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Case Report

Effects of Ayurveda interventions on acute pain and quality of life of a trigeminal neuralgia patient - A case report

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ABSTRACT

Classical trigeminal neuralgia (CTN) is a disease characterized by severe pain in the facial area related to the trigeminal nerve. CTN occurs due to neurovascular compression of the Trigeminal nerve presenting with recurrent pain episodes. This case reports the effect of Ayurveda interventions on CTN.

Thirty-nine-year-old male patient with pain on the right side of the face for two years presented to the National Institute of Ayurveda, Hospital, Jaipur, Rajasthan, India. The pain was distributed on the right side of the upper lip, cheek, and chin. Paroxysms of pain appeared at the interval of 1–2 h and were lasting of 1–2 min. The case was diagnosed with the help of magnetic resonance imaging (MRI) as right-side classical trigeminal neuralgia due to indentation of the vascular loop of the right superior cerebellar artery. The patient had a treatment history of two years with allopathic medicine, and he sought Ayurveda treatment due to recurrence and excessive pain. The patient was given Ayurvedic interventions (oral medication, *Nasya*, *Kavalagraha,* and *Gandusha*) for three months. The improvement were observed on the visual analogue scale (VAS) for pain, hospital anxiety and depression scale (HADS), and Short Form –36 questionnaire (SF-36) for quality of life.

After three months of the treatment, the VAS scale for pain and the HADS scale for anxiety and depression showed marked improvement. Improvement in all the domains of SF-36 was observed, with a total percentage improvement from 10.7% to 83.2%.

Observations of this case highlight the usefulness of *Ayurveda* interventions, i.e., Oral medication, *Nasya*, *Kavalagraha,* and *Gandusha,* in reducing the acute paroxysms of pain in Classical TN and improving the quality of life of CTN patients.

1. Introduction

Trigeminal neuralgia (TN) is a chronic disorder characterized by paroxysms of electric shock-like pain involving the unilateral side of the face. Classical trigeminal neuralgia (CTN), secondary trigeminal neuralgia (STN), and idiopathic trigeminal neuralgia (ITN) are the three subtypes of TN. The pain may occur in the areas supplied by the trigeminal branches of the ophthalmic, maxillary, and mandibular [1]. However, due to neurovascular compression, CTN most commonly afflicts the second and third branches of the trigeminal nerve with nerve root atrophy or displacement. TN affects women more than men; the risk increases with age, and the age of maximum incidence is over 50 years [2,3]. TN patients showed significant abatement in the quality of life due to the nature and severity of the pain [4]. Contemporary treatments of TN include acute management, long-term management with carbamazepine or oxcarbazepine and lamotrigine, gabapentin, botulinum toxin type A, pregabalin, baclofen, and phenytoin may be used as a monotherapy or in combination with the carbamazepine or oxcarbazepine. Surgery is suggested due to pain not being sufficiently controlled medically or medical treatments poorly tolerated [5].

In Ayurveda, TN is generally dealt with as the condition of *Anantavata,* which is a *Vata*-dominant *Tridosha Shiroroga* having persistent pain in the neck, nape of neck, eyes, and temporal region [6]. Pain is the main symptom associated with TN; in Ayurveda, pain is considered a manifestation of aggravated *Vata* [7]. Hence the

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management principles revolve around pacifying the aggravated Vata. This case reports the effects of Ayurveda interventions in a case of CTN, and the CARE case report guidelines (http://www.care-statement.org) are followed for its reporting.

2. Patient information

A thirty-nine-year-old married male patient with a history of trigeminal neuralgia from an urban area sought Ayurveda treatment at our hospital. The patient complained about intense pain in the right half of the face for two years, described as stabbing, crushing, or shooting pain. The pain also affected his quality of life both physically and mentally. These symptoms have persisted for the last two years, and no family or genetic history was found related to this condition.

