RESEARCH PAPER

Ayurvedic Management of Pediatric Celiac Disease (Grahani Dosha): A Case Study with Clinical and Serological Outcomes

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ABSTRACT

Celiac disease is a chronic immune-mediated enteropathy caused by gluten ingestion in genetically susceptible individuals, commonly presenting with gastrointestinal disturbances, malabsorption, and growth impairment in children. In Ayurveda, the clinical features of celiac disease resemble Grahani Dosha, a disorder primarily associated with Agnimandya (impaired digestive fire) and Ama formation. The present case study evaluates the efficacy of Ayurvedic management in a three-year-old female child diagnosed with celiac disease confirmed by elevated tissue transglutaminase antibody (tTG-IgA) levels. The patient presented with abdominal pain, alternating constipation and diarrhoea, poor weight gain, pallor, fatigue, and pica. Ayurvedic assessment revealed Vata-Pittaja predominance with features of Grahani Dosha. The therapeutic protocol included Deepana-Pachana formulations with minerals, a hepatoprotective syrup, Basti Karma, and strict gluten-free dietary regulation. Clinical improvement was observed progressively during follow-up, with a marked reduction in symptoms. Serological evaluation demonstrated a significant decline in tTG-IgA levels from 137.8 AU/ml to 7.29 AU/ml. Liver function and renal function parameters remained within normal limits throughout treatment, indicating the safety of the intervention. The findings suggest that Ayurvedic management aimed at restoration of Agni, digestion of Ama, and correction of Vata imbalance may provide beneficial supportive care in pediatric celiac disease.

Keywords: Celiac disease, Grahani Dosha, Agni Dushti, Ayurveda, Hingvastaka Churna, Basti Karma (Matra Basti).

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.INTRODUCTION

Celiac disease, is referred to as gluten-sensitive enteropathy, a chronic immune-mediated disorder of the small intestine precipitated by the ingestion of gluten and related prolamins in genetically predisposed individuals.[i] Gluten is primarily present in cereals such as wheat (*Triticum aestivum*), barley, and rye.[ii] The disease may manifest at any age following the introduction of gluten-containing foods and is characterised by a broad clinical spectrum ranging from classic gastrointestinal symptoms to extra-intestinal manifestations. Common clinical features include chronic or recurrent diarrhoea, abdominal pain, abdominal distension, failure to thrive, short stature, and various micronutrient deficiencies, particularly iron-deficiency anaemia.[iii]

Globally, the prevalence of celiac disease is estimated to be approximately 1.4%, while Asian countries report a comparatively lower prevalence of around 0.6%.[iv] In India, epidemiological studies indicate a higher prevalence in the northern regions (approximately 1%) compared to the southern parts of the country.[v] This regional variation has been attributed, in part, to dietary patterns, with wheat being a staple cereal in northern India, whereas rice predominates in the southern diet.

From the perspective of Ayurveda, the clinical presentation and disease course of celiac disease show conceptual similarity to *Grahani Dosha*, a pathological condition described in classical Ayurvedic texts. *Grahani Dosha* is understood to arise from *Agni Dushti*, or impairment of digestive and metabolic functions. *Agni*, which is regulated by the functional equilibrium of the *Tridoshas—Vata, Pitta,* and *Kapha*—plays a pivotal role in the digestion, absorption, and assimilation of nutrients. Derangement of *Agni* results in incomplete digestion, leading to the formation of *Ama* (metabolically undigested or toxic by-products), which is considered

a key pathological factor in the development of *Grahani*-related disorders.

In the current case in northern region of India, wheat is found as a staple food. In Ayurvedic pharmacodynamics, wheat (*Triticum aestivum*) is described as possessing *Madhura Rasa* (sweet taste) and *Guru, Snigdha,* and *Sheeta Guna* (heavy, unctuous, and cold qualities). These attributes are traditionally considered to aggravate *Kapha Dosha* and may contribute to *Mandagni* (hypofunctioning digestive fire) in susceptible individuals, thereby promoting *Ama* formation. Based on these principles, Ayurvedic management strategies for conditions analogous to celiac disease focus on restoration of *Agni*, elimination of *Ama*, and re-establishment of *Dosha* balance. Therapeutic approaches commonly include *Deepana-Pachana* (appetiser and digestive formulations), *Shamana Chikitsa* (palliative therapies), and selected *Panchakarma* procedures, particularly *Basti Karma*, tailored according to individual Dosha predominance and disease chronicity.

