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Postprandial bloating after laparoscopic Nissen fundoplication: A cause of comorbidity?

We read with interest the article by Anvari and Allen (*Can J Surg* 2001;44:440-4) on postprandial bloating after Nissen fundoplication, which describes the prevalence and possible contributing factors in 578 patients suffering from gastroesophageal reflux disease (GERD) before and after laparoscopic Nissen fundoplication. As their data show, 73% of the patients reported some postprandial bloating before the procedure. In general, laparoscopic antireflux surgery was able to improve the severity of bloating in most patients during the 5-year follow-up. No significant correlations were found between the 24-hour pH values or lower esophageal sphincter basal pressures and different scorings of postprandial bloating. Additionally, they could not find any significant differences concerning dysphagia scores and bloating 2 years postoperatively. They concluded that bloating is a very common symptom in patients with GERD, and proposed several factors as the cause of this symptom, such as aerophagia, delayed gastric emptying or the patient's heightened perception of gastric filling.

We totally agree with Anvari and Allen that bloating and other gas-related symptoms are common in patients suffering from GERD. As previously shown in one of our own studies,[1] gas-related symptoms are extremely common, especially in patients who have GERD and concomitant aerophagia. There is evidence[2] that patients with GERD may swallow air, which can produce belching, bloating and subsequent reflux. In contrast, reflux of gastric contents into the esophagus can trigger multiple dry swallows in a partly unknown and reflex attempt to enhance acid clearance,[3] which can result in gas-related symptoms.

In patients who had GERD with concomitant aerophagia, we found a significantly higher percentage who had impaired esophageal motility, with objectively and subjectively dominant reflux in the upright position and a strong belief that stress had some bearing on their symptoms, than in patients without aerophagia. Factors such as lower esophageal sphincter pressure and DeMeester score did not differ between these 2 groups. Some of these results correspond with other reported findings.[3,4] Laparoscopic antireflux surgery in patients with and without concomitant aerophagia reduced GERD-related symptoms significantly and improved patients' quality of life. In contrast to patients without aerophagia, the subjective improvement in severity of symptoms was less in patients with aerophagia. Further, patients with aerophagia rated postoperative dysphagia as more intense without any objective explanation.

We concluded that complete symptomatic relief might be the result of a physiologic correction by antireflux surgery: there is no further trigger effect of acid reflux leading to multiple dry swallows enhancing esophageal clearance. In patients with continuing gas-related symptoms, we believe that factors such as stress and other psychological disorders affect these symptoms.[4,5] What we would like to know is, did Anvari and Allen find any comorbid conditions in those patients with a worsening or continuation of bloating postoperatively?

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(Dr. Anvari replies)

Dr. Kamolz and his colleagues have highlighted some of their recent findings with respect to gas-related symptoms in patients with gastroesophageal reflux disease and the effect of laparoscopic Nissen fundoplication. Of interest is the role of aerophagia, triggered by the presence

of refluxate in the esophagus, in causing a sensation of bloating and excessive belching unrelated to meals. The fact that patients with significant aerophagia are found to have more complex disease and manifest more motility disorders supports our theory that heightened sensory signals and central processing of the signals may play a significant role in the sensation of bloating and other gas-related symptoms in patients with gastroesophageal reflux disease (GERD). Their observation supports our study, which found that laparoscopic Nissen fundoplication was an effective antireflux treatment in such patients and that the presence of severe gas-related symptoms in patients with GERD is not a contraindication to surgery.

In response to Dr. Kamolz's question with respect to any comorbidities that may be associated with worsening of bloating after surgery, unfortunately we did not find any specific comorbidity in these patients. We are currently involved in evaluating a number of specific factors, such as processing of afferent vagal sensory inputs from the stomach and esophagus and the impact of stress, as well as the specific role of aerophagia in the etiology of gas-related symptomatology.

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CLINICAL PRACTICE GUIDELINES
FOR THE CARE AND TREATMENT OF
BREAST CANCER

eCMAJ *Update*

In February 1998 *CMAJ* and Health Canada published 10 clinical practice guidelines for the care and treatment of breast cancer, along with a lay version designed to help patients understand more about this disease and the recommended treatments. These guidelines are currently being revised and updated, and the series is being extended to cover new topics. The complete text of the new and updated guidelines is available at *eCMAJ*:

www.cmaj.ca (Publications, Breast Cancer Guidelines)

REVISED:
Guideline 5: The management of ductal carcinoma in situ (DCIS) [Oct. 2, 2001]
Guideline 7: Adjuvant systemic therapy for women with node-negative breast cancer [Jan. 23, 2001]
Guideline 8: Adjuvant systemic therapy for women with node-positive breast cancer [Mar. 6, 2001]
Guideline 10: The management of chronic pain in patients with breast cancer [Oct. 30, 2001]

NEW:
Guideline 11: Lymphedema [Jan. 23, 2001]
Guideline 12: Chemoprevention of breast cancer [June 12, 2001]
Guideline 13: Sentinel lymph node biopsy [July 24, 2001]
Guideline 14: The role of hormone replacement therapy in women with a previous diagnosis of breast cancer [Apr. 16, 2002]