

[CASE REPORT]

A Rare Case Involving the Inability to Belch

Hiroki Sato, Shunzo Ikarashi and Shuji Terai

Abstract:

A 17-year-old girl was referred to our hospital with an inability to belch, while experiencing chest gurgling noises, and severe abdominal bloating. She reported having these symptoms all her life. A timed barium esophagogram revealed a moderate amount of bubbles in the esophagus and gastric fundus, which significantly increased after the examination. High resolution manometry revealed that the basal upper esophageal sphincter pressure increased with a rise in the cervical esophageal pressure. A pathological inability to belch is rare; at present, no specific name exists to describe the disorder. Further research is needed in this unexplored field.

Key words: belch, burp, high resolution manometry, barium swallow

(Intern Med 58: 929-931, 2019)

(DOI: 10.2169/internalmedicine.1908-18)

Introduction

A case involving the inability to belch is rare, and only three existing case reports have documented this clinical feature (1-3). The belching reflex requires cooperative relaxation of the upper esophageal sphincter (UES) and lower esophageal sphincter (LES), although the exact physiology involved is not fully understood (4). The pathology is considered to be either an inadequate afferent signal from the stretch receptors in the esophageal body or aberrant inter-neural processing of the afferent signal heading to the medulla. At present, no specific name exists to describe the pathological inability to belch. Further research is needed in this unexplored field.

Case Report

A 17-year-old girl, with no remarkable medical and family history, was referred to our hospital with an inability to belch despite feeling the need to do so, while experiencing chest gurgling noises, and severe abdominal bloating. She reported having these symptoms all her life, and the inability to belch had aggravated her concurrent severe abdominal bloating over the past year. She avoided carbonated beverages because they tended to exacerbate her chest distress and abdominal bloating. At school, the sitting position and

frequent exercise also aggravated her symptoms, forcing her to bend backwards on a chair and abstain from physically demanding activity. Lying in a supine position alleviated her symptoms; thus, she often went to the school infirmary. Moreover, gurgling noises emanating from the chest randomly occurred when she felt gaseous movement across her chest, causing her extreme anxiety while in public.

A physical examination and laboratory tests revealed no specific findings. A timed barium esophagogram showed a moderate amount of bubbles in the middle esophagus and gastric fundus. These bubbles significantly increased after the examination (Fig. 1). High resolution manometry (HRM) (in the supine position) revealed that the basal UES pressure increased with a rise in the cervical esophageal pressure (Fig. 2), and UES relaxation was never elicited by repeated deglutition.

Discussion

This report is the first to present the findings of HRM in such a rare case. HRM revealed the elevated pressure of the UES and cervical esophagus; however, this may be considered a secondary change owing to the presence of pooled air. A timed barium esophagogram is an easy and effective way to show the characteristic pooled bubbles of this disorder. Another option involves direct air injection into the esophagus or stomach and investigation of whether belching

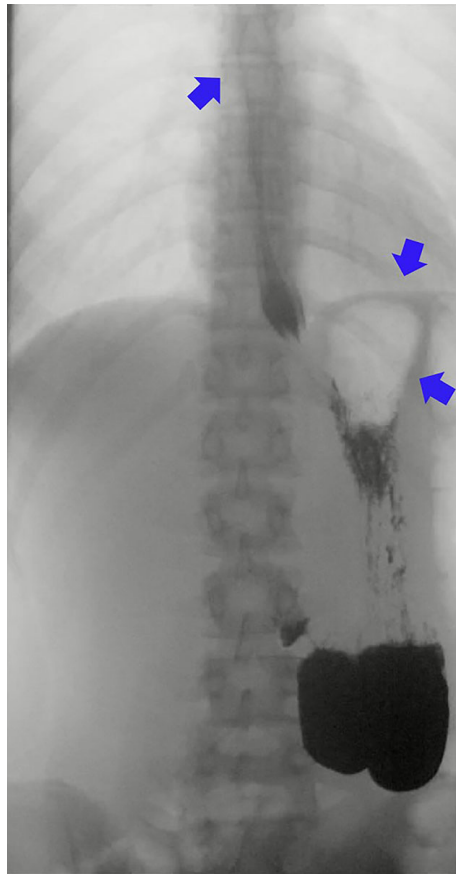


Figure 1. The initial timed barium esophagogram (not including sodium bicarbonate), showed a moderate amount of bubbles in the esophagus and gastric fundus. The bubbles significantly increased after the examination (blue arrows). Barium passed smoothly through the esophagogastric junction, although some barium remained stagnant in the middle to lower esophagus.

