

Application of *Kupara Marma chikitsa* can play a potential role in management of cervical spondylosis: A review

Ashutosh Kumar Pathak^{1*}, H. H. Awasthi² and Ajai Kr. Pandey³

*¹ Department of Rachana Sharir, Faculty of Ayurveda, IMS, BHU, Banaras, India.

² Department of Rachana Sharir, Faculty of Ayurveda, IMS, BHU, Banaras, India.

³ Department Of Kayachikitsa, Faculty of Ayurveda, IMS, BHU, Banaras, India

Received: 18th December 2014 / Accepted: 21st December 2014 / Published: 10th January 2015



Greentree Group

©International Journal of *Ayurveda* and Pharmaceutical Chemistry, 2014

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✉ rebellionashu@gmail.com

Int J Ayu Pharm Chem Vol. 2 Issue 1, 2015

Abstract

In ancient literatures like *Vedas* and in classics of *Ayurveda* the concept of *Marma* was limited to the war science and *Marma* points were mainly considered as only fatal points i.e., trauma to them leads to debility or even death as these are seat of *Prana* (life energy). As *Prana* effects all aspects of a person that is – physical, mental, social as well as spiritual, so *Marma* may be assumed to be those important seats of psycho-neuro-endocrino- immunological pathways which may be influenced in order to regulate the physical, mental and spiritual functions. In the present era its applied aspect, that is, stimulation of these *Marma* by means of *Abhyanga* (massage), *Mardana* (Acupressure), Aroma therapy, *Pranic* healing, Herbs (lepa), *Raktamokshan* (blood letting) and *Agnikarma* (heat application),etc is utilised to treat disease but *Marma chikitsa*, a therapy practised by few practitioners to stimulate these *Marma* points directly by applying pressure, vibrating tendons, pinching or application of hot and cold pastes, oils and ointment on *Marma* depending on the type of *Marma* had emerged as new dimension in non pharmacological treatment of *Ayurveda*. The *Kurpara Marma chikitsa* can be used to alleviate the radiculopathic pain of cervical spondylosis as well as it has potential to modify the disease to maintain the homeostasis of the cervical spine region.

Keywords - *Ayurveda, Marma, DNIC, Hypoalgnesia*

INTRODUCTION

Every science carves its own pathways; its ideologies make it unique and distinct from other conventional science of its time and of future. It is through its basic concepts that make it possible to withstand the slaps of time. In same manner *Marma* science of *Ayurveda* has covered a long spells, from vedic era to till date.

Ayurveda has its own principles or concepts which stand in modern era also. The concept of *Marma* is one such imperative and unique principle of

Ayurveda. In ancient literature science of *Marma* was limited to the war science and *Marma* points were mainly considered as only fatal points i.e trauma to them leads to debility or even death as these are seat of *Prana* (life energy) but in present era its applied aspect, that is, stimulation of these *Marma* by means of *Abhyanga* (massage), *Mardana* (Acupressure), Aroma therapy, *Pranic* healing, Herbs (lepa), *Raktamokshan* (blood letting) and *Agni karma* (heat application),etc is utilised to treat disease but *Marma chikitsa*, a therapy practised by

few practitioners to stimulate these *Marma* points directly by applying pressure, vibrating tendons, pinching or application of hot and cold pastes, oils and ointment on *Marma* depending on the type of *Marma* had emerged as new dimension in non pharmacological treatment of *Ayurveda*.

