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CASE REPORT

An Uncommon Cause of Uncontrolled Asthma: Case Report

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Bronchial asthma is one of the most common chronic conditions seen by any health care professional. Multiple stimuli may lead to acute airway hyperresponsiveness and an exacerbation of the disease, gastroesophageal reflux disease being one of them. We report the case of an elderly patient with chronic gastroesophageal reflux disease who secondarily developed a tracheoesophageal fistula, resulting in recurrent exacerbations of previously well-controlled asthma. After endoscopic correction of the fistula, the patient's respiratory disease improved dramatically, with essentially no exacerbations requiring urgent care or hospitalization.

Keywords uncontrolled asthma, tracheoesophageal fistula, endoscopic clipping, gastroesophageal reflux, airway hyperresponsiveness

CASE REPORT

The patient is a 77-year-old Caucasian man first referred to our pulmonary clinic approximately 2 years before for evaluation and management of uncontrolled bronchial asthma. Aside from asthma he has type II diabetes mellitus, hypertension, and long-standing gastroesophageal reflux disease (GERD); he took both H₂ blockers and proton pump inhibitors (PPI) for the latter.

The patient had been diagnosed with asthma 35 years before but was well controlled using short-acting bronchodilators once or twice a month until 6 months before his visit to our clinic. Until then he averaged only one exacerbation of asthma a year and had never been hospitalized for asthma.

Over the 6 months before our evaluation, he developed multiple episodes of dyspnea on moderate exertion as well as nocturnal dyspnea. He also had non-productive cough and epigastric burning. The patient denied dysphagia or hoarseness. He never smoked and had no environmental exposures or recurrent lower respiratory tract infections.

The patient had all his care provided by his primary physician at the Veterans Affairs Caribbean Healthcare System (VACHS), which initially prescribed inhaled steroids and long-acting bronchodilators. The patient failed to improve and was sent to our clinic for assessment. Before our evaluation, he underwent a fluoroscopic barium swallow examination (Figure 1).

At the time he was seen for his first pulmonary clinic visit, physical examination showed a healthy man; there were no nasal polyps and the oral mucosa was free of erythema or

ulcers. The chest examination showed a prolonged expiratory phase and expiratory wheezing. Abdominal and extremity examinations were unremarkable. A chest roentgenogram showed residual barium along the right middle lobe and pulmonary base (Figure 2). Pulmonary function testing performed 1 month before showed mild obstructive disease with air trapping and hyperinflation that was reversible with bronchodilators.

After reviewing all the diagnostic tests, the patient was believed to be symptomatic due to recurrent aspiration of gastric acid through a tracheoesophageal fistula. He was sent to the gastroenterology clinic for further evaluation. An esophagogastroduodenoscopy was performed; the study demonstrated a diverticulum-like structure of the esophagus with two anterior orifices located at 26 cm from the superior incisors, consistent with a tracheoesophageal fistula (Figure 3). Distal biopsy also showed histological changes consistent with Barrett's esophagus.

The patient was informed in detail about the available therapeutic options. He was unwilling to undergo surgical repair of the fistula, opting instead to undergo endoscopic clipping, a technique in which a hemostatic metal clip is deployed through a flexible endoscope and grasps vessels or soft tissue by a technique described elsewhere (1). The procedure was performed uneventfully under conscious sedation, and there were no complications. A week after the procedure, the patient was once again seen in our clinic; he reported that he felt better, with improved exercise tolerance and less nocturnal symptoms including heartburn.

We have provided follow-up for him now for almost 2 years after the procedure; since then, he has had no emergency service visits for asthma and has only returned to the hospital for routine checkups; most of his medications (including the long-acting beta-agonist) have been discontinued. Inhaled steroids have been decreased and he has been using less rescue therapy. The patient continues taking oral PPIs and actively is followed by the gastrointestinal service.