MATERIALS AND METHODS

Patient information

A three-year-old female child belonging to a middle-class family from Bikaner, Rajasthan visited the institutional Outpatient Department (OPD No. 19026) with complaints of abdominal pain, constipation, and pica. Initially, her mother noticed an irregular pattern of defecation, especially defecation after eating food in the last three months. A few weeks later, the child became lean, thin, and not putting up weight properly. They went to a pediatrician, and the child was diagnosed with Celiac disease with a confirmatory test of Tissue Transglutaminase Antibody, IgA (ELISA) test. On the advice of the elders of the family, the parents brought the patient to the outdoor patient department (OPD) for Ayurvedic intervention.

Clinical findings

In the Treatment history, allopathic medication was taken for the current disease condition by the patient. Mother was healthy 21 years old at the time of delivery, and a non-consanguineous marriage was found in the Antenatal history. In Natal history, the patient was the firstborn delivered through normal single vaginal delivery at the hospital with a birth weight of 2.6 kg. She cried soon after birth. Developmental history components, i.e., Gross motor, fine motor, social and cognitive milestones, were proper as per age. Vegetarian diet, daily use of curd and fruits in diet, constipated hard stool, normal micturition and sleep pattern noted in Personal history. History of abdominal pain, constipation for the last one months after taking modern medicine, Pica for two years without any significant history of surgery, drug allergy or trauma. Family history of a similar disease condition was found in a sibling, i.e., elder sister. The child was properly immunized, complete as per the government schedule for her current age.

Clinical examination:

Pulse rate: 98/min, Respiratory rate – 24/min, thoraco-abdominal breathing, and temperature – 98.6°F vitals were noted. Mild pallor with periorbital oedema was observed. No significant signs of icterus, cyanosis, clubbing, or lymphadenopathy were observed. Anthropometry of the child was Weight –11 kg, Height –82 cm, BMI –16.4 kg/m^2 was observed. On palpation, Tenderness on epigastric region (2+), negative Murphy's sign, organomegaly and fluid thrill were found absent. On percussion, a Tympanic note was present, while shifting dullness was absent. Bowel sound present during auscultation. In systemic examination, no abnormality was observed in the cardiovascular, nervous, gastrointestinal, musculoskeletal and respiratory systems. In local examination of the skin, itching, discharge, inflammation and lesions were absent.

Ayurvedic Diagnostic Assessment

Ashtavida Pariksha (eight-fold examination)-

The patient had *Vata-Pittaja Nadi* (pulse), Normal *Mutra* (urine habits) (6 to 7 times a day), constipated *Mala* (bowel habits), *Saama Jivha* (coated tongue), *Spashta Shabda* (clear voice), *Shita Sparsha* (tactile sensation), *Swabhabik Drik* (normal vision) and *Madhyama Akriti* (medium body stature).

Dashvidha Pariksha (ten-fold examination of the patient)-

The patient had a *Vata-Pittaja Prakriti* (body constitutional type) and a *Pravara Vikriti* (marked morbidity). *Asthi Sara* (excellent characteristics of bone tissues) were indicated due to a lean-thin body with strong and long bones. The *Samhanana* (body build) was of low grade, and *Pramana* (the body proportions) was *Avara* (malnourished). The *Satva* (psychological strength) and *Vyayamshakti* (physical strength) were both of a medium level. *Asatamya* was found for a gluten-rich diet, especially wheat. The

Ahara Shakti (food intake capacity) was less due to *Agni* (digestive fire) being *Vishama* (irregular), and the patient was in the *Balya Avastha* (childhood stage of life).

