilage structures are positioned between the femoral condyle and the tibial plateau in both the medial and lateral tibiofemoral joint. They act as shock absorbers, distribute forces, and enhance the congruence of the joint surfaces. In a triangular cross-section, the medial meniscus (MM) encompasses roughly 50%-60% of the medial tibial plateau, while the lateral meniscus (LM) constitutes about 70%-80% of the lateral tibial plateau. The meniscus that secures the underlying sub-chondral bone of the tibial plateau contains both anterior and posterior horns. The medial meniscus is C-shaped and has a stronger attachment, rendering it more prone to injury and significantly less mobile during joint movement compared to the LM, due to its firm connection to the joint capsule and medial collateral ligament. The lateral meniscus is more pliable and circular, which decreases its chance of injury. The anterior horn of the LM is found at the lateral tibial eminence and is next to the ACL, whereas the posterior horn is located posteromedial to the apex of the lateral tibial eminence, medial to the edge of the lateral articular cartilage, and anterior to the PCL[2].

1.2 Ligaments of the Knee Joint:

Ligaments are essential for joint stability, especially during dynamic movements like running or pivoting.

1.2.1. Intracapsular Ligaments:

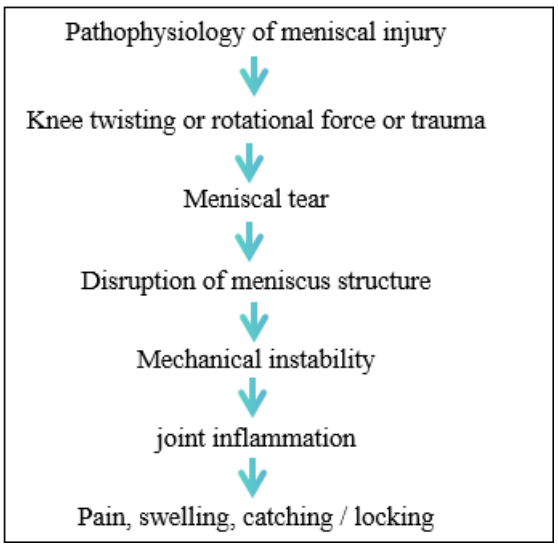
- Anterior Cruciate Ligament (ACL): Stops anterior movement of the tibia on the femur and gets frequently injured in sports; often linked to meniscal tears.
- Posterior Cruciate Ligament (PCL): Prevents backward movement of the tibia. Stronger and less frequently injured than the ACL.

1.2.2. Extracapsular Ligaments:

- Medial Collateral Ligament (MCL): Counters valgus stress; connected to the medial meniscus, thus often injured simultaneously.
- Lateral Collateral Ligament (LCL): Counters varus stress; not connected to the lateral meniscus.

1.2.3. Patellar Ligament: Extension of the quadriceps tendon, attaching to the tibial tuberosity[2].

1.3 Mechanism of meniscal injury:



2. Case Presentation

A 39-year-old man with no serious health issues hurt his left knee a week ago while playing cricket. He slipped and fell onto his knee, leading to swelling and severe tenderness in the joint. He felt sharp pain, especially when bending or moving his knee. Two days later, he noticed a reduced range of motion and more pain, particularly when walking, climbing stairs, or sitting, although resting helped ease the pain.

2.1. Family History: Nothing specific

2.2. Surgical History: Nothing specific

2.3. Psycho-social History: Nothing specific

2.4. Personal History

- Appetite: Normal
- Bowel: Regular
- Diet: Vegetarian
- Sleep: Disturbed due to pain
- Micturition: Regular

2.5. General Examination:

- BUILT: Normal
- WEIGHT: 65kg
- HEIGHT: 165 cms
- TEMPERATURE: 36 deg. Celsius
- PULSE RATE: 85bpm
- HEART RATE: 75bpm
- BLOOD PRESSURE: 125/80mmHg
- RESPIRATORY RATE: 18 rpm
- PALLOR: Absent
- EDEMA: Present over left knee joint
- ICTERUS: Absent
- CYANOSIS: Absent
- CLUBBING: Absent
- LYMPHADENOPATHY: Absent

2.6. Systemic Examination:

Table 1: Systemic Examinations

Swelling	Left knee joint
Calor	Positive
Tenderness	Grade 3
Pain	9 in VAS
Locking of knee	Positive
McMurray's test	Positive
Apley's test	Positive

2.7. Investigations

MRI:

