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Review on etiopathogenic trios in understanding Trigeminal Neuralgia with reference to *Anantavata*

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ABSTRACT

Trigeminal Neuralgia [TN] is a devastating and demotivating disorder which impairs daily functionality, Quality of Life and creates an overwhelming fear and depression in the patients. Despite numerous available pharmacological and surgical approaches, the results are not completely satisfying. Moreover, a number of patients become drug resistant, needing a surgical procedure to treat the neuralgia which in most cases results in pain recurrence. These facts reflect the lack of precise understanding of the TN pathogenesis.^[1] The resemblances of TN with *Ananthavata* is mainly laid upon the precise clinical features and prognosis. Understanding the etiopathogenesis in Ayurvedic parlance will help in diagnosing and designing an appropriate management plan which is ultimately going to benefit a lot of sufferers from being immersed into an irreversible state of depression. Hence an attempt have been made to review the vitiating factors involved in this exemplary neuropathic pain.

Key words: *Anantavata, Ayurvedic treatment, Etiopathogenesis, Trigeminal neuralgia.*

INTRODUCTION

Also known as Trifacial neuralgia / Tic douloureux / Fothergills / Prosopalgia, refers to excruciating paroxysms of agonizing facial pain induced by trigger points. These are unilateral jolts of electric shock like pain with symptom-free intervals. The site of pain is mostly maxillary and mandibular divisions of trigeminal nerve. Typical trigger sites are lips, nasolabial fold, gums, cheek, tongue, chin etc. Pain usually continues from few seconds - 2 mts. Pain may start spontaneously - Speaking, chewing, swallowing, touching face, brushing, gentle breeze, blowing nose

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and even smiling may cause triggering of pain.^[2]

Usually it is seen in middle aged patients of 5th - 7th decade. Female predominance (2 : 1) is found. Prevalence is 5.7 and 2.5 per lakh women and men respectively.^[3] In majority of the cases, etiology it is unknown. The probable two mechanisms are Demyelination (due to any assault that impairs the conduction of signals in the affected nerves. In turn, the reduction in conduction ability causes deficiency in sensation, movement, cognition, or other functions depending on which nerves are involved) and vascular compression occurs following compression by an atherosclerotic vessel leading to hyperexcitability of nerves. Studies also suggest that the cause of the pain is 'the proximity of the artery to the nerve'.^[4] Tumors, inflammatory diseases and Injury to nerve are also accepted.^[5]

The three diagnostic criteria for Trigeminal Neuralgia is classical (with morphological changes in nerve root due to vascular compression), secondary (with neurologic disease underlying) and of unknown etiology.^[6] Current management modalities include Anti-convulsants and Anti-depressants like Carbamazepine (drug of choice) (400-100mg/day),

Phenytoin (300mg/day), clonazepam etc. Surgical procedures aim to interrupt or block the electrical activity of the nerve and hence stop the pain like Cryotherapy, Neurectomy, Alcohol injections, Nerve Blocks etc.

There are obvious problems in determining aetiological causes for trigeminal neuralgia syndrome, which is formulated only on the basis of subjective pain rather than hard signs or laboratory abnormalities. The bulk of current evidence points to the trigeminal nerve rather than the CNS as the site of generation of TGN pain. Hence it is evident that many fundamental questions about the pathophysiology of TN remains unanswered which has its impact in effective management in the contemporary system. In our science too, proper understanding of *Samprapti* (etiopathogenesis) is necessary for successful management as breaking the same is the treatment itself.

AIMS AND OBJECTIVES

To understand the Ayurvedic pathophysiology of Trigeminal Neuralgia with reference to *Anantavata* and to establish the role of the vitiating factors involved in the light of Ayurvedic classics.

MATERIALS AND METHODS

Classical literature on the subject from *Ayurvedic* and western system of medicine were explored thoroughly and put forth in a systematic manner. The etiopathogenic factors are assessed from the classical description of the disease and related areas.

Literary review

Though naming a disease is not mandatory for our science, similarities in clinical picture have made us to treat this as a *Shiroroga - Anantavata* described by all *Brihatrayis*. *Anantavata* comprises of 2 words - *Ananta* + *Vata*, '*Ananta*' - *Avinasii*, endless, boundless^[7] etc. excessive, beyond tolerance etc. '*Vata*' - refers to *Vata Dosha*. In *Amarakosa*, *Prakampana* is also one of its meanings which shows the nature of shock like jolts of pain.^[8] It is clearly evident that there is Hyperfunctioning / stimulation

of *Vata*. The headache in *Anantavata* is severe, uncontrolled, beyond tolerance and is incurable. But certain features of this severe headache points towards the involvement of some other vitiating factors in the pathophysiology.

