



Marma Chikitsa For Pain Management In Knee Osteoarthritis- An Overview

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Abstract: *Sandhi shula* (joint pain) is the major symptom in *Janu Sandhigatavata* (knee OA) which severely disrupts an individual's routine life. Signs and symptoms of *Sandhigatavata* can be correlated to knee osteoarthritis in contemporary science. People demands pain relief as a primary need from the physician. Hence there is a definite need to look for safe and effective therapies for Pain management free from side effects. *Marma Chikitsa* is one of the nonpharmacological therapeutic modalities which is believed to be evolved from *Dhanurveda*, an *upaveda* of *Yajurveda* and dealt with art of warfare. *Marma chikitsa* is based on deep understanding of design and working of human body which utilizes various manipulative techniques to stimulate specific areas of the body for preventive and therapeutic health benefits. *Marma Sastram* in Ayurveda incorporates both traumatology and therapeutic aspect. *Susrutha's* version of *Marma sastram* elaborately explains the traumatological aspects, while *Charaka's* version explains therapeutic aspect, both can be brilliantly adopted in field of pain management as a quick pain-relieving panacea. Acharya *susrutha* has also mentioned that *Marma* is said to cover half of the jurisdiction of surgery. The present study aims to explore the healing potentials of *Marma Chikitsa* in pain management of *Janu Sandhigatavata* (knee OA).

Index Terms - pain management, knee OA, *Marma Chikitsa*, *Janu Sandhigatavata*.

INTRODUCTION:

Knee osteoarthritis (KOA) tends to increase considerably worldwide due to aging, obesity and heavy physical occupational activity ^[1]. The global prevalence of knee OA is 22.9% in individuals aged 40 and over in 2020 ^[2]. 9.6% of men and 18.0% of women aged over 60 years have symptomatic osteoarthritis worldwide ^[3] and it is the most frequent joint disease with prevalence of 22% to 39% in India. *Sandhi shula* (joint pain) is the major symptom in *Janu Sandhigatavata* (knee OA) ^[4]. This pain is associated initially with local peripheral sensitization, but also can become chronic, promoting a neurological reorganization within the segments of the spinal cord and the cortical level ^[5].

Marma chikitsa is one of the nonpharmacological therapeutic modalities which finds an important place besides pharmacological and drug-based therapies ^[6]. Basic concepts of *Marma chikitsa* are well described in ancient Indological texts right from Vedas to epics. Further Ayurveda and other ancient traditional medical literatures recount the anatomical and clinical considerations of different vital areas of human body as *marma* where prana resides. *Marma chikitsa* is also based on the same fundamental principles of ayurveda. These include the *pancamaha bhuta siddhanta*, *agnisomiya* principle in general and specifically the principles of management of *Vata* and those of *Vrana chikitsa* (treatment of wound) as well as *Bhagna chikitsa* (treatment of fracture).

ANATOMICAL AND PHYSIOLOGICAL CONSIDERATIONS IN MARMA CHIKITSA:

The word *Marma* is formed from 3 syllables Ma, R and Ma. 'Ma' symbolizes *soma*(moon). 'Ra' symbolizes *Agni*(fire). Thus, the word *Marma* means where the *Agni*(fire) is enveloped or protected by the *soma* (moon). According to ayurveda, the body is a functional equilibrium of three *dosha* which are in turn the derivatives of *Agni* and *soma* (the duality of hot and cold) which are balanced by *Vayu*. Thus, the concept of *Marma* is clearly described in almost all the classical literatures of ayurveda.

Acharya Susrutha has also mentioned that *Marma* is said to cover half of the jurisdiction of surgery^[7]. Prana, although being present throughout the body, is more precisely focused in certain places of the body called *Marma*, when injured result in harm to these spots and further increases the risks of mortality. Injury to *Marma* can happen through both external and internal ways. Diseases affecting *Marma* comes under *Madhyama roga marga* which are difficult to cure^[8]. Hence knowledge of *Marma* is important to assess the prognosis of the disease. A *Vaidya* who understands the *prana* of the patient is called as *Pranabhisara*^[9].