Marma

The concept of *Marma* has its root in Vedas and from vedic era to till date, it is still surviving due to its importance for human life. In *Ayurveda* it is considered that there are 107 *Marma* points/ regions in the body that must be protected, as *Marma* science was basically considered as war science in which the knowledge of *Marmas* was very crucial because the protection of these parts of body is mandatory for survival. These body regions are the considered as seat of *Prana* (life energy). Acharya Sushruta had considered its importance for surgical procedure as without knowledge of *Marma* surgeon could lead to iatrogenesis or even death of patient.^[1]

Acaryas have described one hundred seven *Marma* areas in our body and classified them under various categories based on *racana bheda* (structure), *sthiti* (location), *sankhya* (number), *parimapa* (size or measurement) and *parinama bheda*

(prognostic value or consequence of trauma over them).^[2]

It seems that these are not only anatomically important part of body but also are of physiological and spiritual importance as in *yogopinashad* 18 *Marma* are described for the concentration in practice of *dharana*, which is part of eight fold of yoga. Along with this in *Ayurveda* classics, it is considered important anatomically as well as seat of spiritual entities, which constitutes the mental, social and spiritual health of person. These facts indicates that *Marma* effect all aspects of person that is – physical, mental, social as well as spiritual, so they may be assumed to be those important seats of psycho-neuro-endocrino- immunological pathways^[3] which may be influenced in order to regulate the physical, mental and spiritual functions.

Marma chikitsa

On *Marmas*, pressure are applied, tendons are vibrated, deep pinching of skin and subcutaneous tissues and muscles, generates pain sensation to the patient. The amplitudes of these techniques varies according to age, disease and patient's pain threshold and type of *Marma* point. If the patient is child, female or of old age the techniques should be applied with low amplitude. The pain threshold of the patient

can be assessed by the facial expression of the patient and the pain generated during the *chikitsa* can be alleviated by deep breathing or diversion of mind through conversations and re-assurance.

Maximum pressure can be applied on *Sandhi*, *Asthi*, *Mansa* and *Snayu Marma* but *Sira Marma* should not be pressed forcibly, gentle massage in upward, downward and from center to peripheral direction should be done at these site.

Sometimes patient may feel giddiness, discomfort due the pain generated then the patient must be placed in recumbent position with keeping head low and lifting leg up and massage of palm and sole alongwith *Talahridya Marma* pressing should be done.^[4] The *Marma chikitsa* is proving helpful in treatment of many diseases examples of which are as below^[5]-

Disease	Marma points to be stimulated
Sciatica	<i>Kshipra, Gulpha, Indravasti, n Janu</i> and <i>Kukundara</i> of lower limb
Cervical spodylosis	<i>Kshipra</i> , <i>Kurpara, Ani, Urvi</i> and <i>amsa</i> of upper limb
Migrane	<i>Amsa, Apanga, Avarta</i> of bilateral sides
Eye	<i>Apanga, Avarta</i> (both sides)

problems	
Urinary problems	<i>Indravasti</i> and <i>Gulpha</i> of both upper and lower limb
Paralysis	All <i>Marmas</i> of upper and lower limb depending on location of affected part.

***Kurpara Marma* –**

According to classics *Kurpara* is the junction between *Praganda* and *Prakostha*^[6]. It is a type of *Sandhi Marma*, which are two in number .i.e. one each in upper limb and their *Pramana* (measurement) is 3 Angula^[7], which are *Vaikalyakara* (which causes disability) in nature. As far as *Sandhi* type is considered it is of *Kora Sandhi* (hinge joint) type. From these references, it is evident that the *Kurpara Marma* is the elbow region of upper limb.

Application

In *Ayurveda*, *Acharyas* stated that *Kurpara Marma* (elbow region) resembles the *Janu Marma* (knee region), on injury it will leads to *Kunitva* i.e disability and deformation of the elbow region.^[8]

It is suggested by *Acharyas* that in *Gridharasi* (sciatica) and *Vishvachi* (pain of arm and neck/ radiculopathy) puncturing

should be done with knee and elbow joint (respectively) flexed.^[9]

In diseases of the *Pliha* (spleen) puncturing should be done especially in the left arm, either at the inner side of the elbow joint in the centre of the arm or in the area between the little and ring fingers. In *Yakriddalyodara* (abdominal enlargement caused by diseases of the liver) and *Kaphodara* (abdominal enlargement caused by kapha), puncturing should be done specially in the right arm at the same places as above.^[10]

