Panchakarma in autoimmune pancreatitis: A single-case study

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Abstract

Autoimmune pancreatitis (AIP) is the pancreatic manifestation of a systemic fibro-inflammatory disorder. AIP is a unique form of pancreatitis in which autoimmune mechanisms are suspected to be involved in the pathogenesis. AIP is a rare disorder, its exact cause is unknown, but it is thought to be caused by the body’s immune system attacking the pancreas and it responds to steroid therapy only. In Ayurveda, although there is no synonym for AIP, but has a resemblance in clinical features of Grahani Dosha (derangement of duodenum and intestine). The cause of Grahani Dosha is Mandagni (hypofunctioning of Agni) and Panchakarma therapy increases Agni. As per Charaka Samhita, treatment for Grahani Dosha amongst the Panchakarma therapy is Virechana (therapeutic purgation) and Basti (medicated enema). The present case report is of a 30-year-old female, diagnosed as case of AIP with multisystem involvement with increased level of immunoglobulin G (IgG), glycosylated hemoglobin (HbA1c), cholesterol, triglycerides, low-density lipoprotein (LDL) and body mass index (BMI). The patient was on anticholinergic agents, antacids, levothyroxine, multivitamin along with iron and antihistamine drugs since 1 year, but with not much relief. Patient was treated with classical Virechana and Madhutailika Basti. It was observed after the completion of therapy, that there was decrease in IgG, HbA1c, S. cholesterol, S. triglyceride, low density lipoprotein (LDL) and body mass index (BMI). This shows that Virechana and Basti play a significant role in patient with associated with other disorders.

Keywords: Autoimmune pancreatitis, Grahani Dosha, Madhutailika Basti, Panchakarma, Virechana

Introduction

Autoimmune pancreatitis (AIP) is a rare form of chronic pancreatitis that has only recently been recognized as a separate type of pancreatitis in the last two decades. The histopathological features of this distinct form of pancreatitis was first described as early as 1961 when Sarles et al.[1] described a type of sclerosing pancreatitis associated with hypergammaglobulinemia. Subsequently, most of the early literature about AIP came from Japan where the concept of AIP was first proposed in 1995.[2] Thereafter, many authors had reported a form of chronic pancreatitis associated with Sjögren’s-like syndrome. The definition of AIP was widely accepted and AIP was differentiated from other types of chronic pancreatitis. An increasing awareness and further research of AIP have indicated that it is a heterogeneous disorder with variations in pathophysiology, genetic predisposition, and extra-pancreatic manifestations compared to chronic pancreatitis.[3,4] In 2001, scientist reported increased serum levels of immunoglobulin G (IgG4) in patients with AIP.[5] Subsequently, in 2004, a critical milestone was reached when the researcher found intensely positive IgG4 cells in extrapancreatic organ systems in AIP patients.[6] Thus, the concept of IgG4-related systemic disease emerged. Type 1 AIP is now considered to be a pancreatic manifestation of IgG4-related disease whereas Type 2 AIP appears to be a pancreas specific disorder. The estimated prevalence in Japan, where AIP was first described, is 0.82/100,000 persons.[7] Japanese series have estimated the prevalence of AIP in patients with chronic pancreatitis to be between 5% and 6%. Several series in the United States have reported that 2%–3% of pancreatic resections had evidence of AIP at pathologic

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Type 1 AIP is the most common form worldwide, accounting for almost all cases in Japan and Korea and more than 80% of cases in Europe and the United States. Diabetes mellitus (DM), usually Type 2, is often (41% or 76% of cases) associated with it. In many cases, the diagnoses of DM and AIP are made simultaneously; some patients show exacerbation of pre-existing DM with the onset of AIP.