2.1. Clinical findings

The pain was distributed on the right side of the upper lip, cheek, and chin, suggesting the involvement of the maxillary and mandibular divisions of the trigeminal nerve. The pain was revoked either spontaneously or with movements like speaking, chewing, and smiling, while washing the face and brushing the teeth. The sharp pain used to last for one to 2 min following continuous dull pain, and the episodes tend to occur within 1–2 h. No lacrimation, nasal discharge, temporomandibular tenderness, or other abnormalities were detected on physical examination. The patient was normotensive with normal systemic clinical examination. The patient took 100 mg of carbamazepine daily for two years but was experiencing acute exacerbations of pain episodes almost daily. The patient had not consumed any other treatment during the observation period reported here.

3. Diagnosis

On the basis of the presentation and MRI findings (done on September 04, 2020), it was a confirmed as classical trigeminal neuralgia (CTN). The vascular loop of the right superior cerebellar artery was causing indentation over the right trigeminal nerve. Focal hyperintensities in bilateral deep and subcortical white matter, likely lacunar infarction, were also observed in MRI (Fig. 2a). According to Ayurveda, it was related to the condition of *Anantavata*.

4. Intervention

Considering the pain as the most disturbing feature, *Vata-shamaka*, *Brimhana*, and *Rasayana* treatment were planned for the present case. The patient had treatment for three months; details of the interventions are presented in Table 1.

5. Diet

No specific diet was advised during the treatment period. However, the patient was instructed to consume warm, freshly cooked, balanced food which is easy to digest, considering the status of his appetite. The patient was advised to refrain from sour, fried, excessively salty, and heavy-to-digest food.

6. Timeline

The patient had treatment for three months, and the treatment timeline is presented in Table 2.

7. Follow-up and outcome

7.1. Effects of ayurveda interventions on pain

The pain was the main symptom for which the patient approached Ayurveda treatment. The pain was assessed for intensity using 10 points customized visual analogue scale (VAS) [13], frequency, and duration of acute episodes. At the time of the first visit, the VAS score for pain was 9 (agonizing pain), which gradually reduced to 2 (annoying pain) after 90 days of treatment. Observations on the VAS pain score are given in Table 3.

After initiating the treatment, gradual improvement was observed in the pain's frequency, duration, and intensity. Acute pain episodes during the initial visit occurred every 1 to 2 h, and each episode lasted for 1 to 2 min. After three months of treatment, the frequency and duration of acute episodes improved significantly, with no acute episodes with the persistence of dull pain.

8. Effect of ayurveda interventions on quality of life

Quality of life assessment was done using the short form of a questionnaire (SF-36) [14] and the hospital anxiety and depression scale (HADS) [15]. The SF 36 is a 36-item patient-reported questionnaire that covers eight health domains. Scores for each domain range from 0 to 100, with a higher score indicating a healthier state. There have been numerous versions of this instrument, and the version used in this study is, known as the RAND SF-36 [16]. The total quality of life score percentage was 10.7 % at day 0; after three months, it improved to 83.2%. Significant improvement in all domains of SF-36 was observed with Ayurveda treatment. All the

Table 1
Ayurveda interventions are given to the patient.

Type of medicine	Duration	Drug	Dose and frequency
Oral medicine	Day 1–90	*Dashamula Kwatha* (decoction) [8]	40 ml twice a day, 1 h before the meals
		Ashwagandha Churna (powder) [9]	3 g twice a day with lukewarm water after the meal
		Ojaswini Churna (powder) [10]	2 g twice a day with lukewarm water after the meal
		Ekangaveer Rasa 250 mg [11]	250 mg twice a day with lukewarm water after the meal
Procedures	Day 1–15	*Kukkuta Anda Svedana* (sudation therapy)	Once a day before the *Nasya Karma*
		Marsha Nasya Karma with Ksheera Bala Taila [12]	Six drops per nostril once daily in both nostrils, empty stomach in the morning
	Day 16–30	*Kavalagraha* (procedure of holding oil in the oral cavity with continuous movements for a certain period) *with Dasamul Taila*	60 ml once a day in the morning, empty stomach for 5 min
	Day 31–90	*Gandusha* (procedure of holding oil in the oral cavity without movement for a certain period) with *Tila Taila*	60 ml Once a day in the morning, empty stomach for 5 min

Table 2
Timeline of the treatment.