From these references it is quite evident that the *Kurpara Marma* area can be utilized for treatment of cervical spine related diseases causing radiculopathy as well as the disease related to abdomen especially concerned with spleen and liver. The *Kurpara Marma* relation with the liver and spleen is till date an obscure concept but the relation of *Kurpara Marma* to the cervical spine is a well known fact in present era of medical sciences. It is quite clear from the knowledge of brachial plexus that the cervical spine and the related area of neck .i.e. muscles, joints, ligament, etc are supplied by the same root values of nerve that supplies the upper limb including the elbow region.

The *Kurpara Marma* can be stimulated by pressing on the following two points of elbow region –

One on medial side – it can be located by thumb of opposite hand while placing four fingers on olecranon process. Second point on lateral side - it can be located by middle finger of opposite hand while placing thumb on olecranon process. The *Kurpara Marma* points should be pressed 16 – 18 times/ min with pressure bearable to the patients.^[11]

Cervical spondylosis

Cervical spondylosis is a degenerative condition of the cervical spine. There is degeneration of inter-vertebral disc, with its protrusion and bony overgrowth of adjacent vertebrae causing compression of roots, cord or both. Occasionally it is associated with non-compressive myelopathy consequent to vascular degeneration (API medicine). It is the most common cause of nontraumatic myelopathy, resulting in paraparesis and quadriparesis. The incidence of neck pain in adults is approximately 20-50% per year, much of which is caused by spondylosis.^[12]

Spondylosis is defined as a non-inflammatory process occurring primarily because of disk degeneration around the amphiarthrodial joint formed by adjoining vertebral bodies and the disk between them.

Disk degeneration and development of spondylosis are part of the normal aging process. Approximately 95% of people by age 65 have cervical spondylosis to some degree.^[13] The degeneration can eventually worsen and cause either compression of exiting cervical spinal nerves or of the cervical spinal cord.

Pathophysiology

Degeneration of the intervertebral discs

The first step in such spinal degenerative change is desiccation of the disk. The end plates have several channels that allow for vascular exchange of nutrients between the vertebral body and intervertebral disk. Repetitive movements eventually lead to fatigue and thinning of the end plates. As the vascular supply is compromised, the central portion of the disk begins to lose its proteoglycan matrix.^[14] The disk also begins to desiccate, losing its hydrophilic properties, and becomes more compressible. Along with the loss of water content is a loss of chondroitin sulfate, which provides elastic properties, and the chondroitin sulfate is replaced with keratin sulfate.^[15] This process leads to gradual loss of disk height and bulging of the disk posteriorly as the dorsal annulus is thinner. As the spondylosis proceeds, the disk can bulge further. This is sometimes accompanied by disk herniation

through an annular tear, which forces the posterior longitudinal ligament to peel off the surfaces of adjacent vertebral body.

Osteophyte (bony growth) - The herniated disk irritates the dorsal ends of adjoining vertebrae, causing reactive bone formation or osteophytes. If a significant amount of bone is formed, the cervical cord can become compressed, a condition termed cervical hyperostotic myelopathy.^[15] Posterior disk osteophyte formation can result in kyphosis.

Narrowed spinal canal - The posterior elements of the spine also undergo changes such as facet joint hypertrophy and hypertrophy of the ligamentum flavum. All these cumulatively cause a reduction in sagittal canal diameter. Normal canal diameter in the cervical region averages from 17 to 18mm (mm) and compression of the cord can be evident when the diameter reaches below 13 mm.^[16]

Insufficient blood supply - Spinal cord ischemia can also play a significant part in the development of myelopathy from spondylosis. Pathologic specimens show injury of the gray matter and medial white matter, consistent with a central cord syndrome from ischemia.³ Ischemia injury of the cord in spondylosis is rarely from blockage of major arteries, but rather from

microperfusion defects because of chronic concussion of the cord.^[14]

