

Can yoga be used to treat gastroesophageal reflux disease?

Dharmesh Kaswala, Shamik Shah, Avantika Mishra, Hardik Patel, Nishith Patel, Pravesh Sangwan, Ari Chodos, Zamir Brelvi
Department of Medicine, Division of Gastroenterology, The University Hospital, New Jersey Medical School, University of Medicine and Dentistry of New Jersey, Newark, New Jersey, USA

Address for correspondence: Dr. Shamik Shah,
Department of Medicine, Division of Gastroenterology, New Jersey Medical School, University of Medicine and Dentistry of New Jersey, Newark, New Jersey, USA-07103.
E-mail: drshahshamik@gmail.com

ABSTRACT

Yoga methods including Pranayama are the best ways to prevent many diseases and their progression. Even though, Yoga is widely practiced, its effects on certain medical conditions have not been studied or reported. Gastroesophageal reflux disease (GERD) is one of them. GERD is extremely common condition requiring frequent consumption of over-the-counter or prescribed proton pump inhibitors (PPI). In severe symptoms of GERD and in the presence of multiple etiologies, PPIs are insufficient to relieve the symptoms of gastric reflux. Regular and proper use of the Yoga along with PPI can control the severe symptoms of GERD and can avoid or delay the necessity of invasive procedures. This evidence-based case report focuses on the effects of Yoga on GERD. Our case report showed that regular practice of Kapalbhathi and Agnisar kriya along with PPI, patients with hiatal hernia had improvement in severe symptoms of GERD, which were initially refractory to PPI alone.

Key words: Agnisarkriya; gastroesophageal reflux disease; hiatal hernia; Kapalbhathi; yoga; yoga and proton pump inhibitors.

INTRODUCTION

Gastroesophageal reflux disease (GERD) and related symptoms are the most common gastric problems encountered frequently. Proton pump inhibitors (PPI) have shown the greatest efficacy in relieving GERD symptoms but severe cases of GERD can be refractory to PPIs and becomes difficult to treat with medications. Multiple etiologies are responsible for GERD, such as malfunction of the lower esophageal sphincter (LES), abnormalities in the esophagus, impaired stomach function (gastroparesis), motility abnormalities, hiatal hernia, asthma, diabetes, pregnancy, gastric surgery, genetic factors, and drugs that increase the risk for GERD (non steroidal anti-inflammatory drugs (NSAID), Bisphosphonate etc.).^[1] Depending on the etiology, treatment varies. In the presence of multiple etiologies, particularly hiatal hernia as illustrated in this case, patients can be considered as candidates for fundoplication. PPI combined with yoga can improve symptoms of severe GERD and delay or avoid the need of invasive procedures.

CASE REPORT

A 62-year-old male presented with history of heart burn followed by dysphagia. An endoscopy showed a large hiatal hernia with a nonobstructing peptic stricture proximal to the gastroesophageal junction due to erosive esophagitis. The esophagogastroduodenoscopy (EGD) revealed presence of gastritis and duodenitis. The patient had Grade D esophagitis according to Los Angeles (LA) classification of esophagitis [Table 1]. Initially the patient was started on a high-dose PPI. After 6 months of continuous

Table 1: Los Angeles classification scale for esophagitis

Grading for Esophagitis	Description
Not present	No breaks (erosions) in the esophageal mucosa (edema, erythema, or friability may be present)
Grade A	One or more mucosal breaks confined to the mucosal folds, each not more than 5 mm in maximum length
Grade B	One or more mucosal breaks more than 5 mm in maximum length, but not continuous between the tops of two mucosal folds
Grade C	Mucosal breaks those are continuous between the tops of two or more mucosal folds, but which involve less than 75% of the esophageal circumference
Grade D	Mucosal breaks which involve at least 75% of the esophageal circumference

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treatment, repeat EGD showed LA Grade C esophagitis and persistence of a large hiatal hernia. We used Bravo (Bravo is a pH recording capsule used to measure acidity levels in the esophagus) study to accurately measure acid reflux and correlate it with clinical symptoms by keeping the patient off the PPI regimen temporarily. On a Bravo study, the patients DeMeester score on the 1st day was 81.1 and on 2nd day was 35.1, indicating severity of acid reflux.

