SHORT REVIEW ARTICLE

SHORT REVIEW: AYURVEDIC PERSPECTIVE AND MANAGEMENT GUIDELINES IN CARPAL TUNNEL SYNDROME

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ABSTRACT: Carpal tunnel syndrome is the most common form of entrapment neuropathies. It is characterised with numbness, paraesthesia, pain, along the median nerve distribution, and in advanced cases it will lead to wasting and finally loss of function of hand. It is diagnosed clinically and by electrophysiological studies like nerve conduction study. In Ayurveda the advanced stages of Carpal Tunnel Syndrome can be seen in viswachi (functional loss of hand) and khalli (viswachi associated with pain). Both are considered as dysfunction of vata in kandara (abnormal activity of vata in ligaments following abnormal motor innervation). Hence it should be understood as vyana vayu (neuronal conduction) dysfunction within the median nerve due to kupitavata (initiator of pathology by extraneously formed substances).

Management depends upon the stage of the disease. Numbness and reduced sensation phase should be treated with swedana (fermentation) and kapahavata samana (maintaining equilibrium by correcting metabolism), pain predominant phase should be treated with vata pitta samana (correcting metabolism) and snehana (improving the structure by nourishment) wasting / functional loss phase should be treated with vata samana (correcting metabolism) and bhrmhana (nourishing the structure). Agnikarma (cauterisation), siravyadha (venesection) and sneha virechana (purging by lipids) is ideal as vyadhi vipareeta chikitsa (management aiming at reversing the pathophysiology) in numbness, pain and wasting phase respectively.

Key words: Carpal tunnel syndrome, kandara, vyana vayu, agnikarma, siravyadha

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INTRODUCTION:

Carpal tunnel syndrome is the most common form of entrapment neuropathies. It’s characterised with numbness, paraesthesia, pain, along the median nerve distribution, and in advanced cases it will lead to wasting and finally loss of function of hand, it’s diagnosed with history of classical symptoms and by electrophysiological studies like nerve conduction study. The current allopathic management advices conservative managements like physiotherapy, Short Wave Diathermy, wrist brace etc in mild cases. Non Steroidal Anti Inflammatory drugs / diuretic/ Corticosteroids orally and local injections are advised in moderate case and in cases were conservative management have failed. Surgical management are done in refractory cases and data even suggest its recurrence in few. The present management is not directed at the reversal of cause or arresting at progression of the disease. Hence it’s very essential to develop effective management guidelines for better outcome.

In Ayurveda there is description of diseases like viswaci\(^1\) and khalli\(^2\) which closely resemble the features of carpal tunnel syndrome in advanced stages. Viswachi is characterised by function loss of hand following dysfunction of vayu in the kandara\(^3\) of hand (major pheripheral nerve supplying hand), khalli is also having similar features with pain as additional symptoms.

Ayurvedic pathophysiology:

Normal function of vyana vayu (factor governing peripheral nerve activity) in kandara helps in proper sensory and motor activity, abnormality or damage in either of them can lead to vikruta karma (dysfunction) developing signs and symptoms of neuropathy\(^4\). viswaci and khalli are vatavyadhi (disease due to vata) and hence its understood that vata plays a dominant role in all stages of the disease. The disease grdhra (sciatica) which is also a snayu/kandara gata vata mentioned in vatavyadhi is classified as vata and vatakaphaja\(^5\) hence a similar classification can also be understood for viswaci. The initial presentation of the disease is due to abnormality of vyana vayu in its srotas (median nerve) producing avyakta lakshana\(^6\) (prodromal symptoms) like on and off numbness, paraesthesia, nocturnal episodes of pain and numbness, feeling of swelling and tightness , occasionally temperature variations according to the involvement of sensory, motor or autonomic fibres in median nerve.

Samanya nidana of vatavyadhi:

Habitual intake of katu tikta kashaya rasa (spicy, bitter and astringment foods), rooksha bhojana (fat free diet), ratri jagarana (awakening at nights), ati adhwa (long distance walking), bhara (lifting heavy
weights) etc nidana (etiology) leads to vatakopa and are most often associated with many of the vata vyadhis[7]

**Nidana specific for vyana vayu dysfunction:**

Atigamana (long walk), dhyana( excessive thinking), kreeda ( excessive sports), visama cesta ( improper activity), virodhi( incompatible foods), rooksha (less nutritive food), bhi(fear), harsa( excitement), visada( depressed state), etc etiology will result in direct vyana vayu kopa[8], among the following the visama cesta ( abnormal repeated activities ) can be considered as specific for carpal tunnel syndrome, repeated activity or overuse as etiology is well documented in few studies .

**Samprapti**

The vata dosha following the improper diet and activities aggravated by the samanya vatavyadhi nidana (general etiology) after undergoing caya, prakopa and prasara( stages of disease manifestation) together with vyana vayu dushti nidana decides the sthana samsraya (localisation of pathology) in bahu kandara[9]( nerves in hand ) .

The vata dosha with seeta, rooksha, laghu and visada guna ( the factor initiating pathology with its various potent properties) interact with the kandara and result in the dysfunction of vyana vayu ,which is characterised by symptoms such as paraesthesias ,numbness, burning sensation ,pain ,weakness, muscle wasting and loss of function .