Discussion on Etio Pathogenic Factors

1. *Vata* - The Inevitable factor

Normal functioning of *Vata* refers to neuronal mechanism of the body. Various types of *Rujas* (pain) like *Swapa*, (numbness), *Toda* (pricking pain), *Bheda*, (piercing type), *Vyadha* (puncturing type) etc. are vitiating *Vata* functions.^[9] Here *Ruksha* (roughness), *Sheeta* (coldness), *Chala* (mobility), *Sukshma* (penetrating) attributes of *Vayu* are to be considered here. *Vayu* also resides in skin and is responsible for tactile stimulation.^[10] So functions of vitiating *Vayu* corresponds with altered nerve conduction of proprioceptive impulses resulting in altered skin sensations.

2. *Raktha* - The inciting factor

The reason for taking *Raktha* into consideration is due to certain glimpses from the classics.

- Vata* is the main culprit for any type of pain. But the word *Prayena* by *Acharyas* indicates there can be others also.^[11]
- Charakacharya* considers *Siroruja* (diseases of head) as a *Sonitajaroga*.^[12]
- Extreme degrees of pain and prognostic values are explained for *Rakthaja* type of any disease. Eg: 1) *Teevra Ruja* (severe pain, *swapa* (numbness) - *Raktagata Vata Lakshana*.^[13] 2) *Raktaja Shirasula* of *Sushruta* - *Sparshasahatwa* told (hyperaesthesia).^[14] 3) *Rakthaja Rogas* are known only after failure of multiple treatment modalities and are difficult to cure or only surgically curable.^[15]
- Sannipathika* nature of *Anantavata* as per classics. *Susrutha's* consideration of *Doshic* status of *Raktha* is also known.^[16] Hence it can incite or aggravate events.

- e. *Siravedha* (Blood letting) as a treatment option for *Ananthavata* inspite of its *Vatika* nature.^[17]
- f. Similarity in severe nature of pain is met in *Vatsonita* also where there is mutual crossing over or interaction by the deranged *Vayu* and *Raktha*.^[18]
- g. Certain common etiologies are seen among diseases of head and blood borne origins. Eg: excessive indulgence in alcohol, heavy to digest food, sour foods, daily intake of leafy vegetables, exposure to sunlight etc.
- h. *Rakthamjeevaitisthiti* ---- *Jeevanam Prana Sandharanam (Indu)* - maintaining vitality of a particular structure is because of *Raktha*.^[19] It is also responsible for proper conduction of impulses as far as special senses are considered.

3. *Twag* (The organ of tactile sense) - the site of manifestation.

Twak is formed from *Raktha* and hence *Prasadana* (improved quality) of one causes the same of the latter. As *Twak* is the *Gocharasthana* (auxiliary site) of *Vayu*, there is an intermingling of the three in maintaining the normal physiology. *Sarngharacharya* opines about *Twagkshaya* - hypofunctioning of cutaneous system physiologically post 5th decade.^[20] Hence age related decline in the functions of nervous and integumentary system needs to be considered.

Etiological Consideration

Considering etiological factors, all those mentioned for diseases of head like exposure to dust, wind, sunlight, snow etc., suppression of urges, mental stress, improper neck positions, excessive diving, altered sleep patterns, continuous gaze in a specific direction, seasonal variations, intake of *Guru* (heavy to digest), *Amla* (sour), *Harita Dravyas* (leafy vegetables), trauma to head, undigested food etc. are also the same for *Ananthavata*.^[21] Role of age related and nutritional debilities are also evident. Indulgence in blood vitiating pathologies as told above and specific description of dry, cold and qualitatively and quantitatively less food as explained by *Acharya Charaka*^[22] also may lead to initiation of pathology.

