Abstract

Swallowing is a rare cause of syncope. A 76-year-old woman was admitted to a hospital due to postprandial loss of consciousness. Although no remarkable cardiogenic problem was proven, upper gastrointestinal barium examination revealed a huge hiatal hernia. Both echocardiography and MRI presented the collapsed left atrium due to the herniated stomach. Water pouring examination successfully represented lightheadedness, and Nissen's fundoplication was carried out. After this procedure, she never suffered from syncopal attack.

(Internal Medicine 41: 199-201, 2002)

Key words: swallowing, esophagus

Introduction

Syncope is induced by various disorders, but rarely by swallowing. So-called swallow syncope is a rare syndrome that was first reported by Spens in 1793, and later quoted by Levin and Posner (1). Some causative esophageal diseases and situations accompanied by swallow syncope have been reported previously (2). Here, we report an unusual case of swallow syncope which was induced by a massive hiatal hernia.

Case Report

A 76-year-old woman was admitted to our hospital because of transient loss of consciousness. She had been suffering from frequent syncopal attacks for 2 years. Each attack had occurred just after eating, and the present attack had also developed after overeating. Loss of consciousness lasted a few minutes, and she recovered on arrival at the hospital. She had no history of arrhythmia, diabetes mellitus, anemia, or cerebral event. Her systolic blood pressure measured in the ambulance was 80 mmHg. However, on arrival at hospital it had recovered to 150 mmHg. A chest X-ray film revealed a huge esophageal hiatal hernia. An ECG taken in the emergency room showed no abnormality. Twenty-four-hour ambulatory ECG recording showed no evidence of ischemic change, atrial fibrillation, sick sinus syndrome or bradycardia. B-mode echocardiography revealed collapse of the left atrium due to the herniated stomach.

An upper gastrointestinal barium examination confirmed the presence of a huge mixed-type hiatal hernia (Fig. 1), and MRI also disclosed the massive hiatal hernia behind the left atrium (Fig. 2). Therefore, we speculated that food filling the herniated stomach may have collapsed the left atrium, and the resulting reduction of cardiac output may have induced the syncope.

To reproduce the syncopal attack, a water pouring test using a naso-gastric tube was carried out. The patient's blood pressure was monitored every minute, and water was poured gradually up to a volume of 1,200 ml (Fig. 3). To avoid the effect of the vaso-vagal reflex, the water was infused gradually. As the patient always had a light meal lasting 15 minutes, the water was infused up to a volume of 1,200 ml within this period while the patient was in a sitting position. During this examination, her blood pressure fell gradually, and finally she experienced lightheadedness and dizziness when 1,200 ml of water had been infused. No decrease of heart rate was observed. Therefore, we concluded that the hiatal hernia was probably the cause of the swallow syncope, and the hernia was treated by Nissen's fundoplication. After the operation, the hiatal hernia improved (Fig. 4), and the patient's syncopal attacks were relieved.

Discussion

Syncope is induced by various conditions such as cerebrovascular disease, arrhythmia, hypoglycemia, anemia, epilepsy and autonomic nervous disorder. Swallowing, a vagally mediated reflex, can be a rare cause of syncope (3). Esophageal diseases such as achalasia, diffuse esophageal spasm, hiatal hernia and diverticulum have been reported as underlying conditions (4–6), and some foods such as cold water, hot liquid, or carbonated beverages have been reported to trigger syncopal attacks (7–9). Most cases are associated with bradycardia, A-V block, ventricular arrhythmia and so on, and atropine or implantation of permanent pacemaker is recommended as standard treatment.

From the Department of Gastroenterology, *the Department of Internal Medicine, Kanebo Memorial Hospital, Kobe and **the First Department of Internal Medicine, Kobe University, Kobe

Received for publication June 21, 2001; Accepted for publication November 13, 2001

Reprint requests should be addressed to Dr. Toru Maekawa, the Department of Gastroenterology, Kanebo Memorial Hospital, 1-9-1 Misaki-cho, Hyogo-ku, Kobe 655-0855

Internal Medicine Vol. 41, No. 3 (March 2002) 199
Figure 1. Upper gastrointestinal barium examination revealed a huge mixed-type hiatal hernia.

Figure 2. MRI presented an enormous herniated stomach (arrowhead) behind the left atrium (arrow). The left atrium had collapsed due to the herniated stomach.

Figure 3. Water pouring examination. Via a nasogastric tube, water was infused up to a volume of 1,200 ml. Gradually her blood pressure dropped, and she felt lightheadedness.

Figure 4. Upper gastrointestinal examination showed improvement of the hiatal hernia after Nissen's fundoplication.
Unusual Swallow Syncope

The present patient had a huge hiatal hernia, and food intake was the trigger of her syncopal attacks. However, no apparent abnormality was revealed by cardiological examinations. Because swallow syncope has been successfully reproduced by the ingestion of foods or beverages in some reported cases, we performed a water pouring test. Although a syncopal attack was successfully reproduced, the patient's heart rate was not notably reduced, and the syncope was not accompanied by bradycardia. Therefore, we speculated the collapse of the left atrium due to pressure from the dilated herniated stomach had reduced cardiac output and induced the syncopal attack. The patient's blood pressure in the ambulance had indeed fallen to 80 mmHg, and water pouring test had induced hypotension. Interestingly, the patient herself was aware of the safe range of her food intake, and previous syncope attacks had always occurred when she had been urged to eat in quantity while in the company of friends. This tended to corroborate our speculation about the cause of the attacks. As the patient’s hiatal hernia was severe, we carried out Nissen’s fundoplication. After the operation, her syncope attacks disappeared, and this procedure relieved her fear of further attacks.

Although various diseases and conditions that can cause syncope have been reported, swallow syncope caused by collapse of the left atrium due to a huge hiatal hernia has not been described previously. The present case represents an interesting and rare situation, which can be added to the list of causes of swallow syncope.

References