The Interface

HOARSENESS:
A Sign of Self-induced Vomiting?

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This ongoing column is dedicated to the challenging clinical interface between psychiatry and primary care—two fields that are inexorably linked.

ABSTRACT

Acid reflux, which is the entry of acidic gastric contents into the upper gastrointestinal tract, may manifest as two clinical syndromes—gastroesophageal reflux and/or laryngopharyngeal reflux. The latter syndrome, laryngopharyngeal reflux, is associated with the symptom of hoarseness. In the literature on eating disorders, according to general articles on medical complications, case reports, review articles on reflux, and empirical research, patients with self-induced vomiting (e.g., anorexia nervosa binge-eating purging type, bulimia nervosa purging type) are at risk for acid reflux, potentially culminating in either reflux syndrome. Because of the unique voice effects encountered with laryngopharyngeal reflux, hoarseness may be an indistinct clinical indicator of an eating-disorder syndrome characterized by self-induced vomiting—particularly when present in a young female of normal weight or underweight status. Thus, hoarseness in young women may suggest an eating disorder, both in psychiatric and primary care settings.

KEY WORDS

Anorexia nervosa, bulimia nervosa, eating disorders, gastroesophageal reflux, hoarseness, larnygopharyngeal reflux, purging, voice

INTRODUCTION

The traditional eating disorders, anorexia nervosa and bulimia nervosa, are eating pathologies that demonstrate a 12-month prevalence rate of 0.1 percent in children ages 8 to 15 years of age,[1] and an estimated lifetime prevalence rate of five percent.[2] These disorders are most common in young women.[3] The restricting type of anorexia nervosa is the least common eating pathology, indicating that a substantial proportion of individuals with eating disorders suffers from either anorexia nervosa binge-eating/purging type or bulimia nervosa purging type. Note that both of these latter disorders are frequently characterized by weight management through self-induced vomiting.

A number of upper-gastrointestinal complications due to repetitive self-induced vomiting have been reported. These include oral and/or pharyngeal irritation, parotid and submandibular gland enlargement, and erosion of the dentition (i.e., perimylolysis).[3] However, the potential effects of self-induced vomiting on the larynx (i.e., laryngitis accompanied by hoarseness) are infrequently discussed and are the focus of this edition of The Interface.

In this edition, we briefly review two common acid-reflux syndromes, present documented associations between self-induced vomiting in eating disordered individuals and acid-reflux syndromes, and discuss the potential laryngeal complications of self-induced vomiting (i.e., hoarseness). Finally, we suggest that hoarseness in the presence of the associated demographic variables (young female) may indicate the presence of an eating disorder.

SYNDROMES CAUSED BY ACID REFLUX

Acid reflux is defined as the exposure of the acidic gastric contents to the upper gastrointestinal tract. This unintended exposure may affect the esophagus and/or pharynx, and has culminated in the identification of two distinct syndromes. The most well-known syndrome related to acid reflux is gastroesophageal reflux (GERD), in which the acidic gastric contents directly affect the esophagus. The symptoms associated with GERD may include heartburn, chest pain, regurgitation, acidic taste, belching, difficulty swallowing, and bad breath. GERD symptoms are relatively common in community samples. For example, Locke et al[4] examined the prevalence rates of weekly heartburn and/or acid regurgitation in a Minnesota community sample of 2,200 individuals between the ages of 25 and 74 years. These authors reported rates of 20 percent. In a study of 2,789 community dwellers in China, the rate of symptomatic gastroesophageal reflux was 17 percent.[5] Thus, data from community samples indicate that approximately one in five adults may suffer from GERD, suggesting that such symptoms are relatively common in the general adult population.

