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Effect of Traditional Marma Manipulation in Osteoarthritis of Knee – A Case Report

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Abstract**—***Osteoarthritis (OA) is a common degenerative arthritic condition prevalent in the population worldwide, which occurs as a result of wear and tear and progressive loss of articular cartilage. The symptoms of OA knee include pain, stiffness, swelling and limited range of motion. In modern medicine, treatment ranges from conservative methods to surgical procedures depending on the severity of the condition. Clinical features of osteoarthritis are similar to those of sandhigata vata, which includes shula pradhana vedana, sandhi sopha with 'vatapurnadruthisparsa' and restricted movements of the joint. According to Acharya Sushruta, treatment principle of sandhigata vata is mentioned as sneha, upanaha, agnikarma, bandhana and unmardana. So, unmardana was selected for the study to reduce the symptoms of OA knee. Unmardana can be correlated to traditional marma manipulation. Manipulation is indicated when adhesions have formed as a result of chronic arthritis. It is usually performed to relieve joint pain, restore joint movements and to correct the deformity. So, marma manipulation prevents further progression of the disease and also provide symptomatic relief to great extent. In this study, traditional marma manipulation was done on the 0th and 14th day and follow-up was done on 28th and 42nd day. The clinical assessment was based on the parameters; pain, stiffness and physical function using WOMAC scale; swelling, crepitus, tenderness and range of motion using grading scales*.

Keywords**—** *Osteoarthritis, Knee, Marma manipulation, Sandhigatavata*.

I. INTRODUCTION

Osteoarthritis (OA) is the commonest form of arthritis in the world. It affects about 3.3% to 3.6% of the population worldwide. It causes moderate to severe disability in 43 million people, making it the 11[th] most debilitating disease globally. The presentation and progression of OA differ greatly from person to person. The triad of symptoms of OA is joint pain, stiffness and restricted movements of joints.[1] The most common affected joint is knee joint. It is also known as degenerative joint disease of the knee, which typically occurs as the result of wear and tear along with progressive loss of articular cartilage. It can be categorised as primary osteoarthritis and secondary osteoarthritis.[2] It is most commonly seen in the elderly women. Its prevalence will continue to increase as life expectancy and obesity. The pooled global prevalence of knee OA was 22.9% in individuals aged 40 and above. According to the source, around 13% of women and 10% of men above the age of 60 years have symptomatic knee osteoarthritis. Among those older than 70 years, the prevalence rises to as high as 40%. Global incidence of knee OA was 203 per 10,000 person-years in individuals aged 20 and above. Correspondingly, there are around 8.7 million individuals (20 years and older) with incident knee OA in 2020 worldwide.[3] In India, prevalence is found to be 28.7% and it is more prevalent in females (31.6%) than in males (28.1%).[4]

Common clinical symptoms are knee pain that is gradual in onset which worsens with activity or after prolonged sitting or resting, swelling and stiffness. In those patients in whom the disease progresses, pain is more continuous and begins to affect day to day activities, eventually causing severe limitations of function. Treatment for knee osteoarthritis starts with conservative methods and progresses to surgical treatment. Medications can help to slow the progression of RA and other inflammatory conditions, but no proven disease modifying agents for the treatment of knee osteoarthritis currently exist.[2] This activity highlights the role of traditional *marma* manipulation in reducing the symptoms of OA.

Several traditional manipulation techniques including mobilization and compression, which are in practice in parts of Kerala and Tamilnadu have shown great results in the management of OA knee. It improves the range of motion, flexibility and strength of the knee joint. Here, such traditional approaches which apply physical force to correct the partially displaced *sandhi* are reviewed to frame an effective procedure. So, traditional *marma* manipulation in *janu marma* is selected to assess its effect in osteoarthritis of knee, considering the disease burden and the need to find a safe, effective and economical procedure which can be easily done in the O.P.D. setting.

II. CASE REPORT

A female patient who is a K/C/O DM & HTN aged 56 years attended the O.P.D. of Shalyatantra, P.N.N.M. Ayurveda Medical College, Cheruthuruthi. Patient reported pain over both knee joints since 8 years, along with swelling and restricted range of motion. Patient had a gradual onset of pain over both knee joints, with increased pain over left knee joint. She had no history of fall or injury. Pain aggravated on increased activity and prolonged standing. So, she consulted in our O.P.D. She attained menopause at 49 years. She is a moderately nourished person with a BMI of 22.3 kg/m^2. Her gait is of antalgic type.