Health event	Timeline
First MRI scan of the brain	2020 September 04
The first approach for the Ayurveda treatment	2021 November 21
Assessment and examination were done. The first treatment regimen started	2021 November 25
Assessment of first follow-up and second treatment regimen started	2022 December 25
Assessment on the second follow-up and the third treatment regimen started	2022 January 25
Assessment on third follow-up	2022 February 25
Second MRI scan of the brain	2022 March 03

Table 3
Effects of the Ayurveda interventions on pain.

Parameter	Test score	Day 0	Day 15	Day 30	Day 60	Day 90
VAS	VAS Score	9	7	5	3	2
Frequency of Acute episodes	Hours	Within 1–2 h	Within 2 h	Within 4–6 h	Within 12 h	No acute pain episodes
Duration of acute episodes	Seconds to minutes	1-2 Minutes	1-2 Minutes	30–60 s	Less than 10 s	No acute pain

VAS score- 0–10, 0- no pain, 2- annoying pain, 4-uncomfortable pain, 6-deadful pain, 8-horrifying pain and 10- agonizing pain.

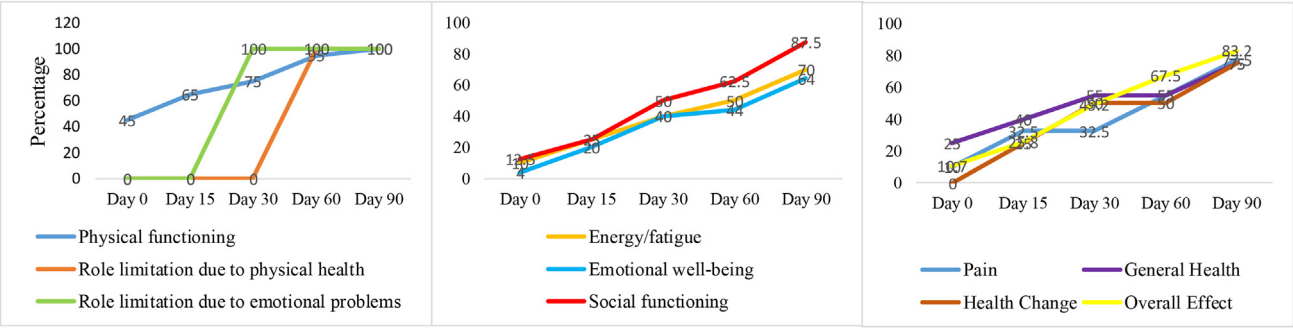

Fig. 1. Percentage-wise distribution of the domains in SF-36 subscales.

Table 4
Clinical outcomes on HADS score.

Parameter	Test	Day 0	Day 15	Day 30	Day 60	Day 90
HADS score	Depression	12	9	6	5	4
	Anxiety	14	11	9	8	6

Depression and anxiety - 0–7 - Normal, 8–10 – Borderline abnormal, 11-21- Abnormal case.

responses related to SF-36 are presented in Fig. 1, whereas observations on HADS are given in Table 4.

On day 0, the patient's HADS scores for depression and anxiety were 12 and 14, respectively. There was a gradual improvement with treatment, and at day 90, respective scores for depression and anxiety were 4 and 6.

9. Magnetic resonance imaging (MRI) of the brain

The patient underwent a repeat MRI after three months of treatment, and the same observations were reported in the MRI scan (Fig. 2b).

10. Discussion

In this study, the effects of Ayurveda interventions on CTN are reported. Pain is the most debilitating feature in such cases affecting the quality of life of the sufferer. In CTN, it is related to neurovascular compression of the trigeminal nerve, and its demyelination is a responsible factor for pain. The exact mechanism for