In Ayurveda, *Agni* (factors for digestion and metabolism) is given prime importance in pathogenesis of the disease. *Grahaṇi* (small intestine) is an anatomical structure situated between *Amashaya* (stomach) and *Pakwashaya* (large intestine). Its physiological importance is due to its interdependence on *Agni*. *Grahaṇi Dosha* refers to *Grahaṇyashrīta Agni dosha* (mal functioning of *Agni* at intestine level). In *Grahaṇyashrīta Dosha* indigestion of food occurs and symptoms like *Vishhtamba* (improper defecation), *Praseka* (nausea), *Arti* (pain), *Vidaha* (burning sensation) and *Aruchi* (dyspepsia) and *Gaurava* (heaviness) develops.

In light of the Ayurvedic principles, the present case was treated for the management of AIP with multisystem disorder not responding to conventional therapy by utilizing the two arms of *Panchakarma*, i.e., *Virechana* (therapeutic purgation) and *Basti* (therapeutic enema). In the gastrointestinal tract, *Virechana* is reported to be more effective, as it eliminates aggravated *Pitta* and *Kapha Dosha* from the body. *Basti* is being used to pacify *Vata*, it also impart mild cleansing effect on the gastrointestinal tract.

### Patient Information

A 30-year-old female, a home maker of Indian origin residing in America approached *Panchakarma* OPD of Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar, Gujarat, India, on December 30, 2015 with the episodes of recurrent abdominal pain. The pain increased after taking fatty meal that would persist for at least 5–6 h, usually at night, and usually preceding with episodes of vomiting and 5–7 loose stools. The pain was so severe that the patient was unable to take a sip of water and would just sit in the bending position for several hours. There was difficulty in carrying out the daily chores due to weakness and fatigue. Also, she had anorexia and fear of taking fatty food. On physical examination, the patient was obese, anxious, pale with dry skin, had coated tongue and pedal edema. On abdomen examination, there was mild tenderness over the umbilical region. The patient had *Pitta* predominant *Kapha Prakrīti* and had a past one year history of chronic cholecystitis with cholelithiasis, for this cholecystectomy was done. Subsequently, she was diagnosed for type 2 diabetes, metabolic syndrome and hypothyroidism with Vitamin B₁₂ and iron deficiency. The patient was nonalcoholic and nonsmoker. There was no significant family history. When the patient came for consultation, the patient was on anticholinergic agents, antacids, levothyroxine, multivitamin along with iron, and antihistamine medicines since 1 year, but with not much relief [Table 1].

### Ayurvedic management

The patient was assessed as per *Dashavidha Parikṣhya Bhava* (ten examination tools) before planning the *Panchakarma* treatment. No concurrent conventional medication was administered during this period except for hypothyroid. Ayurvedic management started with *Deepana-Pachana* (carminative and digestive) for 3 days with *Phātṛikādi deccotion*, *Shivakshāra Pachana* powder, and *Dhanyakidda Siddha Jala* (medicated water prepared with coriander). On 4th day *Snehapana* (internal oleation) with *Tiktaka Ghṛita* in increasing dose was administered for 4 days. After assessing *Samyaka Snidhha Lakṣasna* (signs of proper oleation), 3 days gap was given. In gap days, *Savyanga Abhyanga* (external oleation) with *Kshirabala Taila* and *Swedana* (fomentation) was done. On the 11th day, *Virechana* was administered with *Avipattikara* powder after performing the ritual of prayer. The patient reported total 14 Vegas (stool frequency) along with *Samyaka Virechana Lakṣasna* (signs of proper purgation). *Samsharjana* (special light diet) was advised for 5 days according to type of *Shuddhi* (purification). After *Samsharjana*, *Madhutalikī Bastī* was administered with classical *Putaka* (a brass nozzle attached to polythene bag) method for 5 days [Table 2].

### Outcome

The patient was followed up telephonically for a period of 6 months. Effect of therapy was assessed based on physical symptoms, laboratory parameters, and quality of life (QoL) parameters. After therapy, the patient did not report the recurrence of pain till 6 months. Overall condition of the patient improved as there was weight loss, improvement in digestion, no pedal edema, and skin became radiant. The patient became self-dependent in carrying out routine of daily work without any lethargy. Body mass index decreased from 32.8 to 31.22 kg/m². Laboratory investigations showed significant changes like decrease of glycosylated hemoglobin from 6.4 to 5.98 within 3 weeks. IgG₄ also showed slight decrease in level which was 4.65 before the treatment and 4.19 after the treatment. Lipid levels also showed a significant decrease within 3 weeks of Ayurveda treatment. QoL parameters showed improvement after *Panchakarma* therapy as per SF-12 scale [Table 3].

