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Case Report

Ayurveda management of migraine - a case report

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ABSTRACT

Migraine is one of the most prevalent causes of functional disability worldwide. Migraine patients experience headaches of varying degrees, which are related with a higher level of disability and are triggered by psychological and physiological stressors. Migraine is estimated to affect 16.6% of the world's population, with women being three times more likely to experience it than men. Despite considerable advancements in modern and traditional medicine, a complete cure remains uncertain. In *Ayurvedic* treatises, migraine headache is referred to as *Ardhavabedhaka* under the classification of *Shiroroga* (diseases related to the head region).

35-year-old Indian male police inspector, suffering from recurrent right hemi-cranial headaches once in three days for the last three months, presented symptoms of *Tridhoshaja Ardhvabhedaka* (Migraine) associated with *Amlapitta* (hyperacidity).

After a thorough assessment of the patient, the treatment was meticulously planned based on the patient's *Dosha pradhanyatha* and *Vyadhi avastha (stage of disease)*. For the proper *Samprapti vighatana, Nidana parivarjana* (abstinance from the eitiological factors), *Deepana, Paachana, Siravyadha*, *Nasya* and *Dosha Shamana Chikitsa* principles were adopted. Further, the severity of the migraine was assessed by MIDAS and NPR score, which subsequently decreased from 19 to 4, and the NPR scale decreased from 8 to 2 till completion of the therapeutic intervention.

This case report unequivocally highlights the pivotal role of the Ayurveda treatment regimen in effectively managing migraine. Overall, effective treatment of migraine cases requires the correct assessment of *Dosha* status and *Vyadhi avastha* and the correct selection of the appropriate medicine and procedures like *Siravyadha and Nasya* at that appropriate stage of the disease.

1. Introduction

A migraine, a unilateral throbbing or pulsing headache, is a primary type of headache that can cause severe functional disability. In 2015, The Global Burden of Diseases study cited it as the seventh leading cause of disability worldwide. Migraine is estimated to affect 16.6% of the world's population, with women being three times more likely to experience it than men. Most people experience migraine between the ages of 30 and 39, regardless of gender [1].

Psychological and physiological stressors are known to trigger migraine episodes, which are associated with a greater degree of disability [2]. Several intrinsic and extrinsic factors can trigger migraines, including a lack of sleep, poor eating habits, stress, and changes in weather patterns [3].

Patients with migraines experience acute pain, comparable to a blow from a sharp object that pricks or splits, and when severe, it can affect the functionality of the eye and ear [4,5]. Most people who suffer from migraines have pain of varying intensities. Consequently, most patients rely on a variety of painkillers both during acute attacks and to reduce the frequency of migraine attacks to obtain relief from pain attacks.

Over time, many individuals with migraine headaches become resistant to painkillers and other treatments, either due to harmful side effects from taking the medicines for too long or a desire to avoid taking the drugs [6].

In *Ayurvedic* treatises, migraine headache is referred to as *Ardhavabedhaka* (Migraine) under the classification of *Shiroroga* (diseases related to the head region) [7]. *Ardhavabedhaka* is a *Tridoshaja Shiroroga* characterised by recurrent attacks of headache, which are typically

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unilateral and often associated with *Bhrama* (feeling dizzy), *Aruchi* (tastelessness), *Prakasha Asahatwa* (photophobia), and *Shabda Asahatwa* (sound intolerance) [8].

The line of management for *Ardhavabhedaka* includes different *Shodhana* methods and *Shamanaushadhis*. Typically, patients are treated with *Snehana* (internal oleation), *Swedana* (sudation), *Virechana* (therapeutic purgation) [9], and *Nasya* (nasal installations), along with the oral intake of various herbal and herbomineral medications. If the patient does not respond to the above line of treatments, the *Rakthamokshana* (bloodletting) procedure may be adopted [10].