In addition to the acid-reflux syndrome of GERD, acid reflux may affect the areas of the pharynx and larynx, which is referred to as laryngopharyngeal reflux (LPR). When the acidic contents of the stomach come into contact with these areas, the vocal cords and surrounding tissues may be affected, resulting in hoarseness or a related voice disorder. Common symptoms of LPR include hoarseness as well as the sensation of a "lump in the throat," burning in the throat, chronic dry cough, cough that awakens one from sleep, the sensation of excessive post-nasal drip, chronic throat clearing, difficulty swallowing, sore throat, ear pain, and wheezing. As for the prevalence of LPR, in a representative sample of the Greek population, Printza et al[6] reported a rate of 8.5 percent. In comparison with determined prevalence rates of GERD, LPR appears to be less common, but overall rates indicate that a substantial minority of individuals in the general population suffers from this disorder.

As one might expect, there appear to be overlapping relationships between GERD and LPR, since both appear to be the result of acid reflux. In support of this impression, in a sample of 1383 patients, Groome et al[7] found that participants with severe GERD had significantly higher LPR scores compared to those with mild, moderate, or inactive disease. However, the explicit relationships between these two syndromes is unknown, particularly with regard to why some individuals develop one syndrome or the other, or both.

ACID REFLUX AMONG INDIVIDUALS WITH EATING DISORDERS

Given the preceding introduction, we now examine the piecemeal literature on acid reflux, including LPR, among individuals with eating disorders. Interestingly, while the empirical literature is relatively sparse, this association is well documented on the internet. As a specific example, the vivid title of one internet article is, "Are You Having Acid Reflux Symptoms from Being Bulimic?"[8]

ARTICLES ON MEDICAL COMPLICATIONS IN PATIENTS WITH EATING DISORDERS

Few authors have discussed acid reflux in articles on the general medical complications associated with eating disorders. In one of the few exceptions, Mehler[9] broaches the topic of esophageal complications related to the regurgitation of acidic gastric contents, and indicates that patients with bulimia nervosa "often" complain of heartburn and acid-reflux symptoms. In addition, Anderson, Shaw, and McCargar[10] indicate that one of the complications of bulimia nervosa is esophagitis and explain this finding as a manifestation of acid reflux.

CASE REPORTS ON ACID REFLUX IN EATING DISORDERED PATIENTS

In the empirical literature, there are several case reports that address acid-reflux symptoms in individuals with eating disorders. In the earliest case report that we could locate, Birmingham et al[11] present the history of a 40-year-old woman with a two-year course of bulimia nervosa characterized by self-induced vomiting and abnormal esophageal findings (i.e., absence of a high pressure zone above the lower esophageal sphincter with relatively low resting pressure). While the findings of this report do not directly reflect evidence of reflux disease, the authors indicate that, "Esophageal

and gastric disorders have been suggested to occur in bulimia…[including] esophagitis from the action of highly acidic gastric contents…" (pp. 562–563).[11] De Caprio et al[12] describe the case of a 16-year-old boy with a history of eating-disordered vomiting who demonstrated a number of clinical findings related to the upper gastrointestinal tract. They broach the risk of esophagitis in the introduction of this report. Erasian et al[13] report a 25-year-old woman with a history of eating-disordered vomiting who developed symptoms related to acid reflux (i.e., esophagitis). Finally, Lambeck and Hacki[14] describe a 29-year-old woman with chronic eating-disordered vomiting who suffered from laryngitis, which they attributed to acid reflux.

REVIEW ARTICLES ON ACID REFLUX IN EATING DISORDERED INDIVIDUALS

In addition to the preceding findings, there are several review articles on the topic of acid reflux in eating disorder patients. For example, in their review of the literature, Denholm and Jankowski[15] concluded that there appears to be a higher rate of acid-reflux symptoms in eating disordered individuals compared to controls, but the authors caution that existing studies vary broadly in design, quality, and results—thereby clouding a firm conclusion. Likewise, in another literature review, Balata et al[16] report that bulimia nervosa may cause laryngeal and voice alterations.