Samprapti (Etiopathogenesis)^[23]

Vataprakopaka + Raktadushti - in conjunction → Resides in *Greevayaprishtabhaga* (back of neck) *Manya* (*Greevasiradwaya*) *Sampeedya* (pressurizes the nerve at petrous temporal area) or neuro vascular compression of trigeminal nerve (before its entry to pons.) → Manifestation of symptoms along the areas of distribution. → *Prasarana* (conduction) to other sites like peri ocular region, eyebrows and temple regions causing *Vataprakopa* symptoms with *Raktanubandhata*, *Gandaparswaspandan* (vascular pulsations), *Kampa* (twitching movements), *Netraroga* (ocular diseases) and *Hanugraha* (temporomandibular joint pain). Long term Anoxia, hypoxia, ischemia, loss of function etc. causes demyelination - hyperexcitability of the nerves + electrical coupling of large fibres with unmyelinated or poorly myelinated pain fibres.

Management Principles^[24]

Classical management is same as that of *Suryavartha* added with *Siravedha*. It includes *Uttarabhakta Sarpi* (internal oleation), *Kaya* and *Sirovireka* (medicated purgation and errhine therapy). Both are aimed upon pacifying and expelling *Pitta* and to improve quality of internal fluid mechanics including blood and its constituents. *Trisnehadharana* over *Murdha* (application or retension of oil and ghee based medicine over head) is targeting skin and its receptors to have better conduction of neurotransmitters through various skin layers. *Ghrita-Ksheera Seka* (irrigation with milk and ghee) is causing nourishment to the microcapillaries of skin and also possess the foresaid effects. Internally protein rich diet consisting of soups of wild variety of animals, medicated milks and ghee which are nourishing as well as easily digested and nourishing sweets made of ghee and jaggery are advised as nutrient supplements.

Role of *Murdhataila's* (various procedures over head) like *Siroabhyanga* and *seka* (Massage and medicated irrigation) are well appreciated. Massage is specially indicated for head, ear and foot which is said to be enhancing complexion and compactness of the body. It is also essential for combating age related changes

of the body especially skin and sense organs. It relieves dryness and stiffness of body parts, provides strength to skull and neurons of brain, prevents various types of neurological pain affecting head and neck, provides skin toneness. Ultimately it supports individual fight against disease causing organisms and environment.^[25]

Considering all these, treatment seems to be aimed upon - *Vatanulomana* (correcting the route of deranged *Vayu*), *Agnideepana* (improving digestive fire), *Sulaprasamana* (pain relieving), *Vedanasthapana* (improving nerve conduction), *Raktaprasadana* (improving quality of internal fluid mechanism of the body), *Brimhana* (nourishing) and *Rasayana* (improving essence of all body constituents and their attributes, immunity modulator and recurrence prevention).

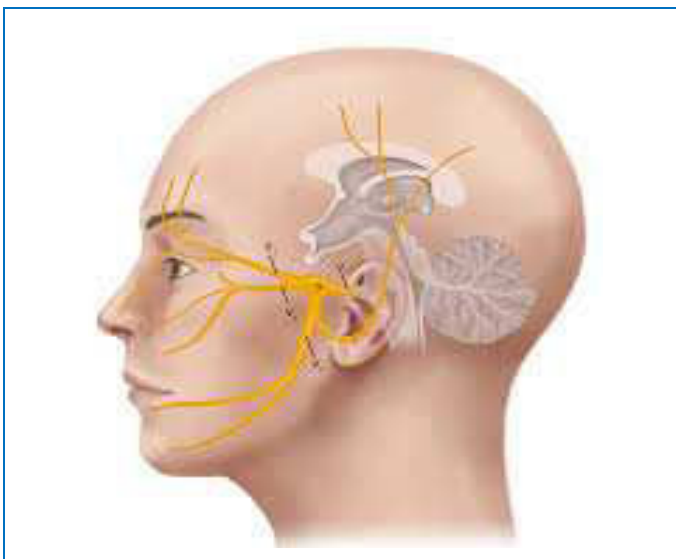


Image 1: Showing course and distribution of trigeminal nerve.

CONCLUSION

The term *Ananta Vata* itself denotes the difficulty in curing nature as substantiated by western system also. The etiopathogenic factors to be considered are *Vayu* which is the main culprit and whose vitiation becomes chaotic in presence of an inciting factor

Raktha together manifesting in skin which is one of the abodes of *Vayu*. The classical Ayurvedic management can also be justified in means of mitigating the above said factors. These methods helps in normalising conduction of impulses and improving circulation there by enhancing the self healing system of the body. Apart from curative aspect, it is the uniqueness that our system provides through *Dinacharya* (daily regimens) and *Sadvrittas* (moral code of conducts) which creates solution for these kinds of ailments.

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