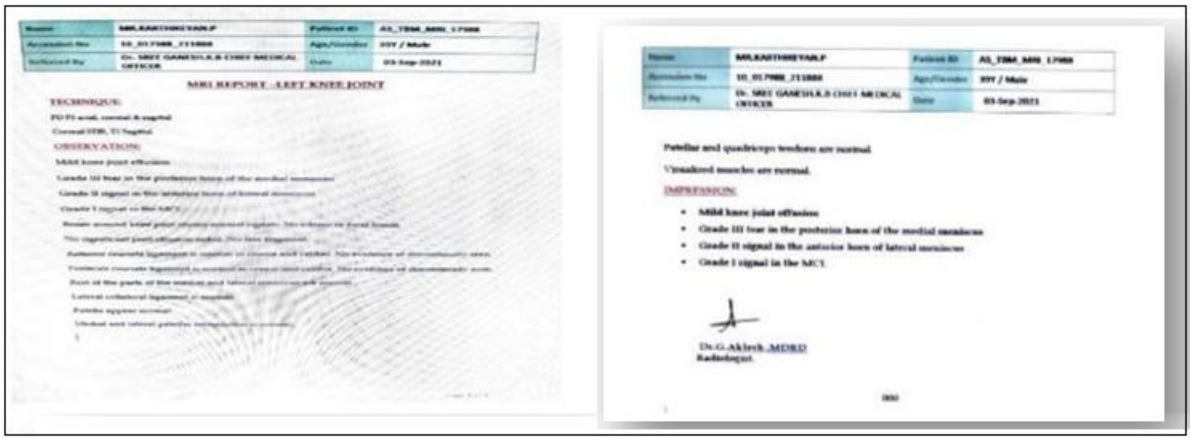


Figure 1: Shows Grade 3 tear of posterior horn of medial meniscus and Grade 2 signal in Anterior horn of lateral meniscus

2.8. ASHTAVIDHA PAREEKSHA

- NADI: Vatakapha
- MOOTRA: Prakrutha
- MALA: Prakrutha
- JIHWA: Alipta
- SABDA: Spashta
- SPARSHA: Anushnasheeta
- DRIK: Prakrutha
- AKRUTI: Prakrutha

2.9. DASAVIDHA PAREEKSHA

- PRAKRUTI: VataPittam
- VIKRUTI: VataKapha
- SARA: Madhyama
- SAMHANANA: Madhyama
- PRAMANA: Madhyama
- SATWA: Madhyama
- SATMYA: Vyamishra
- AAHARA SAKTHI: Madhyama
- VYAYAMA SAKTHI: Avara
- VAYAS: Madhyama

2.10. Samprapti Ghatakam:

Table 2

Dosa	Vatakapham
Dusya	Rasa, Medas, Asthi, Majja
Srotas	Rasavaha, Medovaha, Asthivaha, Majjavaha Srotas
Srotodushti	Sanga & Vimargagamana
Rogamarga	Madhyama Rogamarga
Sancharasthana	Sarva Shareera through dhamanies
Udbhavasthana	Abhigataja
Vyakthasthana	Sandhi
Adhistana	Janu

2.11. Treatment Plan:

Internal Medicine:

Table 3

S. No	Internal Medicines	Dosage	Time of Administration
1.	Mustadimarma kashayam	15ml + 60ml lukewarm water	In empty stomach.
2.	Gandha taialm avarti	8 drops	With kashayam
3.	Caps. Dhanwantaram (101)	1 tab	Twice daily After food

External Treatment Plan:

Table 4

Procedure	Medicine	Duration
AGNIKARMA	Shallaka	Once a week for 2 weeks
UPANAHAM	Nagaradhi choornam, Manjishtadhi choorna, Tamarind juice.	For 3 weeks
JANU VASTI	Mahanarayan tailam, Dhanwantara tailam	For 2 weeks
ABHYANGAM	Maha Narayana tailam	For 15 days
PPS	Nirgundi patram, Lemon, Lavanam, Grated coconut pieces.	For 15 days

3. Results

Table 5

Exminations	Before Treatment	After Treatment
INSPECTION		
Swelling	++	Negative
Redness	++	Negative
Bruising	Negative	Negative
Deformity	Negative	Negative
PALPATION		
Warmth	+++	Negative
Sensation	+	+
Tenderness	Grade 3	Grade 0
TEST		
Pain	9 in VAS	1 in VAS
Locking of knee	Positive	Negative
McMurray's test	Positive	Negative
Anteriordrawer test	Negative	Negative
Patellar tap test	Positive	Negative