The systemic symptoms of migraine are also related to the symptoms of *Amlapitta* (a state of hyperacidity). In the case of *Amlapitta*, patients experience symptoms such as nausea, vomiting, giddiness, headache. Hence, the management line used to treat hyperacidity and the measures for correcting the digestive fire will also aid in managing migraine cases [8]. Overall, effective treatment of migraine cases requires the correct assessment of *Dosha* status and *Vyadhi avastha* (stage of disease) and the correct selection of the appropriate medicine at that stage of the disease.

2. Patient Information

A 35-year-old Indian male, police inspector by profession, appeared with complaints of right hemi- cranial headache once every three days for the last three months, associated with nausea and vomiting. His pain was throbbing in nature, severe in intensity (7/10 on a numeric pain rating scale), and lasted 1–2 hours, exacerbated by sunlight and loud noises. The patient also presented an epigastric burning sensation and sour belching. It was discovered that the patient follows a specific diet and lifestyle routine that involves consuming mostly spicy and sour foods. They also have irregular eating habits and take mid-day naps while staying awake late at night. The patient reported feeling anxious due to job-related stress and experiencing difficulty sleeping because of their work schedule.

The patient had visited an allopathic doctor and was given a prescription of NSAIDs and Antacids. Initially, taking the recommended medications helped to alleviate the symptoms. However, within the last two months, the frequency of episodes has increased to 4–5 days per week, with heightened intensity (9/10 on a numeric pain rating scale) and resistance to the prescribed drugs. The headache episodes have become extremely severe (10/10 on the numeric pain rating scale) since the prior week. The frequency has also gone up to two episodes per day, lasting for 1–2 hours and being continuous and unresponsive to NSAIDs.

Past history**:** The patient had no history of hypertension, diabetes mellitus, heart disease, eye/ENT diseases or any other respiratory illnesses. Although the patient consumes alcohol, he does not report any history of smoking. There is a family history of migraine to the patient's father and Paternal grandfather.

3. Clinical findings

General Examination: The patient's physical examination revealed no contributing findings, such as fever, pallor, icterus, or aberrant skin pigmentation. His vitals were BP 130/80, HR 80, and Respiratory rate 17 per minute.

Local Examination: There were no palpable lymph nodes, and the neurological and musculoskeletal examination results were also negative. The far and close visual acuity was determined to be within normal ranges, and the intraocular pressure was confirmed to be normal. However, no significant contributing finding was elucidated in thorough systemic and local examinations.

The assessment scales used were the Numerical Pain Rating Scale (NPR) [11] and the Migraine disability assessment test (MIDAS) [12].

4. Timeline

Details of the therapeutic timeline and outcome are listed in Table 2.

5. Diagnostic assessment

Patient appeared to be of *Vata pittaja prakruti*, *mamsasara purusha*. His *astasthana pariksha* revealed that *Nadi is Vata Pitta*, *Jivha* is *uplipta* (Coated), *Akruthi* (built) *Madhyama* (moderate), the rest of *pareeksha* like *Mala* (Feaces), *Mutra* (urine), *Shabdha* (sound), *Sparsha* (touch), and *Druk* (vision) were *prakrutha* (normal).

The findings of routine blood investigations were found to be normal, as listed in Table 1, and radiological investigations like CT and MRI also showed no abnormality.

Based on the patient's etiological factors, presented symptoms, and clinical examinations, it was diagnosed as *Tridoshaja Ardhavabhedhaka* (TA), which can be correlated to Migraine disease (8A80-ICD11) associated with *amla pitta* (hyperacidity).

6. Therapeutic intervention

After a thorough assessment of the patient, the treatment was meticulously planned based on the patient's *Dosha pradhanyatha* and *Vyadhi avastha.* For the proper *Samprapti vighatana, Nidana parivarjana (abstinance from the eitiological factors), Deepana, Paachana, Siravyadha*, and *dosha Shaman chikitsa* principles were adopted.