Pharmacologic treatment includes several options. - NSAIDs are the mainstay of pharmacologic treatment. They are effective in reducing the biologic effects of inflammation and pain. Patients who experience more chronic pain symptoms may benefit from tricyclic antidepressants (TCAs). Common side effects include dry mouth, sedation, urinary retention, constipation, and cardiac conduction blocks. Muscle relaxants may also be beneficial in patients with a spasm in the neck muscles (which can be related to spondylotic changes). Opioids could be considered in patients who have moderate-to-severe pain due to significant structural spondylosis, those who are poor surgical candidates, and those who have failed nonopioid agents. Steroid use is controversial. In some patients with severe radiculopathy, a high-dose oral steroid taper may rapidly reduce pain and shorten the course of symptoms. Some patients with progressive cervical spondylotic myelopathy also may benefit. Epidural steroid injections may help patients with radicular symptoms. But till date no absolute treatment is present for this disease which can check the clinical symptoms and as well as the pathology of disease.

Cervical manipulation affects the elbow diseases

There are research works showing that the cervical spine manipulation has strong effect on the motor activity of the upper limb as well as have hypoalgesic effect in patients of lateral epicondalgia. There are different findings regarding this which can be summed as the manual mobilization procedures induce mechanical, but not thermal, hypoalgesic effects.^[17] This manual therapy-induced hypoalgesia appears to be nonopioid in nature, because it is not reversed by the application of naloxone^[18] and does not develop tolerance to repeated application of manual interventions.^[19] Furthermore, mechanical hypoalgesia provoked by manual procedures is concurrent with sympathetic nervous system^[20-21] or motor system^[22] excitation. For instance, some studies found that cervical^[20] or elbow^[17] nonthrust mobilization not only reduced mechanical pain sensitivity, but also increased pain-free grip (PFG) strength in subjects with LE. *Furthermore, Sterling et al*^[22] found that cervical posterior-anterior nonthrust mobilization decreased pressure sensitivity and reduced overactivity of the superficial neck flexor muscles during the craniocervical flexion test. Finally, based on

data from the animal model, nonthrust mobilization-induced analgesia involves serotonin and noradrenaline receptors in the spinal cord. [23] These findings support the hypothesis that manual procedures (at least mobilization techniques) can stimulate descending inhibitory pain systems. [24-26].

DISCUSSION

Vice versa of the above can also hold true .i.e manipulation at elbow region certainly going to have its effect on cervical spine region. This is in coherence with the concept of application of *Kurpara Marma* in radiculopathic pain, as described in classics of *Ayurveda*. Since, venesection near *Kurpara Marma* is indicated to treat the visvachi disease may have basis that the the *Kurpara* region and the cervical region have same segmental innervations. Based on this, it is justified to state that the noxious pressure on the *Kurpara* region may have effect on the regions having same segmental innervations. This noxious stimulus on the *Kurpara Marma* leads to pain or tingling sensation causing activation of some pathways having multifactorial effects like

having beneficial influences on the chemical environment of near by joints, facilitation of tissue repair processes, segmental inhibitory processes within the central nervous system and activation of descending inhibitory pathways projecting from the brain to spinal cord . The peripheral pathway, may consist of activation of the afferent fiber mainly A delta and C fibers which carry stimulation to CNS where it may stimulate, as discussed above, descending noxious inhibitory control (DNIC) system, an endogenous pain modulating system, leading to decrease in pain sensation and relaxation to patient but the proper pathway is still to be elucidated as *Marma chikitsa* has its multidimensional effect on all aspect of life.

CONCLUSION

The *Kurpara Marma chikitsa* can be used to alleviate the radiculopathic pain of cervical spodylosis as well as it has potential to modify the disease to maintain the homeostasis of the cervical spine region as *Marma chikitsa* has multi dimensional effect that is – physical, mental, social as well as spiritual.

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 rebellionashu@gmail.com