RESEARCH ENDEAVORS ON ACID REFLUX IN EATING DISORDERED PATIENTS

There are several research investigations on the relationship between eating pathology and acid-reflux symptoms. For example, Stacher et al[17] examined 30 consecutive patients with anorexia nervosa and reported that one suffered from severe acid reflux. Kiss et al[18] examined 37 consecutive patients with chronic bulimia nervosa and found mild esophagitis in eight of them (22%). Cuellar et al[19] examined 11 consecutive patients with bulimia nervosa and found that five of them (45%) had clinically relevant upper gastrointestinal pathology, including esophagitis.

In a larger sample, Winstead and Willard[20] examined the prevalence of acid-reflux symptoms in 63 individuals who were admitted to an eating disorders unit, and compared these with controls. Investigators found that the patient cohort was significantly more likely to seek gastrointestinal healthcare, compared with controls (relative risk=3.06, confidence interval=1.82–5.41). In addition, individuals with eating disorder, not otherwise specified, and bulimia nervosa were most likely to report acid-reflux symptoms, compared with participants with anorexia nervosa or controls. Specifically, the patient subsample with eating disorder, not other specified, reported 7.2 mean episodes of acid-reflux symptoms per week, bulimia nervosa 7.0, anorexia nervosa 2.4, and controls 0.2.

In a study of the pathophysiology of acid reflux, Aframian, Ofir, and Benoliel[21] examined the pH of the oral mucosa in those with bulimia nervosa, those with GERD, and controls. Not surprisingly, a significantly lower pH was encountered in the clinical groups compared with controls. The researchers concluded that the oral mucosa of individuals with bulimia nervosa or GERD is significantly more acidic than that encountered in controls.

With regard to empirical studies directly related to LPR, Rothstein[22] examined eight singers with bulimia nervosa and found reflux symptoms in each, concluding that LPR may be a contributory factor to vocal disorders in singers with bulimia. In another study, Ferreira et al[23] examined 22 women, 11 with purging bulimia nervosa, and 11 controls. In this study, the bulimic cohort evidenced a significantly higher prevalence of laryngeal abnormalities compared to the control group. In related research, Mendell and Logemann[24] opined that laryngeal mucosal injury may be more pronounced if there is a pre-existing mucosal injury during acid exposure. In other words, pre-existing mucosal injury heightens the risk of further injury. This type of pre-existing injury might easily occur among those eating-disordered patients who use an inserted foreign object to stimulate a gag reflex in preparation for self-induced vomiting. This specific clinical scenario suggests a heightened risk of laryngeal injury among a subset of eating disordered patients.

CLINICAL IMPLICATIONS

Given the preceding associations between self-induced vomiting and the contact of acidic stomach contents with laryngeal tissue, patients with eating disorders may present with hoarseness due to laryngeal irritation. The resulting hoarseness may be transient or sustained. The association is particularly heightened in the presence of the typical demographics (young female) associated with the traditional eating disorders. Therefore, hoarseness as a symptom may specifically warrant a clinical inquiry into the presence of an underlying eating disorder. This relationship is relevant for

practitioners in various clinical settings, particularly those in mental health and primary care.

CONCLUSION

Acid reflux is defined as the exposure of acidic gastric contents to the upper gastrointestinal tract. The resulting clinical effects are usually categorized into two syndromes: GERD or LPR. There are a number of references in the literature that associate acid-reflux symptoms and patients with eating disorders, including reviews on medical complications, case reports, review articles on acid reflux, and research data. Acid-reflux symptoms are likely to be the result of self-induced vomiting, and the resulting enforced contact of acidic stomach contents with the upper gastrointestinal tract. The resulting effects on the larynx may cause hoarseness. Therefore, hoarseness in young normal-weight or under-weight women should stimulate an inquiry about eating-disordered behaviors and symptoms. Hoarseness may be an overlooked diagnostic sign among patients with eating disorders in both psychiatric and primary care settings.

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