The patient was advised to continue treatment of high dose of PPI. In conjunction with PPI the patient began practicing Yoga daily for symptomatic alleviation of his GERD. Regular Yoga exercises included a Kapalbhathi Pranayama and an Agnisar Kriya. After 6 months follow-up EGD revealed hiatal hernia and a nonobstructing peptic stricture just proximal to the gastroesophageal junction but his esophagitis grade improved to Grade A from initial Grade D esophagitis according to LA classification. To confirm these findings we did Bravo study and a repeat EGD after 5 weeks. The Bravo study showed a significant improvement in DeMeester scores; the day one score improved from 81.1 to 12 and the day two score improved from 35.1 to 17. These finding of EGD indicates that the patient had significant symptomatic improvement after 6 months of combined regimen of Yoga and PPI, which were refractory to high dose of PPI alone. His heart burn and dysphagia symptoms improved significantly in terms of both severity and frequency. He did not have nausea, diarrhea, constipation, postprandial fullness, bloating, and any other additional complaints. He had normal bowel movements. All of his blood tests were within normal limits. A follow-up Barium Swallow study was performed and showed normal oral transit time, pharyngeal transit time, reflex time and reflex strength. Biopsies of the stomach and duodenum demonstrated normal results except for chronic gastritis.

This patient has shown the effect of regular practice of a Kapalbhathi Pranayama and Agnisar Kriya on severe GERD. After adding regular Yoga exercises to the ongoing treatment of high dose PPI, he had dramatic clinical improvement evidenced by both the reduction of Bravo scores and improvement in esophagitis grading.

DISCUSSION

The pathogenesis and severity of GERD is predominantly attributed to anatomic and physiologic LES dysfunction including transient LES relaxations, a chronically hypotensive LES and effect of hiatal hernia on sphincteric function. Mild to moderate non-erosive reflux disease is most common due to transient LES relaxation. More severe GERD including erosive esophagitis is usually associated with a hypotensive LES or hiatal hernia. GERD patients have a greater amount of reflux during transient LES relaxations (60-70%) compared with normal

subjects (40-50%), although with an unclear mechanism.^[2] They experience a higher frequency of liquid reflux events, a qualitative difference in reflux content, a greater cross-sectional opening of the esophagogastric junction, higher liquid flow rates across the esophagogastric junction, and are suspected to have higher numbers of relaxations in association with transient LES relaxation episodes compared to controls.^[2] Even with PPI therapy, a large percentage of patients do not achieve full symptomatic relief and can worsen to esophagitis, esophageal ulcers, strictures, laryngeal disease, chronic cough, Barrett's esophagus, and adenocarcinoma. Patients who have symptoms refractory to PPI therapy may benefit from adjunctive therapy such as yoga, which can be carefully employed to control the patient's GERD symptoms.^[3]

Recently, the positive impact of yoga has been seen in studies on functional dyspepsia, irritable bowel syndrome, and inflammatory bowel disease.^[4-6] Forms of yoga like, Kapalbhathi and Agnisar kriya may be particularly useful in addressing GERD as they can increase diaphragmatic tone, thus decreasing reflux from the stomach to esophagus. Kapalbhathi is one of 10 types of Pranayama (breathing control techniques), in which inspiration is passive and expiration is active through abdominal muscles, in order to clear the respiratory passage and strengthen the diaphragm. Agnisar Kriya is a method of contracting or "flapping" abdominal muscles in and out in order to promote improved digestion and gastrointestinal motility.^[7] The combined practices of Kapalbhathi and Agnisar Kriya yoga have found to increased diaphragmatic tone and lead to reduced transient LES relaxation and increased LES tone. This synergistic effect can thereby decrease the reflux episodes experienced in GERD.

Yoga may also be beneficial in alleviating GERD through impacting autonomic nervous system which limits the ability of the gastrointestinal tract to continue peristaltic contractions and prevents appropriate fluid and secretion shifts needed for digestion. During yoga practice, a relaxation response seems to be mediated through a reduction in epinephrine and response from end-organs.^[8] Physiological changes in this relaxation response include simultaneous lowering of heart rate, blood pressure, and respiratory rate, which are opposite manifestations of physiological stress. Increase in stress has shown to increase gastric-acid secretion, this is a direct risk factor for developing peptic ulcer.^[9] On the other hand, as yoga decreases the stress response of the digestive tract, this may be seen as a potential treatment option for GERD and peptic ulcer.

CONCLUSION

Practicing yoga in conjunction with medications can be helpful in controlling and/or alleviation of symptoms related to digestive diseases.

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