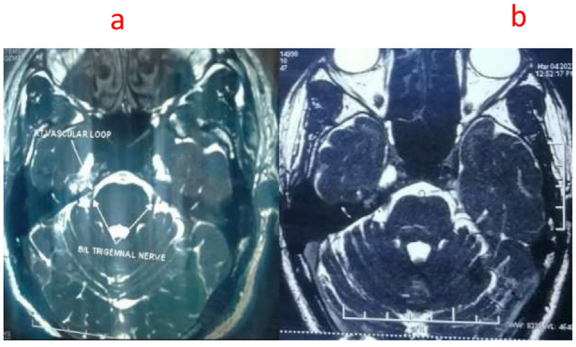

Fig. 2. a- The brain was seen with focal hyperintensities in bilateral deep and subcortical white matter, likely lacunar infarction. The superior cerebral artery is seen indenting the nerve root of the ipsilateral trigeminal nerve. b- cerebral parenchyma appears normal with preserved grey-white matter differentiation. In addition, from the superior aspect the vascular loop of the right superior cerebral artery its indentation over the right trigeminal nerve.

pain generation in CTN is unknown; however, hyperexcitability of the demyelinated nerve is believed to be the responsible for pain [17]. Moreover, inflammation is closely related to the progression and etiology of CTN [18]. The main goal of the treatment in CTN is to control the pain. In Ayurveda, pain is the manifestation of aggravated *Vata,* which is controlled by the use of *Sneha*, *Basti*, *Nasya*, *Shamana* (palliative procedure), *Brimhana* (nourishing procedure), and *Rasayana* (rejuvenation therapy) therapies. In the present case, *Vata Shamana*, *Brimhana*, and *Rasayana* treatments were planned to control the pain.

For internal use, the combination of *Ojaswini Churna*, *Ashwagandha Churna*, *Ekangveer Rasa,* and decoction of *Dashamula* was given. *Aswagandha Churna* (*Withania somnifera* (L.) Dunal.) and *Ojaswini Churna* (Appendix) all have *Vatashamana*, *Balya,* and *Rasayana* properties. Ingredients of these formulations have shown anti-inflammatory, analgesic, anti-oxidant, and nootropic properties [19,20]. *Dashamula Kashaya* pacifies the aggravated *Vata* and is recommended as an excellent medicine for edema or inflammatory conditions [21]. *Dashamula* has shown anti-inflammatory, pain relieving, neuroprotective and anti-oxidant effects in research studies [22].

Nasya therapy is indicated for disorders usually involving the region above the clavicle. In this case, the patient was given *Ksheerabala Snehana Nasya* to alleviate the *Vata* [23]. *Kavalagraha* (oil gargling) and *Gandusha* (holding the oil in the cavity without moving) are effective treatment methods for strengthening the muscles around the mouth and pain-related conditions in the head [24]. For *Kavalagraha, Dashamula Taila,* and *Gandusha, Tila Taila* were used. These two *Taila* have *Vayu* alleviating, nourishing, and *Rasayana* properties. All these medicines affected in reducing the acute pain episodes in the present case. Before approaching Ayurveda treatment frequency and duration of the pain were higher, whereas the Ayurveda treatment caused improvement in these areas. Further, the quality of life also improved during the treatment period. These observations highlight the usefulness of these Ayurvedic interventions in managing pain in Classical Trigeminal Neuralgia.

11. Conclusions

Ayurveda interventions used in the present case were found to be helpful in reducing the acute paroxysms of pain in CTN and improving the quality of life. These treatment modalities can be used in clinical practice for managing such cases, and further clinical trials may be conducted to ascertain findings of these observations.

Patient perspective

The patient was satisfied with the Ayurveda treatment as his acute pain episodes were reduced. He felt better in carrying out his daily activities. He was also satisfied with the improvement in his mood though the dull pain was still his concern.

Informed consent

Informed consent for publication of the data was taken from the patient.

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Authors contribution

Concept; G Mangal, UMGD De Silva. Design; G Mangal, UMGD De Silva, AMHS Attanayake, A Upadhyay, SM Vedpathak. Manuscript Preparation; G Mangal, UMGD De Silva, AMHS Attanayake, A Upadhyay, SM Vedpathak. Manuscript Editing; G Mangal, UMGD De Silva, AMHS Attanayake, A Upadhyay. Manuscript review; Guarantee. Other; G Mangal, UMGD De Silva, AMHS Attanayake, A Upadhyay.

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Abbreviations

TN	Trigeminal neuralgia
CTN	Classical Trigeminal Neuralgia
SF-36	Short form 36
VAS	Visual analogue scale
HANDS	Hospital anxiety and depression scale
MRI	Magnetic resonance imaging

Annexure

Details of interventions used in the treatment of the present case.