### Discussion

AIP with hypothyroidism, dyslipidemia, type 2 diabetes, fatty liver and obesity can be considered as multisystem involvement. In Ayurveda, it can be considered under umbrella cover of *Grahaṇi Dosha*.

*Agni* has an important role in the physiological functioning of body. *Agni* by the virtue of *Sukṣma Guna* (subtle in nature) converts *Ahara Dravya* (food particles) into *Ahara-Rasa* (essence of food) and with the help of *Dhatvagni* (tissue metabolism), the *Poshakansha* (nourishing part) is made available to body and thus digestion, absorption and assimilation is maintained which is important for the maintenance of life.
Patient had complaints of sudden, acute and intense pain in the upper right abdomen, nausea and vomiting. Patient was admitted in Dayton Gastroenterology Hospital, Sylvania Drive, Beavercreek, Ohio, USA. Computed tomography (CT) scan - abdomen and pelvis was done which revealed chronic cholecystitis with cholelithiasis and fatty infiltration of liver.

May 2014
An episode of abdominal pain and admitted for further management in nuclear medicine (NM) gallbladder scan indicated as abnormal. Patient had a relapse, physician advised procedure EUS (esophagogastroduodenoscopy) with biopsy and EUS (upper gastro-intestinal tract) finding revealed-pancreas showed several hyperechoic foci and strands with lobularity of parenchyma in head and body region. Pancreatic duct showed normal caliber with few hyperechoic margins in body region.

Postoperative diagnosis was chronic pancreatitis versus resolving acute pancreatitis (May 28, 2014)

June 2015
Patient had a relapse, physician advised procedure EUS (esophagogastroduodenoscopy) with biopsy and EUS (upper gastro-intestinal tract) finding revealed-pancreas showed several hyperechoic foci and strands with lobularity of parenchyma in head and body region. Patient was unwilling for admission.

Pancreatic duct showed normal caliber with few hyperechoic margins in body region.

Her BMI was 32.61 kg/m², was advised for 5 days gradually. Patient reported 14 days of pancreatic pain with precautions (signs of proper oleation), 4 days of gap was given.

October 2015
Symptoms of acute pancreatitis reappeared and managed with lipase protease amylase and tetracycline. Oesophageal reflux was present. Patient was also diagnosed with type 2 diabetes. Mild rash developed on whole body due to allergy to these drugs.

Dec 2015
Patient had a relapse, physician advised procedure EUS (esophagogastroduodenoscopy) with biopsy and EUS (upper gastro-intestinal tract) finding revealed-pancreas showed several hyperechoic foci and strands with lobularity of parenchyma in head and body region.