MARMA CHIKITSA:

Marma Chikitsa utilises the body's innate healing potential as it would be helpful to minimise the burden of various chemical and herbal medicines, particularly in the context of adverse effects associated with pharmaceutical therapy. It is vital to incorporate the therapeutic power of *Marma Chikitsa* into the clinical practise of ayurveda. The protection of *Marma* (vital area) as mentioned by our Acharya Charaka consists of avoidance of impending factors (*Abadha varjanam*), observance of code of conduct for health (*Nityam swasthavritta anuvarthanam*) and remedy of disorders, if risen (*Utpannaartha vighatascha marmanam paripalanam*)^[10].

PAIN MANAGEMENT IN KNEE OA THROUGH MARMA CHIKITSA:

Marma Sastram in Ayurveda incorporates both traumatology and therapeutic aspects, Acharya *Susrutha's* version of *Marma Sastram* elaborately explains the traumatological aspects, while Acharya *Charaka's* version explains therapeutic aspects, both the aspects can be brilliantly adopted in field of pain management. Knee Osteoarthritis of conventional science is quite similar to *Janu sandhigatavata* of ayurveda, which is commonly observed in age old people. The condition is difficult to cure. Moreover, medications impart deleterious effects to the body when consumed long-term. While its management through *Marma chikitsa* may bring down the symptoms and improves the overall wellbeing of the patient.

Marma is a conglomeration of *mamsa* (muscles), *sira* (vessels), *snayu* (ligaments), *sandhi* (joints) and *asthi* (bones). Anatomically knee composes of following structures such as bones, joints, muscles, tendons and ligaments. When activating the *marma* nearby, the concerned myotomes and dermatomes (L3, L4, S2) may get activated altering the recruitment.

Unmardana (massage with hands), one among the treatment approach explained in the context of *chikitsa* of *sandhigata vata*^[11]. This can be correlated with techniques adopted in *marma chikitsa*. The *Marma chikitsa* regulates the flow of prana correcting the *gati* of *vayu* thereby reducing pain. Just like electric switches when turned on, enable the flow of electricity through a device to make it perform, *Marma* points can be viewed as specific switches in the body that when appropriately activated lead to proper flow of prana in different body areas resulting in pain relief and other desirable therapeutic advantages.

Hence the application of *Marma sastram* as a therapeutic technique can be supposed to be comprising of 2 basic tasks i.e.,

- 1) Proper identification of the locations
- 2) Devising methods of stimulation of the *marmas* to attain the desired healing effect.

METHOD OF STIMULATION:

1. The patient is made to sit with extended knee joint and a towel is tied at the level of tuberosity.
2. A round wooden stick of uniform thickness is tied parallel to the knee by keeping it over the towel
3. *Kshipra marma* is stimulated with deep pressure using tip of thumb of the physician.
4. Using a *marma* stick (Fig.1) *talahrdaya, kshipra, kūrca, kūrcaśiras, gulpha marma* are stimulated.
5. Patient's foot is held by physician – dorsiflexion and plantar flexion of foot done for 3 times with simultaneous pressure application with physician's thumb over *gulpha marma*.