During the first visit, the headache was associated with the Amlodgara (sour belching) and *Daha* (epigastric burning sensation) and *Jivha liptata* (coated tongue). After carefully assessing the causative factors, *Nidana Parivarjan* (abstinence from Etiological factors) was advised. *Bilvadi gulika* was prescribed for *Agni deepana* and *Ama pachana* and for *Kosta shuddhi* preferably for *Pitta rechana, Avipattikar churna* was prescribed. During the second visit, there was subsequent relief from the associated symptoms, but the intensity of the headache remained unchanged. Tab Dologran and *Nasya* (nasal instillation) with *Anutaila* was prescribed on second visit. *Siravyadha* was planned for the second visit, but because of the hectic schedule of the patient, it was rescheduled for the third visit. During third visit the *Siravyadha* was performed as briefed below.

***Siravyadha* (Vein puncture):** a. *Poorva Karma* (pre-operative procedure) - The patient was advised to take *Grithayukta Mudga Yusha* (ghee-added green gram soup) Orally for three days before *siravyadha.*

Table 1
Laboratory investigations.

TEST	OBSERVED VALUE
RBC count	5.54×10^6 ml
WBC count	9500/cumm
PCV	45.7%
Hb	15.0 g%
Neutrophils	52%
Basophills	0
Esionophills	4%
Lymphocytes	30%
Monocytes	5%
Platelet count	3.61 Lakhs/cumm
Bleeding Time	3.12 min
Clotting Time	5 min
Blood Glucose-Random	90 mg/dl
Serum Urea	21 mg%
Bilirubin Total	1.10 mg%
Bilirubin Direct	0.10 mg%
SGOT	39 units/lts
SGPT	43 units/lts
Alkaline Phosphatase	62 units/lts
Total Proteins	7.7 g/dl
Albumin	4.8 g/dl
Globulin	2.9 g/dl
AG Ratio	1.66
Total Cholesterol	180 mg/dl
LDL	70 mg/dl
HDL	80 mg/dl
Triglycerides	140 mg/dl

Table 2
Therapeutic intervention with timeline and outcome.

No. of Visits	Medicines/Procedure	Observations/outcome	MIDAS	NPR score
First Visit (February 10, 2022)	1.*Avipattikara Churna* [15] 5g Orally at bedtime with lukewarm water. 2. *Bilwadi Gulika* [16] 1 tab BD Orally before food with lukewarm water.	Observations on first day of OPD visit Right hemi cranial headache once every three days for the last three months, associated with nausea and vomiting	MIDAS Score-19	NPR score-10/10
Second Visit (February 17, 2022)	1.Tab Dologran 1 tab BD Orally After food with lukewarm water. 2. *Anu Taila* [17] *Nasya*, 6 drops (3 drops in each nostril) Administration in Morning.	Associated symptoms like hyperacidity (amlodgar), nausea, vomiting reduced. No improvement in the intensity of headache.	MIDAS score-19	NPR score-10/10
Third Visit (March 06, 2022)	1.Raktamokshana (bloodletting). 2.*Sootashekara Rasa* [18]1 Tab BD orally before food with lukewarm water. 3. *Shira shooladi vajra rasa* [19] 1 Tab BD orally after food With lukewarm water.	Hyperacidity, Nausea and vomiting reduced considerably. No improvement in the intensity of headache.	Before *Siravyadha* MIDAS score-14 Soon After *Siravyadha* MIDAS score -14	Before *Siravyadha* NPR score- 8/10 Soon After *Siravyadha* NPR Score-5/10
Fourth Visit (March 21, 2022)	*Kalyanaka Gritha* [20] 10g OD orally before food in morning with lukewarm water.	After *siravyadha* Symptoms like Photophobia, burning sensation reduced significantly, the migraine attack was reduced in frequency, but complained of Occasional sleep disturbances.	MIDAS score-12	NPR score- 4/10
Fifth Visit (April 05, 2022)	*Kalyanaka Gritha 10g* OD orally before food in morning with Lukewarm water	Patient relieved with the accompanied symptoms and significantly reduced intensity in Headache during migraine attacks, frequency of migraine attack reduced to once in last 15 days.	MIDAS score-12	NPR score- 3/10
Sixth Visit (May 04, 2022)	*Kalyanaka Gritha* 10g OD orally before food in morning with Lukewarm water	Significant reduction in all the symptoms, encountered 2 episodes of migraine attacks with reduced headache intensity.	MIDAS score -10	NPR score- 3/10
Seventh Visit (June 05, 2022)	*Kalyanaka Gritha* 10g OD orally fefore food in morning with Lukewarm water	Only one episode of migraine attack since last one month.	MIDAS score -4	NPR score - 2