Table 1: Course of the disease

| Period          | Incidence/investigations                                                                 | Interventions                                                                                       |
|-----------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| December 30, 2015 | Patient approached **Panchakarma** OPD of IPGT and RA Hospital, Jamnagar for exploring Ayurveda treatment option for her precautions. No acute features of pancreatitis were present, so planned for **Panchakarma** with precautionary measures. | **Deepana-Pachana** for 3 days with **Phalatrikadi** decoction - 30 ml twice a day (preferably 7 a.m.-7 p.m.) on empty stomach. |
| December 31, 2015 | On assessment of **Koshtha** (gut reactivity/behaviour), **Deepana-Pachana** (carminative-digestive) advised investigations. IgG - 4.56%, HbA1c - 6.4%, S. cholesterol - 160.2 mg/dl, serum triglycerides - 216.1 mg/dl, LDL - 70 mg/dl, HDL - 30 mg/dl, BMI - 32.8 kg/m². | **Shivakshara Pachana** powder - 3 g twice a day after food with luke warm water. **Dhanayaka Siddha Jala** (medicated water prepared with coriander seeds) to drink whenever patient feels thirsty. |
| January 3, 2016 | After **Deepana-Pachana**, **Snehapana** (internal oleation) was given. **Virechana** was administered. | **Snehapana** with **Tiktaka Ghrita**. Dose on 1st day - 30 ml, 2nd day - 45 ml, 3rd day - 60 ml and 4th day - 100 ml (rice gruel), **Abhyanga** (whole body massage) with **Kshirabala Taila** and **Swedana** (hot fomentation). |
| January 7, 2016 | On confirming **Samyaka Snehapana Lakshanas** (signs of proper oleation), 3 days of gap was given. | **Virechana** with **Avipattikara** powder (25 g) + honey. |
| January 10, 2016 | After completion of gap days on 4th day **Virechana** was administered. Patient reported 14 days of pancreatic pain with precautions (signs of proper oleation), 4 days of gap was given. | **Virechana** with **Avipattikara** powder (25 g) + honey. |
| January 11, 2016 | According to type of **Shuddhi**, **Samvargana Krama** (special light diet) was advised to the patient. | Special diet of **Peya** (rice gruel), **Vilepi** (thick rice gruel), **Mudgayusha** (green gram gruel) and **Khichadi** (thick gruel prepared with rice and green gram lentil) was advised for 5 days gradually. |
| January 16, 2016 | On completion of **Virechana**, course of **Madhutailika Basti** for 5 days was administered. | Ingredients of **Madhutailika Basti** are decoction of **Erandmoola** (roots of **Ricinus communis** L.) - 350 ml paste of **Guduchi** (**Tinospora cordifolia** (Thunb.) Miers.) - 15 g, **Dhanvantara** oil - 45 ml. **Honey** - 45 ml. **Saindhava** (rock salt) - 5 g. |

Contd...
### Table 2: Contd...

| Period          | Incidence/investigations                                                                 | Interventions                              |
|-----------------|-----------------------------------------------------------------------------------------|--------------------------------------------|
| January 21, 2016 | There was weight loss, improvement in digestion, no pedal oedema and skin became radiant | Samshamani Vati (250 mg) 2 tablets twice a day after food for 3 months was advised with modifications in lifestyle |

HbA1c: Glycosylated hemoglobin, LDL: Low density lipoprotein, HDL: High density lipoprotein, BMI: Body mass index, IgG: Immunoglobin G, S. Cholesterol: Serum cholesterol, S. triglycerides: Serum triglycerides

### Table 3: Effect on quality of life parameters

| QoL domains          | Before treatment | After treatment |
|----------------------|------------------|-----------------|
| Physical health      | 32               | 60              |
| Psychological        | 38               | 70              |
| Social relationship  | 29               | 72              |
| Environment          | 40               | 65              |

QoL: Quality of life

Grahani is an anatomical structure situated above Nabhi (naval) and the physiological importance is due to its interdependence on Agni. Among various causes, improper lifestyle is the prime factor leading to impairment of Agni causing Mandagni (weak digestive power) which is the main pathology involved in Grahani Dosha. Grahani Dosha is the disease related with gastrointestinal disorder. This condition usually develops due to irregular dietary habit such as over-eating; more ingestion of cold, heavy, dry, fried and dehydrated food. A wide variety of gastrointestinal symptoms such as loss of appetite, abdominal pain, nausea, vomiting, and constipation is reported in Grahani Dosha. When digested or indigested food is invariably voided. Through stool, the condition is described as Grahani Roga. Grahani Roga is considered as the advanced stage of Grahani Dosha.