Oral Medicine

*1. Dashamula Kwatha (*Ingredients of *Dashamula Kwatha)*

No	Sanskrit Name	Botanical Name	*Rasa*	*Guna*	*Vipaka*	*Karma*	*Part of used*
1	*Bruhathi*	*Solanum indicum* L.	*Katu, Tikta*	*Laghu, Ruksa*	*Katu*	*Kapha-vatahara*	Bark
2	*Kantakari*	*Solanum surattense* Burm. f.	*Katu, Tikta*	*Laghu, Ruksa, Tiksna*	*Katu*	*Kapha-vatahara*	Root
3	*Bilva*	*Aegle marmelos* (L.) Correa	*Kasaya, Tikta*	*Laghu, Ruksa*	*Katu*	*Vata-Kaphahara*	Bark
4	*Agnimantha, Tarkari*	*Clerodendrum phlomidis* L.f.	*Tikta, Katu, Kasaya, Madhura*	*Laghu, Ruksa*	*Katu*	*Kapha-vatahara*	Root
5	*Shyonak*	*Oroxylum indicum* (L.) Kurz	*Madhura, Tikta, Kasaya*	*Laghu, Ruksa*	*Katu*	*Kapha-vatahara*	Root
6	*Patala*	*Stereospermum suavealens* (Roxb.) DC.	*Tikta, Kasaya*	*Laghu, Ruksa*	*Katu*	*Tridoshahara*	Root
7	*Kashmarya*	*Gmelina arborea* Roxb.	*Tikta, Kasaya, Madhura*	*Guru*	*Katu*	*Vata -pittahara*	Root
8	*Sala Parni, Sthira*	*Desmodium gangeticum* (L.) DC.	*Madhura, Tikta*	*Guru, Snigdha*	*Madhura*	*Tridoshahara*	Root
9	*Prushnaparni*	*Uraria picta* (Jacq.) DC.	*Madhura, Tikta*	*Laghu, Snigdha*	*Madhura*	*Tridoshahara*	Root
10	*Goksura*	*Tribulus terrestris* L.	*Madhura*	*Guru, Snigdha*	*Madhura*	*Vata- pittahara*	Root

2. Ashwagandha Churna

Ashwagandha Churna contains *W. somnifera* (L.) *Dunal*. Root crushed powder. *Katu, Tikta, and Kashaya* are the Rasa (taste) of this plant. It has *Guna* (quality) of *Snigdha* and *Laghu*. The *Vipaka* (action) of this plant is *Katu*, and it has effects of *Vata-Kaphara*, *Balya* (strengthen), and *Rasayana* (rejuvenation effect).

Ingredients of the *Ashwagandha Churna*.

No	Sanskrit Name	Botanical Name	*Rasa*	*Guna*	*Vipaka*	*Karma*	*Part of used*
1	*Ashwagandha*	*Withania somnifera* (L.) *Dunal.*	*Katu, Tikta, Kasaya*	*Snigdha, Laghu*	*Katu*	*Vata-kaphahara, Balya, Rasayana*	Root

3. Ojaswini Churna

Ojaswini Churna is a herbal formulation prepared by a GMP-certified National Institute of Ayurveda pharmacy and is mainly used to treat *Vata*-related disorders.

Ingredients of the *Ojashwini Churna*.