Diagnosis Assessment: - In differential diagnosis, Toddler's Diarrhoea (Chronic Nonspecific Diarrhoea of Childhood) as the first point for the differential diagnosis, which is age-specific and has loose, watery or semi-formed stools with undigested food particles, mild abdominal bloating, increased flatulence and occasional abdominal discomfort in the history. But chronic, recurrent loose stools for more than 4 weeks, with 3 to 10 stools per day frequency were assessed and found absent. On the other hand, poor weight gain and anemia were present, which is contrary to the Toddler's Diarrhea. Secondly, assessed for Cow's Milk Protein Allergy (CMPA), having similarity of chronic diarrhoea and failure to thrive were observed, but improvement on milk elimination and occult blood in stools were absent. Finally, elevated Tissue Transglutaminase (tTG) antibody (IgA) levels and improvement of symptoms on stoppage of gluten-free diet clearly indicated the Celiac disease. As no satisfactory relief was achieved with conventional treatment, *Ayurvedic* intervention was sought. In Ayurveda, symptoms *Muhurbaddha–Muhurdrava Mala* (chronic loose stools), *Arochaka* (poor appetite), *Panduta* (pallor), *Klama* (fatigue), and Aggravation of *Sama Mala* (loose stools mixed with undigested material) after *Guru Ahara* (heavy diet), especially wheat-based foods and poor weight gain attributed to *Grahani Dosha* due to *Agnimandya* and *Ama* caused by *Asatmya Ahara* (incompatible diet), i.e., gluten in the present case.

Table 01. Clinical Symptoms

Symptoms	Severity	Duration
Abdominal pain	+2	01 month
On and off diarrhoea	+2	01 month
On and off Constipation	+2	01 month
Pica eating	+1	02 years

Therapeutic Intervention and timeline with follow-up visits: - The patient's initial visit was on 29/04/2024 in the institutional OPD. She was advised to be admitted to an institutional IPD for *Panchkarma* treatment. The patient's follow-up continued until 11/09/2024. The intervention, improvements on subjective and Laboratory Investigations, are mentioned in the following tables: 02 and 03.

Table 02: Intervention

Date of visit	Drug	Dose	Time of administration	Duration
02/05/2024 (Baseline) (Patient admitted in IPD)	*Hingvastaka Churna* *Sankha Bhasama* *Kaprdika Bhasama* *Praval pisti*	1.5gm BD 15mg BD 15mg BD 15mg BD	after meal	24 days
	Lavalbhaskar Churn	1.5gm BD	after meal	
	Syrup Amlycure DS	5 ml BD	after meal	
	Syrup Triphla	5 ml BD	after meal	
	Matra Basti with Ksheerbala	20ml OD *Ksheerbala Taila(10ml)+ Erand taila(10 ml)*	after breakfast	
10/06/2024 (Visit – 01)	*Hingvastaka Churna* *Sankha Bhasama* *Kaprdika Bhasama* *Praval pisti*	1.5gm BD 15mg BD 15mg BD 15mg BD	after meal	15 days
	Lavalbhaskar Churn	1.5gm BD	after meal	
	Syrup Amlycure DS	5 ml BD	after meal	
	Syrup Triphla	5 ml BD	after meal	
25/06/2024	*Hingvastaka Churna*	1.5gm BD	after meal	15 days

(Visit – 03)	*Sankha Bhasama Kaprdika Bhasama Pravalpisti*	15mg BD 15mg BD 15mg BD		
	Lavalbhaskar Churn	1.5gm BD	after meal	
	Syrup Amlycure DS	5 ml BD	after meal	
	Syrup Triphla	5 ml BD	after meal	
10/07/2024 (Visit – 04)	*Hingvastaka Churna Sankha Bhasama Kaprdika Bhasama Pravalpisti*	1.5gm BD 15mg BD 15mg BD	after meal	15 days
	Lavalbhaskar Churn	1.5gm BD	after meal	
	Syrup Amlycure DS	5 ml BD	after meal	
	Syrup Triphla	5 ml BD	after meal	
24/07/2024 (Visit – 05)	*Hingvastaka Churna Sankha Bhasama Kaprdika Bhasama Pravalpisti*	1.5gm BD 15mg BD 15mg BD	after meal	15 days
	Lavalbhaskar Churn	1.5gm BD	after meal	
	Syrup Amlycure DS	5 ml BD	after meal	
	Syrup Triphla	5 ml BD	after meal	
10/08/2024 (Visit – 06)	*Hingvastaka Churna Sankha Bhasama Kaprdika Bhasama Pravalpisti*	1.5gm BD 15mg BD 15mg BD	after meal	15 days
	Lavalbhaskar Churn	1.5gm BD	after meal	
	Syrup Amlycure DS	5 ml BD	after meal	
	Syrup Triphla	5 ml BD	after meal	
25/08/2024 (Visit – 07)	*Hingvastaka Churna Sankha Bhasama Kaprdika Bhasama Pravalpisti*	1.5gm BD 15mg BD 15mg BD	after meal	18 days
	Lavalbhaskar Churn	1.5gm BD	after meal	
	Syrup Amlycure DS	5 ml BD	after meal	
	Syrup Triphla	5 ml BD	after meal	

