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Case Series

Gut–Brain Axis Dysregulation in Migraine: Clinical Improvement Following *Unani* Management: A Case Series

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Abstract

Background: Migraine is a disabling neurological disorder frequently associated with gastrointestinal disturbances. Emerging evidence suggests an important role of the gut–brain axis in migraine pathophysiology. In Unani medicine, headache associated with gastrointestinal dysfunction is described as *Sudaa-e-Shirki Maidi*. **Cases:** Eight patients with migraine without aura associated with gastrointestinal disturbances attending the OPD of the Regional Research Centre (Unani), Prayagraj, were included. Common symptoms included recurrent headache, nausea, reflux, abdominal discomfort, constipation, and altered bowel habits. **Intervention:** Patients received *Unani* treatment comprising *Itrifal Kishneezi* and *Khamira Gaozaban Sada* for 12 weeks. **Outcomes:** The mean Visual Analog Scale (VAS) score decreased from 9.3 to 1.5, while the mean headache frequency reduced from 3.3 to 0.9 episodes per week. Complete symptomatic relief was observed in two patients, marked improvement in five patients, and moderate improvement in one patient. No adverse effects were reported. **Conclusion:** This case series suggests that *Unani* management may provide clinical benefit in migraine associated with gastrointestinal dysfunction and supports a possible role of gut–brain axis involvement in migraine pathophysiology.

Keywords: Migraine; Gut–brain axis; *Sudaa-e-Shirki Maidi*; Gastrointestinal disturbances; Integrative Medicine; Case series

Introduction:

Migraine is a common and disabling neurological disorder characterized by recurrent episodes of moderate to severe headache, often accompanied by nausea, photophobia, phonophobia, and dizziness. It affects approximately 14–15% of the global population and is a leading cause of disability worldwide. Increasing evidence suggests that migraine is a complex neurobiological disorder involving multiple mechanisms, including gut–brain axis dysregulation.¹⁻³

Gastrointestinal disturbances such as nausea, reflux, abdominal discomfort, constipation, and altered bowel habits are frequently observed in migraine patients and may contribute to disease severity. Recent studies highlight a close interaction between gastrointestinal dysfunction and migraine through the gut–brain axis, suggesting that disturbances in gastrointestinal function may influence migraine expression and severity.³

In *Unani* medicine, headache associated with gastrointestinal dysfunction is described under *Sudaa-e-Shirki Maidi*, in which impaired digestion and the ascent of morbid vapors (*bukharat*) from the gastrointestinal tract are considered important pathogenic factors. The clinical features described in this condition show

conceptual similarity with the contemporary understanding of the gut–brain axis.^{4,5} Therefore, the present case series was undertaken to evaluate the clinical response of *Unani* management in patients with migraine associated with gastrointestinal disturbances.

Cases Presentation:

This case series included eight patients with migraine without aura associated with gastrointestinal disturbances who attended the OPD of the Regional Research Centre (*Unani*), Prayagraj. Migraine was diagnosed clinically according to the International Classification of Headache Disorders, 3rd edition (ICHD-3). Patients commonly presented with recurrent headache accompanied by nausea, reflux, abdominal discomfort, constipation, and altered bowel habits. Based on clinical features and Unani diagnostic principles, the cases were classified as *Sudaa-e-Shirki Maidi*. Written informed consent was obtained from all patients for publication of anonymized clinical information.

All patients received Unani treatment comprising *Itrifal Kishneezi* and *Khamira Gaozaban Sada* for 12 weeks. Clinical assessment was performed using the Visual Analog Scale (VAS) for headache severity and frequency

of headache episodes per week before and after treatment. Improvement in associated gastrointestinal symptoms was also recorded during follow-up. Patient characteristics and clinical outcomes are summarized in Tables 1 and 2.

Timeline and Follow-up:

Between March and July 2025, patients with migraine associated with gastrointestinal disturbances received

Unani treatment at the Outpatient Department of the Regional Research Centre (Unani), Prayagraj, as part of routine clinical care. Patients were followed up weekly for 12 weeks to assess headache severity, frequency of headache episodes, associated gastrointestinal symptoms, treatment response, and adverse effects. Clinical improvement was observed in headache severity, headache frequency, and associated gastrointestinal symptoms.

Table 1: Patient Profile and Clinical Features

Pt. S. N.	Age (years)/ Gender	Temperament	Duration of Illness (Years)	Modern Diagnosis (ICHD-3)	Unani Diagnosis	Key Symptoms	Associated G.I. Symptoms
1	24/Female	<i>Bilious</i>	4	Migraine without aura	<i>Sudaa-e-Shirki Maidi</i>	Recurrent pulsating headache, dizziness	Increased bowel frequency
2	40/Male	<i>Phlegmatic</i>	2			Recurrent diffuse headache	Constipation, abdominal bloating
3	30/Female	<i>Bilious</i>	8			Headache and heaviness of head	Acid regurgitation
4	22/Female	<i>Phlegmatic</i>	6			Recurrent unilateral headache	Heartburn, abdominal pain
5	32/Female	<i>Bilious</i>	5			Recurrent throbbing headache	Nausea, abdominal pain
6	35/Male	<i>Bilious</i>	4			Recurrent pulsating headache	Epigastric pain, heartburn
7	38/Female	<i>Phlegmatic</i>	5			Headache and heaviness of head	Heartburn, nausea
8	20/Male	<i>Bilious</i>	2			Recurrent throbbing headache	Epigastric pain, nausea