4. Discussion

Ligaments are critical structures that connect the bones and assist in effective movement. The medial meniscus divides the tibia from the femur. It minimizes friction between the two bones, facilitating smooth knee movement and distributing weight during activity. Damage to this structure will impact the patient's mobility. *Bagna Chikitsa* is effective for injuries to Snayu and aids in treating the condition. Over a treatment period of 65 days, we scheduled *Lepa Chikitsa* for 3 weeks, succeeded by Janu-vasti for 2 weeks, and Agnikarma, which serves as analgesic therapy, followed by *Abhyangam* and *PPS*.

Mustadi Marma Kashaya has anti-inflammatory properties which help in ligament and bone injury. It also has the capacity to heal the injured ligament[4,5].

Agnikarma is indicated in severe pain located in the *Sira*, *Snayu*, *Sandhi*, and *Asthi*. The properties of *Agnikarma* such as *Ushna*, *Tikshna*, *Laghu* , *Sukshma*, *Vyavayi*, *Vikashi*, and *Aashukari* help remove *Srotavarodha*, thereby pacifying the vitiated *Doshas* and reducing pain and inflammation. The *Ushna Guna* of *Agni* specifically pacifies vitiated *Vata Dosha*, leading to significant pain relief, and also acts on the associated *Kapha*, helping to reduce swelling. According to the Gate Control Theory, Agnikarma acts as a non-noxious stimulus that effectively "closes the gate" to pain, preventing pain signals from reaching the central nervous system and thereby reducing the perception of pain. Furthermore, modern studies suggest that exposure to heat during Agnikarma stimulates the production of heat shock proteins (HSPs), particularly HSP70, which exhibit anti-apoptotic and anti-inflammatory effects. These proteins protect the chondrocytes and delay degradation of the extracellular matrix, contributing to chondroprotection and slowing the progression toward osteoarthritis[12].

Upanaham suppresses the metabolic activity of the adjacent soft tissue and diminishes the perfusion of capillaries under the injured area, thereby reducing the escape of blood into

nearby tissues, local inflammation, and declines in motor and sensory nerve conduction. Aids in lowering blood flow, aiding the movement of edema from the injury site to nearby normal tissues where it can be effectively removed by the lymphatic system. *Nagaradi Choornam* possesses significant anti-inflammatory and analgesic properties and is particularly effective in alleviating *Vata-Kapha* disorders. It acts as a *Sothahara* (anti-swelling agent) and promotes vasodilation, which enhances local circulation and aids in reducing inflammation. Similarly, *Manjistadhi Choornam* is highly effective during the inflammatory stage, helping to reduce pain, swelling, and localized temperature. It is a *Tridosha Shamaka* and promotes vasodilation, thereby increasing local blood flow and facilitating the drainage of inflammatory exudates. Both formulations exhibit potent anti-inflammatory and analgesic actions, supporting tissue recovery and symptom relief[9,5].

The application of *Janu Vasti* acts as both *Snehanam* and *Swedanam* , helping to relieve pain and reduce swelling by influencing prostaglandin pathways and promoting the resolution of blood clots. It effectively reduces *Stamba* (stiffness) and *Gourava* (heaviness). Among these, *Mahanarayana Tailam* is particularly valued for its *Vata-Kapha Shamaka* properties and functions as a *Sothahara* (anti-inflammatory), *Vedanasthapana* (pain reliever), *Srotosodhana* (channel purifier), *Dahashamana* (relieves burning sensations), and *Rasayana* (rejuvenation). It exhibits strong analgesic, anti-inflammatory, and antipyretic actions. Similarly, *Dhanwantra Tailam* is known for strengthening the musculoskeletal system, balancing *Vata* and *Kapha Doshas*, and stimulating *Shleshaka Kapha* in the joints, thereby restoring the *Dravatva* (lubricating) quality essential for joint health[9,11].

Taila Abhyanga plays a vital role in the growth and development of the *Dhatus*. As mentioned by *Dalhana*, the oil used during *Abhyanga* penetrates to the level of *Mamsa Dhatu* within 600 *Matra Kala* (approximately 190 seconds). *Abhyanga* provides the effects of *Snehana* (moistening), *Paushtika* (nourishment), and *Kapha-Vata Nirodhana*, and is an important component of *Brimhana Chikitsa* (nourishing therapy). It soothes the vitiated *Vata*, induces vasodilation, promotes drug absorption, and enhances the overall effect of *Snehana*. *Mahanarayana Taila*, with its potent analgesic and anti-inflammatory properties, specifically targets *Vata Dosha* and conditions like *Asthigata* disorders (bone-related afflictions). In this context, the application of local *Abhyanga* resulted in significant reduction of pain and stiffness, along with noticeable improvement in the range of movements[6,1].