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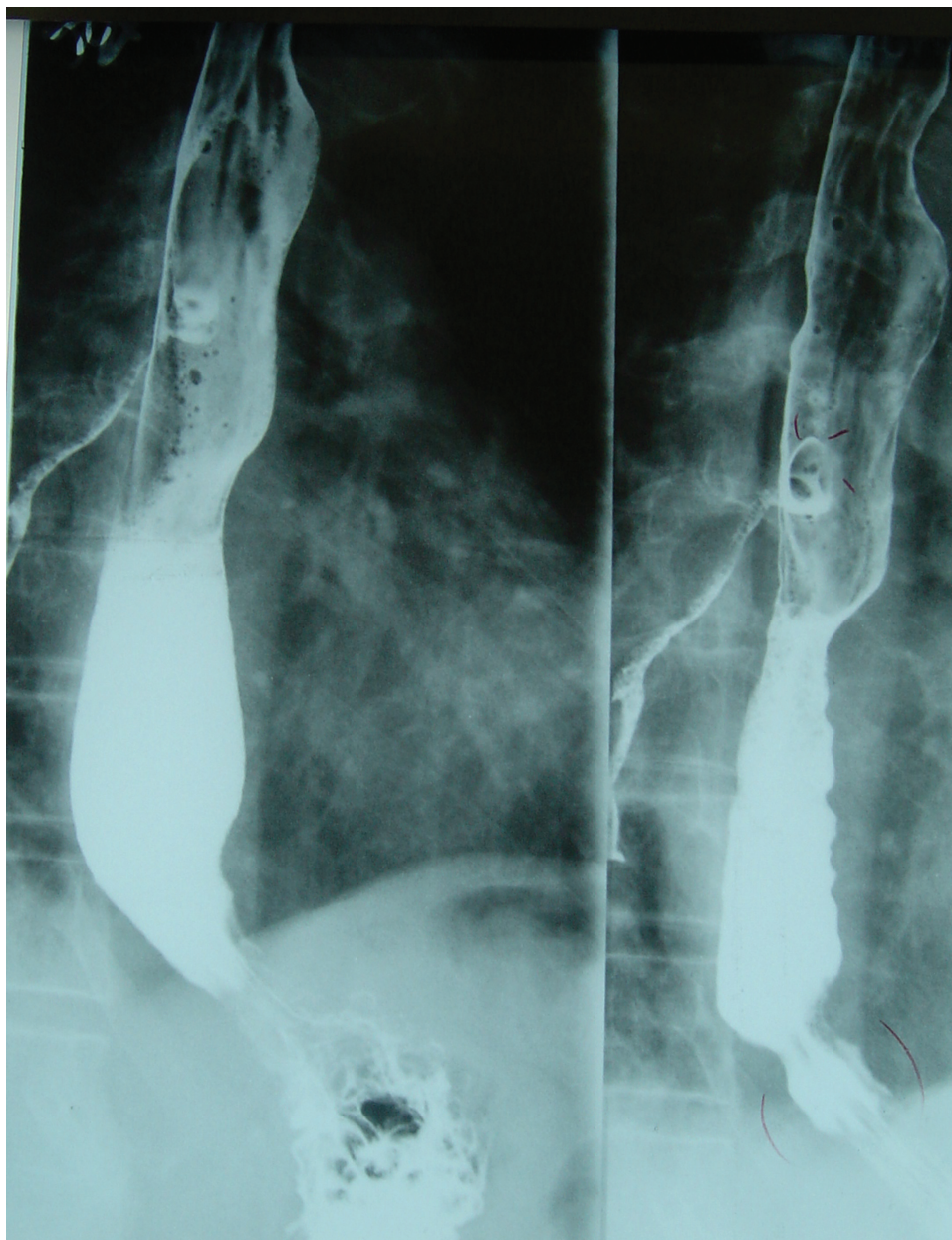


FIGURE 1.—Barium Swallow.

DISCUSSION

For many years asthma has been defined as a chronic pulmonary disease characterized by airway hyper-responsiveness and inflammation secondary to exposure to a variety of stimuli, leading to reversible airway obstruction. There are multiple studies suggesting an association between GERD and asthma. Kiljander et al. (2) found a 36% coexistence of these entities in a large population of asthmatics. Other investigators (3) have demonstrated the negative effects of GERD on airway inflammation in asthmatics. Causative mechanisms described in this scenario include micro-aspiration of gastric acid, the induction of vagally mediated reflexes, and excessive bronchial responsiveness (4). Most of these patients did not improve their symp-

toms and/or pulmonary function until GERD was appropriately treated. Furthermore, effective treatment for GERD may “cure” asthma (5).

Tracheoesophageal fistulae are usually congenital in origin and are often associated with other anomalies, especially of the cardiac and gastrointestinal systems (6). Most of these conditions require surgical correction and are often managed with excellent outcomes (7). Patients with tracheoesophageal fistula commonly present with respiratory symptoms, including recurrent pneumonia, aspiration, wheezing, and chronic cough. In adults, the most common entities leading to tracheoesophageal fistula include advanced esophageal cancer, trauma, and complications of chemotherapy or radiotherapy.