Table 2: Treatment and Outcomes

Pt. S. No	Treatment Given	Duration (weeks)	VAS Before	VAS After	Headache Frequency Before (per week)	Headache Frequency After (per week)	Outcome
1	1. <i>Itrifal Kishneezi</i> 2. <i>Khamira Gaozaban Sada</i>	12	9	0	3-4	0	Complete relief
2			8	1	4-5	1	Marked improvement
3			10	2	3-4	1	Marked improvement
4			10	2	2-3	1	Marked improvement
5			9	3	3-4	1	Marked improvement
6			10	0	2-3	0	Complete relief
7			8	3	3-4	2	Moderate improvement
8			10	3	2-3	1	Marked improvement

Table 3: Summary of Clinical Outcomes

Parameter	Before Treatment (Mean)	After Treatment (Mean)
VAS Score	9.3	1.5
Frequency/week	3.3	0.9

Therapeutic Actions of the Prescribed Formulations:⁶⁻⁸

Itrifal Kishneezi

Munaqqi-i-Meda-wa-Ama (eliminates morbid matter from stomach and intestines), *Kasir-i-Riyah* (carminative), *Muqawwi-i-Meda* (stomachic), *Mulayyin* (mild laxative), *Musakkin-i-Sudaa* (relieves headache), *Muqawwi-i-Dimagh* (brain tonic).

Khamira Gaozaban Sada

Muqawwi-i-Dimagh (brain tonic), *Muqawwi-i-Qalb* (cardiotonic), *Mufarreah* (exhilarant), *Musakkin-i-Asab* (nervine sedative), *Dafi-i-Khafqan* (relieves palpitation), *Muqawwi-i-Asab* (nervine tonic).

Results:

Eight patients (five females and three males) with migraine without aura corresponding to the Unani entity *Sudaa-e-Shirki Maidi* were included in this case series. All patients completed the treatment and follow-up period, and no adverse effects were reported.

Clinical improvement was observed in headache severity, frequency of headache episodes, and associated gastrointestinal symptoms in all patients. The mean Visual Analog Scale (VAS) score decreased from 9.3 before treatment to 1.5 after treatment, while the mean frequency of headache episodes reduced from 3.3 to 0.9 episodes per week. Complete symptomatic relief was observed in two patients, marked improvement in five patients, and moderate improvement in one patient. Improvement in associated gastrointestinal symptoms, including nausea, reflux, abdominal discomfort, constipation, and altered bowel habits, was also observed during follow-up.

Discussion:

The findings of the present case series suggest a possible association between gastrointestinal dysfunction and migraine severity, consistent with both the contemporary understanding of the gut-brain axis and the *Unani* concept of *Sudaa-e-Shirki Maidi*. Improvement observed in headache severity, frequency of attacks, and associated gastrointestinal symptoms following *Unani* management indicates that correction of gastrointestinal dysfunction may contribute to clinical improvement in migraine.^{3,5-6,8}

Recent studies suggest that gastrointestinal dysfunction may influence migraine through altered gut-brain signalling, neuroinflammatory pathways, and the release of neuropeptides such as calcitonin gene-related peptide (CGRP). The improvement observed in both migraine and gastrointestinal symptoms in the present

cases is consistent with the growing evidence supporting gut-brain interactions in migraine.^{9,10}

The therapeutic response may also be attributed to the traditional actions of the prescribed formulations. According to classical *Unani literature*, *Itrifal Kishneezi* is beneficial in headache associated with gastrointestinal disturbances, while *Khamira Gaozaban Sada* is regarded as a neurotonic formulation. The treatment protocol was based on the principles of correction of gastrointestinal dysfunction and restoration of humoral balance described in *Unani* medicine.^{5-6,7} The findings of the present case series are also consistent with previous reports describing improvement in migraine following *Unani* interventions.⁹

Limitations:

The present case series is limited by a small sample size, short follow-up duration, lack of standardized assessment tools for gastrointestinal symptoms, and absence of migraine-related quality of life assessment. In addition, improvement in gastrointestinal symptoms was based on clinical observation rather than validated symptom scoring tools.

Patient Perspective:

Patients reported satisfaction with the treatment and noted significant improvement in headache severity, frequency of attacks, and associated gastrointestinal symptoms. Many patients also reported improvement in their daily activities and overall well-being.

Conclusion:

The present case series suggests that *Unani* management may provide clinical benefit in migraine associated with gastrointestinal dysfunction. Improvement observed in migraine severity and associated gastrointestinal manifestations supports the possible role of gut-brain axis involvement in migraine pathophysiology. Further controlled clinical studies are required to validate these findings.

Ethics approval and consent to participate: Not applicable

Consent for Publication: Written informed consent was obtained from all patients for publication of their anonymized clinical information.

Data Availability: The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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Competing Interests: The authors declare that they have no competing interests.

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