Table 03: Laboratory Investigation

Parameters	**29/04/2024 (Baseline)**	**11/09/2024 (Endpoint)**
tTg Antibody, IgA (AU/ml **)**	137.8	7.29
Haemoglobin (g/dL)	12.3	11.5
TLC (10^3/uL)	12800	11210
Neutrophil (%)	46	30
Lymphocyte (%)	52	58
Monocyte (%)	01	06
Eosinophil (%)	01	06
Basophil (%)	00	00

RBC (10^6/uL)	5.20	4.84
Platelet Count (10^3/UL)	1.89	3.10
ESR (mm/hr)	23	16
S. Urea (mg/dL)	24.12	22.16
S. Creatinine (mg/dL)	0.83	0.78
S. Bilirubin (T) (mg/dL)	0.86	0.82
S. Bilirubin (D) (mg/dL)	0.26	0.29
S. Bilirubin (Ind) (mg/dL)	0.60	0.53
SGOT (AST) (IU/L)	41.67	24.5
SGPT (ALT) (IU/L)	44.19	26.3
S. Total Protein (g/dL)	6.96	6.86
S. Albumin (g/dL)	3.84	3.73
S. Globulin (g/dL)	3.12	3.13

Therapeutic Intervention

The treatment protocol comprised *Deepana-Pachana* herbs, hepatoprotective formulations, and *Basti Karma (Matra Basti)*.

RESULTS

Table 4: Date-wise Improvements

Date of visit	Symptoms
02/05/2024	Abdominal pain (3+) On and off diarrhoea (2+) On and off Constipation (2+) Pica eating (2+) *Muhurbaddha–Muhurdrava Mala* (loose stools) *Arochaka* (poor appetite) *Panduta* (pallor) *Klama* (fatigue)
10/06/2024 (Visit – 02)	Abdominal pain (+) Constipation (+)
25/06/2024 (Visit – 03)	Mild Abdominal pain (+)
	Mild Constipation (+)
10/07/2024 (Visit – 04)	No Abdominal pain No Constipation
24/07/2024 (Visit – 05)	Mild abdominal pain, No Constipation, No other symptoms
10/08/2024 (Visit – 06)	No Abdominal pain, No Constipation, No other symptoms
25/08/2024 (Visit – 07)	No Abdominal pain, No Constipation, No other symptoms

DISCUSSION

Celiac disease is a chronic autoimmune enteropathy precipitated by dietary gluten in genetically susceptible individuals, leading to intestinal mucosal inflammation, villous atrophy, and malabsorption. In pediatric patients, the disease often manifests with gastrointestinal disturbances, nutritional deficiencies, growth retardation, irritability, and altered bowel habits. In the present case, the child exhibited abdominal pain, alternating constipation and diarrhoea, poor weight gain, pallor, fatigue, and pica, along with markedly elevated tissue transglutaminase antibody (tTG-IgA) levels. These findings are consistent with classical pediatric celiac disease. From an Ayurvedic standpoint, the symptom complex closely resembles Grahani Dosha, particularly a Vata-Pittaja type associated with Agnimandya and Ama formation.

In Ayurveda, Grahani is considered the seat of Agni and is responsible for digestion, absorption, and assimilation of food. Impairment of Agni leads to incomplete digestion, resulting in the formation of Ama, which further vitiates Doshas and weakens intestinal function. Classical symptoms of Grahani such as Muhurbaddha–Muhurdrava Mala, Arochaka, Udarashoola, Panduta, and Karshya were evident in the present case. The habitual intake of wheat-based food, considered Guru and Abhishyandi in nature, may have contributed to Kapha aggravation and Mandagni, ultimately resulting in chronic gastrointestinal dysfunction.