B. *Pradhana karma* (operative procedure)- Following a *Mukha Abhyanga* (face massage) with *Bala Taila* and *Baspha Sweda* (steam sudation) with cold packs over the eyes, the patient was instructed to sit in a chair with their neck flexed forward and supported by their fists under their chin. Using their index and middle fingers, they were advised to gently occlude their external jugular vein while a crepe bandage stabilized their position, as shown in Fig 1. The area was sterilized with a spirit swab before selecting a prominent vein on the right temporal area. A sterile needle (22 G) was inserted and approximately 65 ml of blood was collected as illustrated in Fig 2.

C. Paschat *Karma* (Post-operative procedure) - Following the complete cessation of blood flow, the needle was carefully extracted, and the puncture site was dressed with gauze infused with Betadine. The patient was advised to take rest. Later, *Kalyanaka Gritha* was advised on subsequent visits for 2 months.

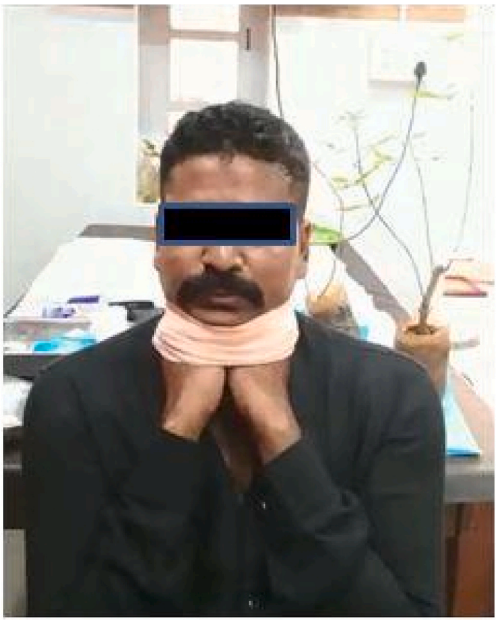

Fig 1. Position of siravyadha.

Fig 2. Complete Cessation of Blood flow.

7. Outcome

During the patient's first and second visits, patient reported a decrease in associated symptoms and amlapitta. However, the intensity and frequency of migraines remained unchanged. After undergoing

Siravyadha, there was a notable improvement in the intensity and recurrence. The patient's MIDAS score decreased from 19 to 14, and the NPR scale decreased from 8 to 5 shortly after the procedure. Furthermore, during subsequent visits, the MIDAS score decreased to 4 and the NPR scale reduced to 2 after the administration of *Kalyanaka Gritha.*

8. Discussion

Shirashoola, commonly known as headache, is a multifaceted ailment that is identified both as an independent disease and a manifestation of various disorders in Ayurvedic literature. The condition is categorized into different groups based on the doshas implicated and the nature of the pain. Proper identification of the underlying cause is imperative for creating an efficient treatment regimen [7].

The patient indulged in various Aharaja nidana (dietary eitiological factors), i.e., *Katu, amla rasa Pradhana Ahara* and *Madyapana*, and *Viharaja nidhana* (lifestyle related eitiology) includes *Ratri jagarana, Akala ahara Sevana*, and *Manasika nidhana*, which includes *Chinta*, which are responsible for the vitiation of Agni and Tridosha, which subsequently vitiated *Rasa* and *Rakthavaha srothas ,* and gets lodged in *Ardha siras*, causing symptoms of TA. As the patient is continuously involved in *Pitta* and *Vata vriddhikar ahara* (food) and *Vihara* (lifestyle), which are accountable for the aggravation of *Vata* and *Pitta Dosha* and the generation of *Amlapitta* in *koshta*, which further intensifies headache episodes of TA [13].