Patra Pinda Sweda is highly effective in enhancing joint mobility (*Sandhichestakara*), clearing bodily channels (*Srotosodhana*), stimulating digestive fire (*Agnideepaka*), and balancing aggravated *Kapha* and *Vata* doshas. It plays a crucial role in reducing stiffness and discomfort. By easing muscular tension, alleviating pain, and improving local circulation, Patra Pinda Sweda promotes the activation of metabolic processes at the site of application. This improved blood flow also facilitates better absorption of medicated oils (*Sneha*) through the skin. Additionally, the procedure may lead to hypoalgesia, helping to diminish pain sensations by modulating nociceptive responses after the application of heat therapy (*Swedana*)[3,1].

5. Rehabilitation

Rehabilitation is an important part of the recovery from a meniscal tear injury. It restores knee joint function, strengthens muscles, and re-establishes flexibility, all of which are necessary to return to daily activities without any problem. A rehabilitative program decreases pain, swelling, and stiffness and prevents muscle atrophy and joint instability due to immobility. Appropriate rehab involves strengthening proprioception and neuromuscular control, both of which are essential to prevent additional damage to the knee. Rehabilitation also reduces the risk of long-term consequences like chronic pain, repeated tears, or premature osteoarthritis, thereby maximizing the patient's quality of life. In figure 1 types of rehabilitation which has been used for this condition and its uses have been explained[10].Types and their importance have been explained in figure 1.

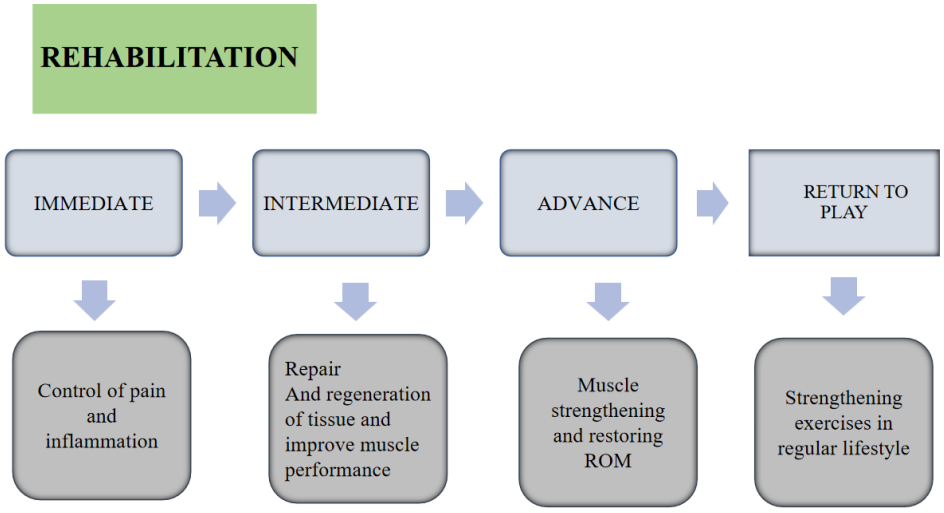


Figure 1: Types of Rehabilitation with their importance.

In the intermediate phase of rehabilitation, some key therapeutic methods are important for recovery. Transcutaneous Electrical Nerve Stimulation (TENS) helps treat both acute and chronic pain by sending electrical

currents to the skin, which reduces pain. Isometric exercises are recommended to prevent muscle loss and maintain joint health, as they improve blood flow and joint movement. Ultrasound therapy helps improve blood flow, reduce swelling and muscle spasms, and encourages healing. Interferential Therapy also helps with pain relief, stimulates muscle function, reduces swelling, and speeds up recovery. Additionally, muscle strengthening exercises are essential to build strength, stability, and endurance, especially for athletes, and to prevent issues like limited joint movement and muscle atrophy[10].