The seeta guna of vatadosha interacts with the kandara and result in vyana vayu dysfunction like impaired impulse transmission resulting in paraesthesia and numbness which is evident by reduced conduction velocity.seeta guna has the property of reducing the gati[10]( impulse). The numbness predominant phase of carpal tunnel syndrome can be understood as seeta guna dominant phase of vata and kapha either individually or in combination.

Rooksha guna of vata source from vayu mahabhuta, coupled with usna guna of pitta source from agni mahabhuta cause reduced nourishment to kandara and vimarga gamana of vyana vayu. Rooksha guna is responsible for kharatva[11] (degeneration). Resulting in neuritis, demyelination and axonal loss producing pain, burning sensation and paraesthesias hence the pain predominant phase of carpal tunnel syndrome is dominanted by rooksha guna of vata and usna guna of pitta

Visada and laghu guna of vayu interferes with the blood supply of kandara[12] and cause rapid demyelination and axonal loss resulting in deteriorating vyana vayu function evident from features like reduced hand grip, falling of objects from hands, weakness, and muscle
wasting, hence wasting phase is dominated by visada laghu guna of vayu.

Table 1.: Pathophysiology of Carpal tunnel syndrome

<table>
<thead>
<tr>
<th>Gunas</th>
<th>Bhutas</th>
<th>Doshas</th>
<th>Upadhatu</th>
<th>Sthani dosa</th>
<th>Lakshana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeta</td>
<td>Vayu</td>
<td>vata</td>
<td>Kandara</td>
<td>Vyana vayu</td>
<td>Supti</td>
</tr>
<tr>
<td>Seeta</td>
<td>Jala</td>
<td>kapha</td>
<td>Kandara</td>
<td>Vyana vayu</td>
<td>Supti</td>
</tr>
<tr>
<td>Ruksha and usna</td>
<td>Vayu agni</td>
<td>vata pitta</td>
<td>Kandara</td>
<td>Vyana vayu</td>
<td>Ruk toda</td>
</tr>
<tr>
<td>Visada</td>
<td>Vayu</td>
<td>vata</td>
<td>Kandara</td>
<td>Vyana vayu</td>
<td>Sada</td>
</tr>
<tr>
<td>Laghu</td>
<td>Vayu aksaha</td>
<td>vata</td>
<td>Kandara</td>
<td>Vyana vayu</td>
<td>Kshaya</td>
</tr>
</tbody>
</table>

**Management:**
The management should always comply the principle of dosha vipareeta (treatments targeting to subside the initiator of disease) and vyadhi vipareeta chikitsa (treatments against the pathophysiology). In CTS the dosha involved is vatapradhana sannipata, seeta, rooksha, visada, laghu guna of vayu, usna rooksha guna of pittam (kinchit sneha), seeta guna of kapha plays a very important role, hence management should be hetu vipareeta (anagonistic to the pathological gunas) that is usna, snigdha, picchila, and guru appropriately directed to the stage of the disease. Vyadhi here should be taken as kandara gata vata (vyana vayu dysfunction in kandara) hence correcting vyana vayu by anulomana chikitsa is also very essential.

**First stage management:** CTS presenting with numbness and hypoaesthesia should be managed by vatakapha hara chikitsa using medicines which are usna veerya internally like astavarga kashayam\(^{13}\). Externally upanaha sweda (bandaging with herbal drugs) is the most suitable in managing the numbness and hypoaesthesia\(^{14}\). Agnikarma can be much useful in reducing the numbness and hypoaesthesia\(^{15}\).

**Second stage management:** CTS presenting with pain needs to be managed by snigdha
swedam externally like taila dhara\[^{16}\] or dhanyamla dhara. Internally by samana snehapana with tailam like karpasasthyadi\[^{17}\] and also siravyadha\[^{18}\] helps in reducing the pain associated with numbness.

**Third stage management:** When wasting sets in with weakness of hands the treatments under the category of brmhana are to be done. Externally Sali swastika panda swedam\[^{19}\], jeevanthyadi udwarthanam\[^{20}\], and internally brmhana nasya\[^{21}\] with ksheerabala and brmhana vasti\[^{22}\], anuvasana vasti and sneha virechana\[^{23}\] can be helpful in arresting the wasting.

**Table 2. Table 2: Stage wise management principle of carpal tunnel syndrome**

<table>
<thead>
<tr>
<th>Stage of the disease</th>
<th>Hetuvipareeta chikitsa</th>
<th>Vyadhivipareeta chikitsa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal medication</td>
<td>External treatments</td>
</tr>
<tr>
<td>Numbness phase</td>
<td>Astavarga kashayam / Bhadradarvadi</td>
<td>Upanaham</td>
</tr>
<tr>
<td>Pain phase</td>
<td>Prasarnyadi kashayam</td>
<td>Taila dhara</td>
</tr>
<tr>
<td>Wasting phase</td>
<td>Maharasanadi kashayam</td>
<td>Salisastika lepam Jeevantyadi udwartana chorornam</td>
</tr>
</tbody>
</table>

**CONCLUSION:**

Carpal tunnel syndrome is a disorder of peripheral nerve and can be understood as vyana vayu dysfunction at the level of bahu kandara. The vata dosha is the potent cause for initiating the pathology by its potent gunas like rooksha seeta visada and laghu. The presentation of the disease various with disease progression and hence the exact stage of disease diagnosis and the assessment of doshas are very important in planning the stage wise management.

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