In this case, the therapeutic strategy includes three main components - *Nidana Parivarjana*, *Siravyadha*, and *Shamana Chikitsa*. *Nidana Parivarjana* refers to avoiding the causative factors that led to the issue in the first place. *Siravyadha* refers to the removal of venous blood which helps to remove any accumulated toxins or impurities from the body. Finally, *Shamana Chikitsa* refers to the palliative treatment, which aims to alleviate the symptoms and provide relief. All these three components are necessary because both the *Shakha* and the *Koshta* (the gut) have undergone *Dosha Prakopa*, which refers to the aggravation of the three *Doshas (Vata, Pitta, and Kapha)*.

In the initial line of treatment *Nidana Parivarjana* was given top priority hence, the patient was advised not to take *Amla, Katu, Vidahi Ahara* and asked to avoid alcohol consumption and advised to avoid *Raatrijagarana* and *diwaswapna*. It not only prevented the further aggravation of *dosha* (*prakopa*) but also severity of the symptoms.

The next step in the treatment plan involves using *Bilwadi Gulika* [14], known for its digestive stimulant and digestant qualities, which will help with the successful digestion of *Ama Dosha* and prevent the formation of *rasadushti*. It also possesses *ushna veerya* (hot potency), *Kturasa* (pungent taste), *katahara* (Mitigating Kapha and Vata), *Soolaghna* (Analgesic),*Dahashamana* (calms down burning sensation), *Shophaghna* (anti-inflammatory), *Vnaropaka* (Wound healing), and *Gashaka* (papule resolving) properties [15].

After achieving proper *Amapachana, Koshta* Shodan *(Mrudu Virechana)* with *Avipattikara churna* [16] was carried out to remove *Dosha* (humours) from the body, especially *pitha dosha* as the patient had *Pitta vruddi Lakshna* at that phase and *avipattikar* choorna is also known for its capacity to increase digestive fire and neutralizing gastric acid. After achieving *koshta shuddhi* the subsequently administered medication will result in greater efficacy and improved metabolism [8,17]. Further, the constituents of *Avipattikar churna* have been found to possess antiulcer properties. *Haritaki*, *Maricha*, and *Pippali* have demonstrated cytoprotective effects on the gastric mucosa. *Shunthi* has been observed to reduce gastric secretion, enhance mucosal resistance, and potentiate the defensive factors of the gastric mucosa. Additionally, *Lavanga* has been shown to play a role in maintaining basal gastric mucosal blood flow and increasing mucus secretion [18].

In the following session, the patient received an oral dose of Dologran tablet containing *Patyadi Kwatha* extract (250mg), *Shirashooladi Vajra Ras* (120mg), *Godanti Bhasma* (100mg), and *Lagu Sootashekara Ras* (100mg). This tablet aids in reducing *Pitta Vriddhi*, improves digestion (*Pachana*), and balances *Pachaka Pitta* and *Samana Vayu* without any adverse effects.

Anu Taila [19] *Nasya* (nasal instillation), is advised along with Dologran tablet, because of its *Sthanika Dosha Nirharana* (pacification of local humours) properties by virtue of *shodhana* effect, as it is indicated in various diseases of head and neck [20]. *Nasya* is a bio-purification method that involves administering medication through the nasal passage. This method allows the medication to reach the brain directly and distribute throughout the body. When applied, the herbal potency reaches the *shringataka*, a vital point at the base of the nose, and then extends to the head, eyes, ears, and throat, assisting in expelling harmful doshas from the head. This may be attributed to its stimulating effect on the brain through olfactory and respiratory pathways. The nasal epithelium is a highly permeable monolayer, and the submucosa has extensive vasculature, enabling rapid absorption and direct entry of the drug into the systemic circulation, bypassing hepatic metabolism. Intranasal drug delivery through olfactory and respiratory pathways holds promise for delivering medication to the central nervous system. Lipid-based drugs with a lower molecular weight, less than 400–600 Da (Dalton), and a positive charge have a greater ability to cross the blood-brain barrier [17].