No	Sanskrit Name	Botanical Name	*Rasa*	*Guna*	*Vipaka*	*Karma*	*Part of used*
1	*Ashwagandha*	*Withania somnifera* (L.) *Dunal.*	*Katu, Tikta, Kasaya*	*Snigdha, Laghu*	*Katu*	*Vata-kaphahara, Balya, Rasayana*	Root
2	*Amalaki*	*Emblica officinalis* Gaertn.	*Madhura, Amla, Katu, Tikta, Kashaya*	*Snigdha, Laghu*	*Madhura*	*Tridosa hara, Rasayana*	Fruit
3	*Satavari*	*Asparagus racemosus* Willd.	*Madhura, Tikta*	*Guru, Snigdha*	*Madhura*	*Vata-piita hara, Rasayana*	Root
4	*Bala*	*Sida cardifolia* L.	*Madhura*	*Laghu, Snigdha, Picchila*	*Madhura*	*Vata-pittahara, Balya*	Root
5	*Goksura*	*Tribulus terrestris* L.	*Madhura*	*Guru, Snigdha*	*Madhura*	*Vata-piita hara, Mutrala, Rasayana*	Fruit
5	*Yastimadhu*	*Glycyrrhiza glabra* L.	*Madhura*	*Guru, Snigdha*	*Madhura*	*Tridosahara, Rasayana*	Root
6	*Sweta Musali*	*Chlorophytum tuberosum* (Roxb.) Baker.	*Madhura*	*Guru, Snigdha*	*Madhura*	*Vata-Pittahara*	Root
7	Sarkara/Sugar	*Sacrum officinarum*					

4. Ekangaveer Rasa

Contents of *Ekanga Veerya Rasa.*

No	Sanskrit Name	Botanical Name	*Rasa*	*Guna*	*Vipaka*	*Karma*	*Part of used*
1	*Gandhaka Bhasma*	*Bhasma* of Sulphur	*Katu, Madhura, Kashaya*	*Shita*	*Katu*	*Kapha-vatahara*	
2	*Parada Bhasma*	*Bhasma* of Mercury	*Katu, Amla, Tikta, Madhura, Kashaya, Lavana*	*Yogavahi*	*Madhura*	*Tridoshahara*	
3	*Loha Bhasma*	*Bhasma* of Iron	*Tikta, Madhura, Kashaya*	*Snigdha, Sara*	*Katu*	*Tridoshahara*	
4	*Vanga Bhasma*	*Bhasma* of Tin	*Tikta*	*Ruksha*	*Katu*	*Kapha-Vatahara*	
5	*Naga Bhasma*	*Bhasma* of Lead	*Tikta, Madhura*	*Snigdha*	*Madhura*	*Kapha-Vatahara*	
6	*Tamra Bhasma*	*Bhasma* of Copper	*Tikta, Kashaya*	*Sara*	*Madhura*	*Kapha-Pittahara*	Root
7	*Abhraka Bhasma*	*Bhasma* of Mica	*Kashaya, Madhura*	*Snigdha*	*Madhura*	*Tridoshahara*	Root
8	*Nagara*	*Zingiber officinale* Roscoe	*Katu*	*Guru, RuksaTikshna*	*Madhura*	*Vata-Kaphahara*	Rhizome
9	*Maricha*	*Piper nigrum* L.	*Katu*	*Laghu, Tikshna*	*Katu*	*Vata-Kaphahara*	Fruit
10	*Pippali*	*Piper longum* L.	*Katu*	*Laghu, Tikshana, Snigdha*	*Madhura*	*Vata-Kaphahara*	Fruit

Bhavana Dravya

Haritaki, Amalaki, Bhibitaka, Nagara, Maricha, Pippali, Nirgundi, Chitraka, Markav, Shigru, Kushtha, Kupilu, Arka, Guduchi

External Therapy

1. Ksheerabala Taila- Reference-Ingredients of the *Ksheerabala Taila*

No	Drug name in Sanskrit	Botanical Name	Ratio
1	*Bala Kwatha*	*Sida cardifolia* L.	4 part
2	*Tila Taila*	*Sesamum indicum* L.	1 part
3	Milk	Cows milk	

No	Sanskrit Name	Botanical Name	*Rasa*	*Guna*	*Vipaka*	*Karma*	*Part of used*
1	*Bala*	*Sida cardifolia* L.	*Madhura*	*Laghu, Snigdha, Piccila*	*Madhura*	*Vata-Pittahara, Balya, Brmhana*	Root
2	*Tila Taila*	*Sesamum indicum* L.	*Madhura, Kashaya, Tikta*	*Guru, Snigdha*	*Madhura*	*Vatahara, Balya*	Fruit

2. Kukkuta Anda Sveda

Contents of *Kukkuta Anda Sveda*

1. *Kukkutandas* (eggs) −4
2. *Saindhavalavana* 12 g
3. *Dashamula Taila* 10 ml

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