In treatment of Grahani, if Pakwashayasth Doshas remain in Leenavastha (the deep seated Doshas) then Sramsana (mild laxative) should be adopted with Deepana Dravya (carminative drugs). If Sama Rasa Lakshanas are produced, then Langhana (reducing therapy), Deepana-Pachana, and Virechana should to be adopted. After ascertaining symptoms of Nirama Lakshana (without association of Ama), Agni is stimulated with Snehana (oleation) therapy and Niruha Basti (type of medicated enema) can be administered. Due to unhealthy eating habits, Agni present in the body is unable to properly digest the food. This undigested food may convert to Ama which when combines with Dosa (Vata, Pitta and Kapha) leads to Grahani Dosha. Prolonged faulty eating habits can lead to the recurrent episodes of abolish pain leading to chronicity of the condition. In AIP, Dosa (Vikriti) may stay in Leenavastha (inactive state) during non-acute condition. To break the Samprapti (pathology) of the disease, the drugs must have Deepana-Pachana properties predominantly. Due to accumulation of Dosa in the Grahani in Leenavastha, it may not be treated by Shamana (medicines) only. The Vikriti Doshas are to be expelled from the body which may be achieved by Virechana as the mainstay of the Panchakarma therapy. In the present case study, Virechana was planned as the initial mode of the treatment.

Considering the Dashavidha Pariksha Bhavas, the combination of drugs for Deepana-Pachana was taken so that Agni may get stimulated on one hand with Shivakshara Pachana powder as it is having digestive and carminative property and has Tridosha Shamaka (pacification effect). On the other hand to remove the accumulated Kleda, Phalatriskadi decoction was administered as it is having Kledakara (removes impurities) property. Medicated coriander water was advised during Deepana-Pachana as coriander is having Pitta Shamaka (allleviating Pitta) and Deepana-Pachana properties to prevent any acute attack of pancreatitis. Primary goal to stimulate the Agni was achieved with Deepana-Pachana therapy due to which patient felt lightness in the body and had increased hunger.

**Tiktaka Ghrita** was selected for the Snehapana due to its virtue of alleviating Pitta and Kleda. For Abhyangana, Kshirabala Taila was applied for proper oleation of the skin. Avipatikara powder was administered for Virechana as it is a mild, safe purgative, alleviating Pitta and has no reported adverse effect. As the patient reported 14 Vegas during the Virechana, assessing Shuddhi, on the same day, Peya (rice gruel) was advised as first diet. On next day, two diets of Vilepi (thick rice gruel) were advised. On the 3rd day Akrit Mudgavusha (plain green gram gruel) twice a day was advised. On the 4th day, Krit Mudgavusha (green gram gruel simmered with Ghrita, cumin and salt) was advised as a diet. On the 5th day, Khichadi (thick gruel prepared with rice and green gram simmered with Ghrita, cumin and salt) was given. This procedure was followed to gradually increase Agni to bring the digestive system in a normal state.

Madhutailika Basti is a type of Niruha Basti and as per text can be given at any time to the persons with delicate physique, to remove Dosa as it has no complications, increases the strength and improves the complexion. Further no definite regimen needs to be followed during this course of Basti. Shatatapushpa (Anethum sowa Roxb. ex Fleming) Kalka (paste) in Madhutailika Basti was replaced with Guduchi (Tinospora cordifolia)(Thunb.) Miers.) Kalka to make the Basti milder so that the purpose of mild...
As a result of all these, there was weight loss, improvement in digestion, and complexion of skin with feeling of lightness in the body. It is also worth mentioning that during the 21 days of *Panchakarma* therapy, the patient did not complain of any symptoms and tolerated the therapy without any adverse events.

**Conclusion**

The case report demonstrates clinical improvement in autoimmune pancreatitis (AIP) with *Panchakarma* therapy. As this is the single-case study, it may open a new path to the clinicians and researchers for exploring the *Panchakarma* option for the treatment of autoimmune pancreatitis (AIP).

**Limitations**

To establish the procedure as mode of treatment, large sample size should be taken. The procedure cannot be adopted in all patients as some patients may be averse to take Ghrita. This is an IPD procedure for which the patient needs to be admitted for 3 weeks which may not be feasible for all the patients. These therapies cannot be performed in acute conditions and *Basti* cannot be performed in patients with anal diseases.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for images and other clinical information to be reported in the journal. The patient understands that names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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