After the previous treatment, the patient approached with the persistent migraine episodes along with symptoms of *Rakta Dusti*, characterised by photophobia and a burning sensation in the eyes. As a result, the patient underwent *Siravyadha*, a bloodletting procedure that involved removing 65 ml of blood using *Siravyadha* (phlebotomy) following standard operating procedures. The *Siravyadha* treatment effectively relieved the patient's photophobia and burning sensation in the eyes by removing *Sthanika Dosha* from the blood and aiding in the relief of *Vata Avarana.*

Siravyadha (Vein puncture) procedure helps remove inflammatory agents and chemical mediators present in large amounts, such as bradykinin, histamine, serotonin, substance P, and leukocytes. Previous research has shown that the blood detoxification theory, in which removing old red blood cells and obstruction from the blood promotes the removal of toxins, improves the nutrition status, and boosts the metabolic process by providing good blood circulation. According to Acharya Sushruta, VP is described as *Ardhachikitsa*, which emphasizes its action on various neurological and vascular pathologies [21–23].

After the *Siravyadha* the patient was advised to take palliative drugs such as *Soothashekar Rasa* [24] and *Shirashooladi Vajra Rasa* [25] to prevent further blood vitiation and to balance the *Tridoshas. Soothashekara Rasa* is known for its *Pitta Shamaka* properties, which help to balance the pH of the gut [26]. *Shirashooladi Vajra rasa* also reduces the severity of headaches by performing *Tridosha Shamana*. The patient's condition improved significantly as assessed with the MIDAS and NPR scale, as shown in Table 2.

Kalyanaka Gritha [27]was prescribed in this case owing to its efficacy in managing various types of pain, whether originating from peripheral nerves, the brain, or the spinal cord. Pain affects various aspects of one's life, including physical, behavioural, cognitive, emotional, spiritual, and interpersonal elements [28].Along with other causative agents, stress is one of the primary contributing factors; hence *Kalyanaka Gritha* has been recommended for 60 days for its commendable ability to harmonize the three *doshas*, *Agnideepana* properties to enhance physical prowess and establish mental equilibrium. This, in turn, aids in the alleviation of all *Manasika Nidanas*, which might otherwise lead to *Dosha Prakopa* and ultimately result in the *Rasa* and *Rakta Dusti*. At the time of the last follow-up evaluation, the patient's NPR score was two, and MIDAS score was 4, indicating a No or Little disability range and improvement in overall well-being.

9. Conclusion

The management involves first avoiding *nidan* (etiology/triggers), *Siravyadha* followed by administering appropriate medications and

nasal instillation. It is cruicial to do the *Samprapti vighatana* and plan the treatment accordingly. However, the procedures like *siravyadha* have a pivotal role in treating such cases. It is also important to note that Ayurvedic treatment is tailored to each individual based on the *rogi* and *vyadhi avastha*, hence cannot be generalized to all cases of migraine. Conducting more extensive clinical trials is imperative to confirm its efficacy.

Patient perspective

The patient perspective was recorded in July 2022. The patient has conveyed deep appreciation and satisfaction with the quality of treatment received. As a result, he can now effortlessly carry out daily tasks that were previously hindered by debilitating migraine headaches.

Informed Consent

Informed Consent was obtained from the patient before all the treatment procedures and for publication.

Declaration of use of generative AI in scientific writing

The corresponding author declares that no tools, services, or AI were used, only basic tools such as the Grammarly app were used for checking grammar.

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None.

Authors contribution

Giramalla Patil: Conceptualisation, Methodology, Investigation, Validation, Writing-Original draft, Visualization, Supervision, Writing-Reviewing and Editing.

Shivanand Patil: Conceptualisation, Methodology, Writing-Reviewing and Editing, Data curation, formal analysis, Supervision, validation.

Prateek Hosur: Writing- Reviewing and Editing, Data curation, validation.

Declaration of competing interest

Nil.

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