The therapeutic approach adopted in this case was aimed at correcting Agni Dushti, digesting Ama, restoring bowel function, and improving nutrient assimilation. The management protocol consisted of Deepana-Pachana formulations, Matra Basti, supportive hepatoprotective therapy, and dietary gluten restriction. Significant clinical and serological improvement observed after treatment suggests the potential utility of Ayurvedic interventions as supportive management in pediatric celiac disease.

Hingvastaka Churna and Lavanabhaskar Churna were administered primarily for their Deepana-Pachana and Vata-Anulomana actions. Hingvastaka Churna contains ingredients such as *Hingu* (*Ferula assafoetida*), *Sunthi* (*Zingiber officinale*), *Maricha* (*Piper nigrum*), and *Pippali* (*Piper longum*). These possess *Ushna Virya* (hot potency) and *Katu Rasa* (pungent taste), carminative, digestive stimulant, antispasmodic, and Ama-pachana properties. which enhance *Agni* and facilitate *Ama Pachana*. Bioactive compounds such as gingerols and piperine have been reported to improve gastrointestinal motility and nutrient absorption[vi]. These drugs likely improved digestive efficiency and relieved abdominal pain, bloating, and irregular bowel habits. Lavanabhaskar Churna further aided in enhancing digestive secretions and reducing abdominal discomfort through its *Katu* and *Tikta Rasa*, and *Ushna Virya*, which pacify *Kapha* and *Vata Doshas* while clearing *Srotorodha* (channel obstruction)[vii]. Improvement in appetite and gradual normalization of bowel habits observed during follow-up indicate restoration of Agni and reduction of Ama.

The use of Shankha Bhasma, Kapardika Bhasma, and Praval Pishti may also have contributed significantly to symptomatic relief. Shankha Bhasma and Kapardika Bhasma possess antacid, Deepana, and Grahi properties, which help regulate bowel function and reduce gastrointestinal irritation. Praval Pishti, being Pittashamaka and Balya, may have supported mucosal healing and reduced inflammatory activity. In pediatric gastrointestinal disorders associated with hyperacidity and impaired digestion, these mineral preparations are traditionally indicated for improving digestive stability and absorption.

Matra Basti with Ksheerbala Taila and Eranda Taila constituted an important component of therapy. In Ayurveda, Basti is regarded as the prime treatment for Vata disorders, and Grahani is often associated with deranged Apana Vata. The child demonstrated alternating constipation and loose stools, suggesting Vata imbalance affecting intestinal motility. Ksheerbala Taila possesses Vata-Pittahara, Balya, and Brimhana properties, whereas Eranda Taila facilitates Anulomana and relieves bowel irregularity. Administration of Matra Basti likely improved intestinal motility, enhanced absorption, and corrected Vata dysfunction without causing strain in a pediatric patient. The progressive reduction in constipation and abdominal pain after initiation of Basti supports this hypothesis.

The administration of Syrup Amlycure DS appears to have provided hepatoprotective and digestive support. Mild elevation of liver enzymes (SGOT and SGPT) observed at baseline normalized by the endpoint, indicating improved hepatic function. It helps rejuvenate hepatic metabolism and provides protection against drug- or diet-induced liver dysfunctions[viii]. Liver involvement in celiac disease is not uncommon and may occur due to chronic inflammation, malabsorption, and altered intestinal permeability. Ayurvedic hepatoprotective formulations may therefore have supportive benefits in restoring metabolic homeostasis.

An important observation in the present case was the substantial reduction in tTG-IgA levels from 137.8 AU/ml to 7.29 AU/ml after treatment and dietary regulation. The holistic efficacy of the *Ayurvedic* approach addresses both gastrointestinal dysfunction and systemic inflammation.[ix] Although strict gluten avoidance remains the cornerstone of celiac disease management, the marked decline in antibody levels along with symptomatic improvement suggests that Ayurvedic interventions may enhance gastrointestinal recovery and reduce systemic inflammatory burden. The normalization of inflammatory markers such as ESR and improvement in liver function tests further support this observation.