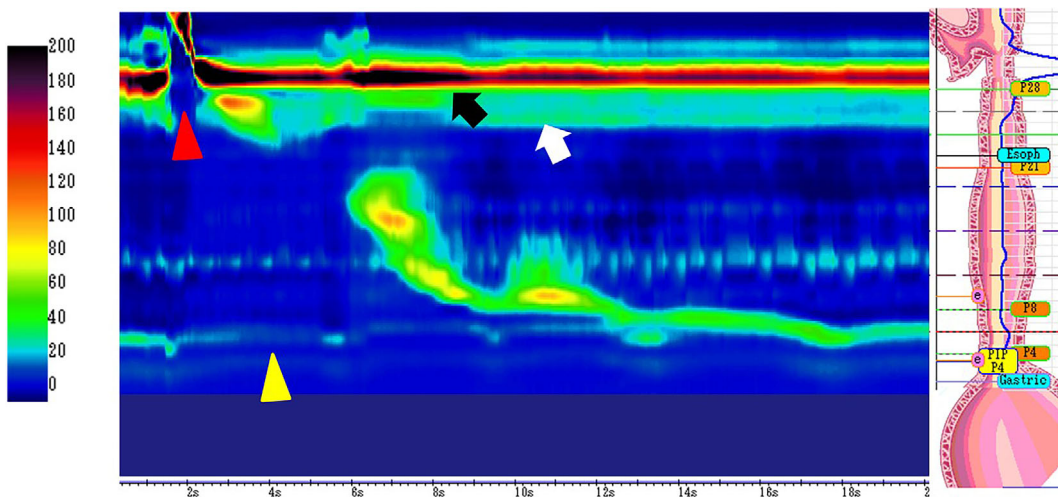


Figure 2. High resolution manometry (Starlet; StarMedical, Tokyo, Japan) revealed complete upper esophageal sphincter (UES) opening (red triangle), normal peristalsis, and normal lower esophageal sphincter relaxation (yellow triangle) in response to deglutition. The basal UES pressure increased (black arrow) with the increase of the cervical esophageal pressure (white arrow), and UES relaxation was never elicited after repeated deglutition with esophageal and gastric distention.

occurs. However, such an examination may cause severe discomfort.

Possible treatment options may include cricopharyngeal myotomy, botox injection into the UES, or fundoplication,

although the effects of such interventions for such a disorder are uncertain. In our case, bending backwards or lying in a supine position stimulated gas to move to the small intestine and alleviated symptoms. Thus, it is considered important for her relatives and friends to understand the features of her disease and allow her to alleviate pain by bending backwards or to lie in a supine position during the course of her social life.

The authors state that they have no Conflict of Interest (COI).

References

1. Kahrilas PJ, Dodds WJ, Hogan WJ. Dysfunction of the belch re-

flex. A cause of incapacitating chest pain. *Gastroenterology* **93**: 818-822, 1987.

2. Waterman DC, Castell DO. Chest pain and inability to belch. *Gastroenterology* **96**: 274-275, 1989.

3. Tomizawa M, Kusano M, Aoki T, et al. A case of inability to belch. *J Gastroenterol Hepatol* **16**: 349-351, 2001.

4. Kahrilas PJ, Dodds WJ, Dent J, Wyman JB, Hogan WJ, Arndorfer RC. Upper esophageal sphincter function during belching. *Gastroenterology* **91**: 133-140, 1986.

The Internal Medicine is an Open Access journal distributed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view the details of this license, please visit (<https://creativecommons.org/licenses/by-nc-nd/4.0/>).

© 2019 The Japanese Society of Internal Medicine
Intern Med 58: 929-931, 2019