Local examination

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TABLE 1: Examination of knee joint

Examination	Clinical features	Right	Left
Inspection	Swelling	Grade 1	Grade 1
	Discoloration	Absent	Absent
	Deformity	Absent	Absent
Palpation	Tenderness	Absent	Grade 1
	Crepitus	Grade 1	Grade 2
	Warmth	Absent	Absent
ROM	Flexion	Grade 1	Grade 1
	Extension	Intact	Intact
Special tests (Mc Murray's test, Anterior & Posterior drawer tests, Valgus & Varus stress tests)	Negative bilaterally		

Investigations

X-ray of Left Knee joint (7/9/2023) revealed grade II osteoarthritis with osteophytes and medial joint space reduction.

Fig. 1: X-ray of Left knee joint

Samprapti ghataka
Dosha- Vata
Dushya- Asthi, Snayu
Srotas- Asthivahasrotas, Majjavahasrotas
Rogamarga- Madhyama
Vyaktasthana- Janu sandhi

III. Treatment Plan

Traditional Marma Manipulation

Materials required- Sterile cotton, *Tila taila*, Towel, Hot water, Pillows.
Pre-operative procedure: Patient made to lie in supine position and part exposed and cleaned. *Bahya sneha* using *tila taila* (massage) and *bashpa sweda* (steaming) done at the affected knee joint.

Operative procedure:

- The patella raised by using forefinger and thumb of both hands to mobilize it sideways (medial to lateral & vice-versa).
- Knee joint elevated to 1 foot by placing pillows under the leg. Downward pressure applied intermittently above knee for 1 minute.
- Then the patient made to lie in prone position and knee joint is flexed. Downward pressure applied intermittently for 1 minute; such that heel is approximated to the buttocks as possible.
- Same procedure is repeated on 14th day.

Fig. 2: Patellar mobilization

Fig. 3: Extension manipulation

Fig. 4: Flexion manipulation

Post-operative procedure: Advised rest for 5 minutes.
Follow-up: Follow-up done on 28th and 42nd days.

Assessment of parameters:

- Pain, stiffness and physical function – WOMAC Osteoarthritis index[5]
- Swelling, crepitus, tenderness, range of motion – Grading scales[6]

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TABLE 2: Assessment of parameters

Parameter	Treatment days		Follow-up	
	0th day	14th day	28th day	42nd day
Pain	7	0	0	0
Stiffness	4	2	1	1
Physical function	28	11	9	8
Swelling	1	0	0	0
Crepitus	2	1	1	1
Tenderness	1	1	0	0
ROM	1	1	0	0

IV. RESULTS

Traditional *marma* manipulation have showed greater improvement in pain, stiffness, physical function, swelling and tenderness. There was no change in crepitus, but slight improvement was elicited in restriction of joint movement on administration of traditional *marma* manipulation.

V. DISCUSSION

Osteoarthritis can be correlated to *Sandhigatavata* in Ayurveda. When *vata dosha prakopa* occurs and get localized in *sandhi*, it results in symptoms like *vedana*, *sopha* and restricted range of motion of that particular joint. Here, *vyakta sthana* is *janu sandhi* and symptoms of osteoarthritis pertaining to knee joint are seen. Also, *janu* is one of the sites of *sakthi marma*. *Janu marma* is a *sandhi marma* located between *jangha* and *uru*, which results in *vaikalya - khanjata* when injured. Osteoarthritis occurs as a result of wear and tear of the articular cartilage which can be equated to *nidana* of *bhagna* or *sandhimuktha* like *peedana*. So, the partially displaced knee joint due to increased activity can be corrected by applying direct physical pressure.

Manipulation techniques help in improving range of motion, decreasing pain, promoting muscle relaxation, increasing muscle strength, improving joint nutrition, correcting positional faults and also local physiological effects.[7] Patellar mobilization involves medial and lateral glide of patellofemoral joint. It helps in relaxing the stiff muscles which attaches over patella and in turn enhances the overall functioning of the knee joint. Extension manipulation which is done intermittently for 1 min allows the extensor group of muscles to contract and relax. This will promote muscle relaxation and improve its strength. Also joint extensibility is improved along with reduced pain and stiffness. Likewise, results elicited in flexor group of muscles are attributable to flexion manipulation. Since the procedure is done with the help of pillows as supporting material, the effort of the person administering the procedure is also minimal without any compromise in the pressure exerted during manipulation.

VI. CONCLUSION

Traditional *marma* manipulation is usually performed to relieve joint pain, restore joint movements and to correct the deformity. So, *marma* manipulation prevents further progresshion of osteoarthritis and also provide symptomatic relief to great extent. In this study, traditional *marma* manipulation was done on the 0th and 14th day and follow-up on 28th and 42nd day. The clinical assessment was based on the parameters; pain, stiffness and physical function using WOMAC scale; swelling, crepitus, tenderness and range of motion using grading scales. The results showed improvement in the above mentioned parameters and it is found that traditional *marma* manipulation is effective in osteoarthritis.

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