The patient also showed improvement in subjective parameters such as appetite, bowel regularity, abdominal pain, pallor, and fatigue. These changes indicate improved digestion and nutrient assimilation. Interestingly, pica, which is often associated with micronutrient deficiencies and chronic malabsorption, also subsided gradually during treatment. This reflects the possible correction of underlying nutritional and metabolic disturbances through restoration of Agni and intestinal function.

Another noteworthy aspect of the present case is the absence of adverse effects during the treatment period. Renal and hepatic function tests remained within normal limits throughout therapy, suggesting the safety of the prescribed Ayurvedic formulations when administered in appropriate pediatric doses under clinical supervision. This finding is clinically important because long-term management strategies are often required in chronic pediatric disorders.

The present case highlights the integrative potential of Ayurveda in managing chronic gastrointestinal disorders such as celiac disease. While gluten-free diet remains indispensable, Ayurvedic therapy may provide additional benefits in symptom control, digestive restoration, and quality of life improvement.

The concept of Agni restoration and Ama Pachana offers a holistic framework for understanding malabsorption syndromes within Ayurveda.

CONCLUSION

The present case study suggests that Ayurvedic management may provide beneficial supportive care in pediatric celiac disease correlated with Grahani Dosha. The combination of Deepana-Pachana therapy, Matra Basti, and gluten-free dietary regulation resulted in significant improvement in gastrointestinal symptoms and general health status. A marked reduction in tTG-IgA levels and normalization of laboratory parameters were also observed after treatment. Restoration of Agni, digestion of Ama, and correction of Vata imbalance appear to be the key therapeutic mechanisms involved. Further large-scale clinical studies are required to validate the efficacy and safety of Ayurvedic interventions in celiac disease.

REFERENCES

[i] Daley SF, Haseeb M. Celiac Disease. [Updated 2025 Feb 4]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK441900/

[ii] Arendt EK, Dal Bello F. Functional cereal products for those with gluten intolerance. In: Hamaker BR, editor. *Technology of functional cereal products*. Woodhead Publishing Series in Food Science, Technology and Nutrition. Cambridge: Woodhead Publishing; 2008. p. 446–475. doi:10.1533/9781845693886.2.446.

[iii] Salarian L, Khavaran M, Dehghani SM, Mashhadiagha A, Moosavi SA, Rezaeianzadeh S. Extra-intestinal manifestations of Celiac disease in children: their prevalence and association with human leukocyte antigens and pathological and laboratory evaluations. BMC Pediatr. 2023 Jan 4;23(1):8. doi: 10.1186/s12887-022-03826-w. PMID: 36597078; PMCID: PMC9811781.

[iv] Singh P, Arora A, Strand TA, et al. Global prevalence of celiac disease: systematic review and meta-analysis. Clin Gastroenterol Hepatol 2018;16:823–836.

[v] Ramakrishna BS et al., Prevalence of Adult Celiac Disease in India: Regional Variations and Associations. Am J Gastroenterol. 2016 Jan;111(1):115-23. doi: 10.1038/ajg.2015.398. Epub 2016 Jan 5. PMID: 26729543.

[vi] Vishnu Kanth S1 Harihara Prasad Rao, A review study of the role of Hingvastaka Churna in Agnimandya, JETIR September 2023, Volume 10, Issue 9, g229-244.

[vii] Punam kumara at al.,lavana bhaskar churna – An Ayurvedic formulation used in the Treatment of gastric intestinal disease: A review, IAMJ, march 2025, p-717-724.

[viii] Anil kumar Sharma at al., Evalution of Hepatoprotective efficacy of polyherbal formulation “Amlycure DS on antitubercular (ATT) drug induced Hepatotoxicity, Asian Journal of Biochemical and Pharmaceutical Research Issue 3 (Vol. 5) 2015.

[ix] Dr Hemant Rajpurohit et al., Exploring The Ayurvedic Perspective of Gut Health and Its Correlation with Mental Well-Being, Afr. J. Biomed. Res. Vol. 27, No.3s (September) 2024 ISSN: 1119-5096