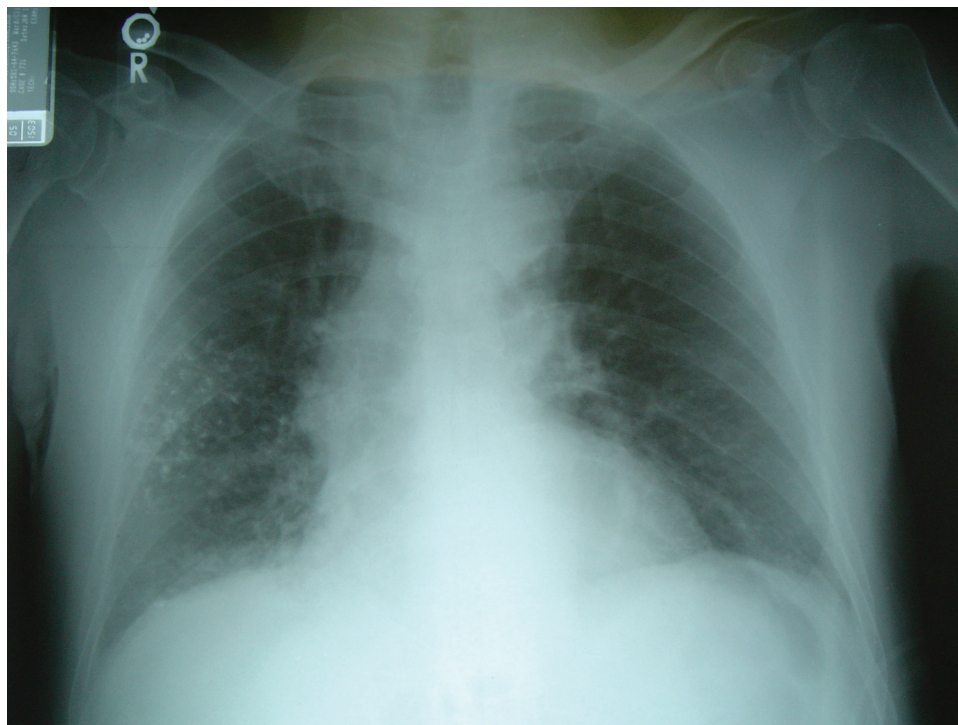


FIGURE 2.—Chest X-ray.

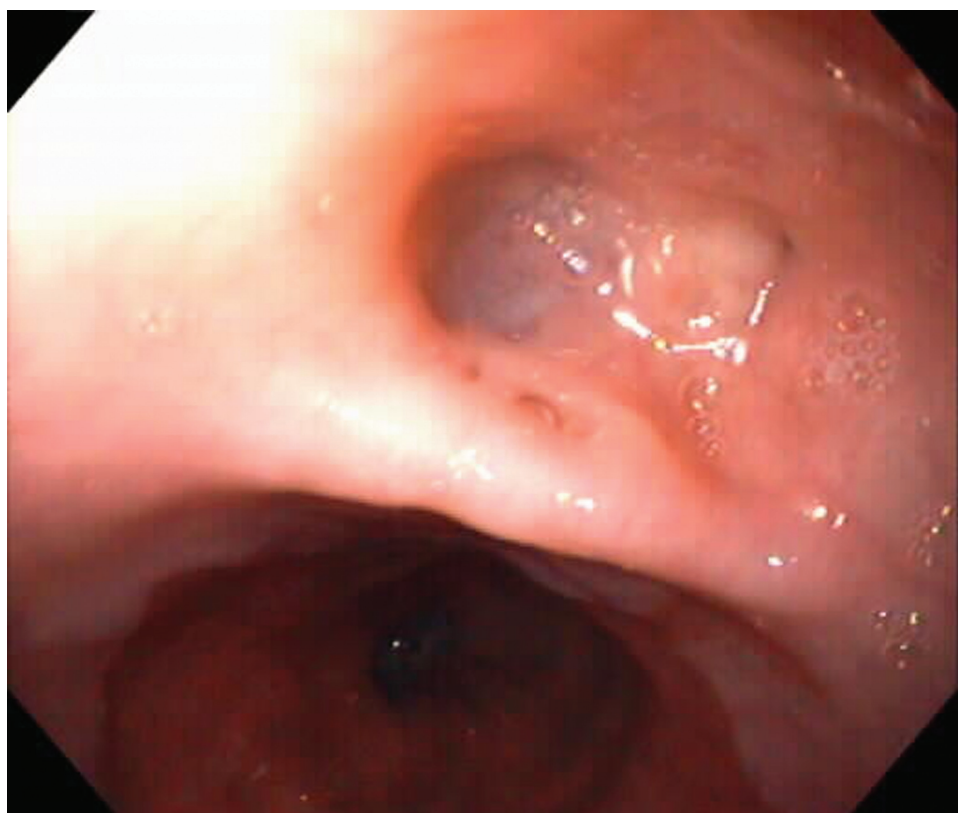


FIGURE 3.—Fistula.

Treatment of GERD in patients with asthma can be challenging. Patients should always be initially educated on lifestyle changes including smoking cessation, weight loss, and low-fat diets. Currently the best drugs available for GERD are the proton pump inhibitors, which have shown to be as effective in patients with asthma and GERD as they are in GERD alone. Some experts recommend a 3-month therapeutic trial in all asthmatics with GERD (8), and long-term maintenance therapy is often necessary. Surgery is reserved for the most severe cases failing medical therapy and for those with esophageal stricture. Operative options include fundoplication and gastropexy; other invasive options include the endoscopic clipping performed in our patient (9). In our patient's case, the development of a GERD-induced tracheoesophageal fistula initiated multiple asthma exacerbations that persisted until the fistula was endoscopically closed.

Because he was unwilling to be treated surgically, the endoscopic clipping technique was considered the best option. The outcome was positive and the procedure dramatically changed the clinical picture of the patient's asthma.

This unusual case also should alert the clinician about rare causes of "asthma," especially when, despite adequate ther-

apy on inhaled anti-inflammatory agents, there is no adequate response to treatment.

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