6. Conclusion

The present case highlights the effectiveness of Ayurvedic interventions in the management of meniscal tear. Through a combination of Shamana Chikitsa (palliative therapies), Shodhana procedures (purificatory therapies as needed), and specific rehabilitation measures like Patra Pinda Sweda and strengthening exercises, significant relief in symptoms and functional improvement was achieved. The holistic approach of Ayurveda, focusing on balancing the doshas, enhancing Agni (digestive/metabolic fire), and promoting the body's natural healing process, proved beneficial in restoring joint stability, reducing pain, and improving the patient's quality of life. This case emphasizes the potential of integrative Ayurvedic management as a safe and effective alternative or complement to conventional care in musculoskeletal injuries. Thus in future, it maybe adopted in treating sports injuries without compromising their sports journey.

Conflict of Interest: None

Informed Consent: Informed consent was taken from patient.

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References

[1] Prasad Mamidi, Kshama Gupta. Ayurvedic management of post traumatic arthritis of knee: A case report. J Pharm Sci Innov. 2016;5(3): 112-114 http://dx.doi.org/10.7897/2277-4572.05323.
[2] Nobutake Ozeki, Romain Seil, Aaron J Krych, Hideyuki Koga, Surgical treatment of complex meniscus tear and disease: state of the art,Journal of ISAKOS, Volume 6, Issue 1, 2021, Pages 35-45, ISSN 2059-7754, https://doi.org/10.1136/jisakos-2019-000380.
[3] Joshi A, Mehta CS, Dave AR, Shukla VD. Clinical effect of Nirgundi Patra pinda sweda and Ashwagandhadi Guggulu Yoga in the management of Sandhigata Vata (Osteoarthritis). Ayu. 2011 Apr;32(2):207-12. doi: 10.4103/0974-8520.92588. PMID: 22408304; PMCID: PMC3296342.
[4] DR ARCHANA DAUNDKAR ET AL, THERAPEUTIC APPLICATIONS AND AYURVEDA REVIEW ON MUSTADI KWATH, International Journal of AYUSH; 2021: 10 (5); 181-186
[5] P Krishna Prasad Bhat, K Ravindra Bhat, Waheeda Banu. A Clinical Study of Knee Joint Ligament Injury with Ayurvedic Treatment. Ayushdhara [Internet]. 2024May7 [cited 2024Dec.18];11(2):79-81. Available from: https://ayushdhara.in/index.php/ayushdhara/article/view/1
[6] Dr. Matin F. Shaikh1 * and Dr. Indrajeet S. Gadge, THERAPEUTIC IMPORTANCE OF *ABHYANGA* IN TODAYS ERA, World Journal of Pharmaceutical Research, Vol 12, Issue 4, 2023.ISO 9001:2015.
[7] Sweety Ruparel, Jaykrishna Jani, Hetal Ramani, Akanksha Sharma. An Ayurvedic approch to Knee Ligament Injury - A Case Study. J Ayurveda Integr Med Sci 2017; 2:235-237. http://dx.doi.org/10.21760/jaims.v2i2.7735.
[8] Dr Pallavi A. Hegde, Dr P.H.Hemantha Kumar, Utility of *Manjisthadi Lepa* in Soft Tissue Inflammation, *Ancient Science of Life, Vol. 28, No.3(2009) Pages 40 - 41.*
[9] Rana, Sanjeetsingh*. Role of Januvasti in Sandhigata-vata (Osteoarthritis) especially at knee joints. Journal of Indian System of Medicine 6(2):p 68-72, Apr–Jun 2018.
[10] Sudhanshu Sharma, Ramesh Killedar, Deepti Bagewadi, Pradeep Shindhe, Protocol based management of common sports injuries by integrated approach of Sandhi Marmabhighata - An open labeled clinical trial,Journal of Ayurveda and Integrative Medicine,Volume 12, Issue 1, 2021,Pages 119-125,ISSN 0975-9476,https://doi.org/10.1016/j.jaim.2020.12.009.
[11] Km, Pratap & Nair, Pratibha & Suresh, Gayatri & Swamy, Gaddam. (2020). Effectiveness of an Ayurvedic Treatment Protocol in Knee Ligament Injuries – An Observatory Report. Muscle Ligaments and Tendons Journal. 10. 10.32098/mltj.03.2020.16.
[12] BK Mugilmathi *et al*. Role of bindu dagdha type of agnikarma in management of vatakantaka with special reference to calcaneal spur: A Case Study. Int. J. Res. Ayurveda Pharm. 2022;13(5):43- 46 http://dx.doi.org/10.7897/2277-4343.1305120.