Figure 1- marma stick

Table 1: Showing the description of related *marmas*:

Marma ^[12]	No	Size	Types			Location
<i>Kṣhipra</i>	2	½ finger	<i>Snayu</i>	<i>kalantara</i>	<i>saumyagneya</i>	Between big toe and second toe (long plantar ligament)
<i>Talahridaya</i>	2	½ finger	<i>Mamsa</i>	<i>kalantara</i>	<i>saumyagneya</i>	Centre of sole, 6 fingers proximal to 3 rd toe
<i>kūrca</i>	2	1 palm	<i>Snayu</i>	<i>vaikalyakara</i>	<i>Saumya</i>	Over the sole, 1 finger proximal to metatarsophalangeal joint of big toe
<i>kūrcaśiras</i>	2	1 finger	<i>Snayu</i>	<i>Rujakara</i>	<i>Vayavya</i>	Below the ankle joint (medial and lateral sides of heel)
<i>Gulpha</i>	2	2 fingers	<i>Sandhi</i>	<i>Rujakara</i>	<i>Vayavya</i>	Ankle joint
<i>Vitapa</i>	2	1 finger	<i>Snayu</i>	<i>vaikalyakara</i>	<i>Saumya</i>	Between inguinal region and testes and ovary

6. The stick is rotated in anticlockwise direction to stabilise the leg for few seconds.
7. Patient's knee is flexed and foot is placed on the ground.
8. The patient's foot is fixed on the floor by placing physician's foot over it and physician should keep one hand over the patient's knee and tap thrice from above with other hand.
9. Again, tapping both medial and lateral aspects of knee with palms simultaneously
10. The towel is removed and the patient is asked to flex and extend the knee to test for pain
11. In case the patient complains of residual pain, then following stimulations are again done: The movement of leg is restricted by pressing *kūrcaśiras marma* using the physician's great toe and a point near the depression slightly above the knee on the medial aspect of the thigh is stimulated by circular rotations using the middle finger of the physician.
12. With continuous pressure over *kūrcaśiras marma*, stimulation is done on *vitapa marma* using the tips of middle three fingers by technique of deep pressing and releasing. This is *Valapingala* activation.
13. With continuous pressure on *kūrcaśiras marma*, deep circular stimulation is done on the point on medial aspect of lower thigh using the thumb of the physician.
14. Finally, the lateral aspect of knee joint is tapped with the palm of the physician and the patient is asked to walk and check for any pain

DISCUSSION:

Marma Chikitsa is where the application of pressure stimulates the *Marma* points inducing the flow of *Prana* (vital energy) along a complete system through subtle channels called *Nadis*.

Also, *Marma Chikitsa* works on the neuro-endocrine system. While applying pressure over *Marma*, a certain chemical molecule (P substance) and neurotransmitters like endorphins and enkephalin are released which send nerve impulse to brain causing the desired effect.

In *Marma Chikitsa* the prana of the individual is regulated, which gives rise to another theory of mechanism (i.e.;) regulation of hypothalamic pituitary adrenal axis (HPA axis) as a result of release of cortisol and catecholamines (epinephrine and norepinephrine) ^[14].

Also, regulation of *Prana* has positive effects on levels of inflammatory markers such as C-reactive protein (CRP) and cytokines such as Interleukin-1 Beta (IL-1β), Interleukin-6(IL-6), Tumour Necrosis factor-alpha (TNF-α), Interferon-gamma (INF-γ) ^[15].

In Ayurveda, the term *Vedana / Shula* is unpleasant feeling. *Acharya Susruta* states that “There cannot be pain without involvement of Vata”^[16]. All Marma points have their *Pramana* (measurement), so they should be stimulated accordingly. *Marmas* can be stimulated in condition of pain aiming for analgesic effect. If *marma chikitsa* can reduce pain and provide stability, the functional limitations including restriction on walking, ascending / descending stairs, bipedal squat, weight bearing activities can be performed.

CONCLUSION

It is evident fact that genesis of *Vatika* disorder has complex set of etiopathogenesis and clinical presentation depending upon severity and involvement of *Doshas* and *Dushyas*. The line of management of knee OA includes physiotherapy, analgesics, intra articular steroid injections and knee replacement surgery. However, long-term treatment without side effects is difficult, and it is beneficial to include the therapeutic potential of *Marma Chikitsa* into clinical practise. Therefore, it can be used efficiently alone or in conjunction with pharmaceutical therapy depending on the severity of the problem

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