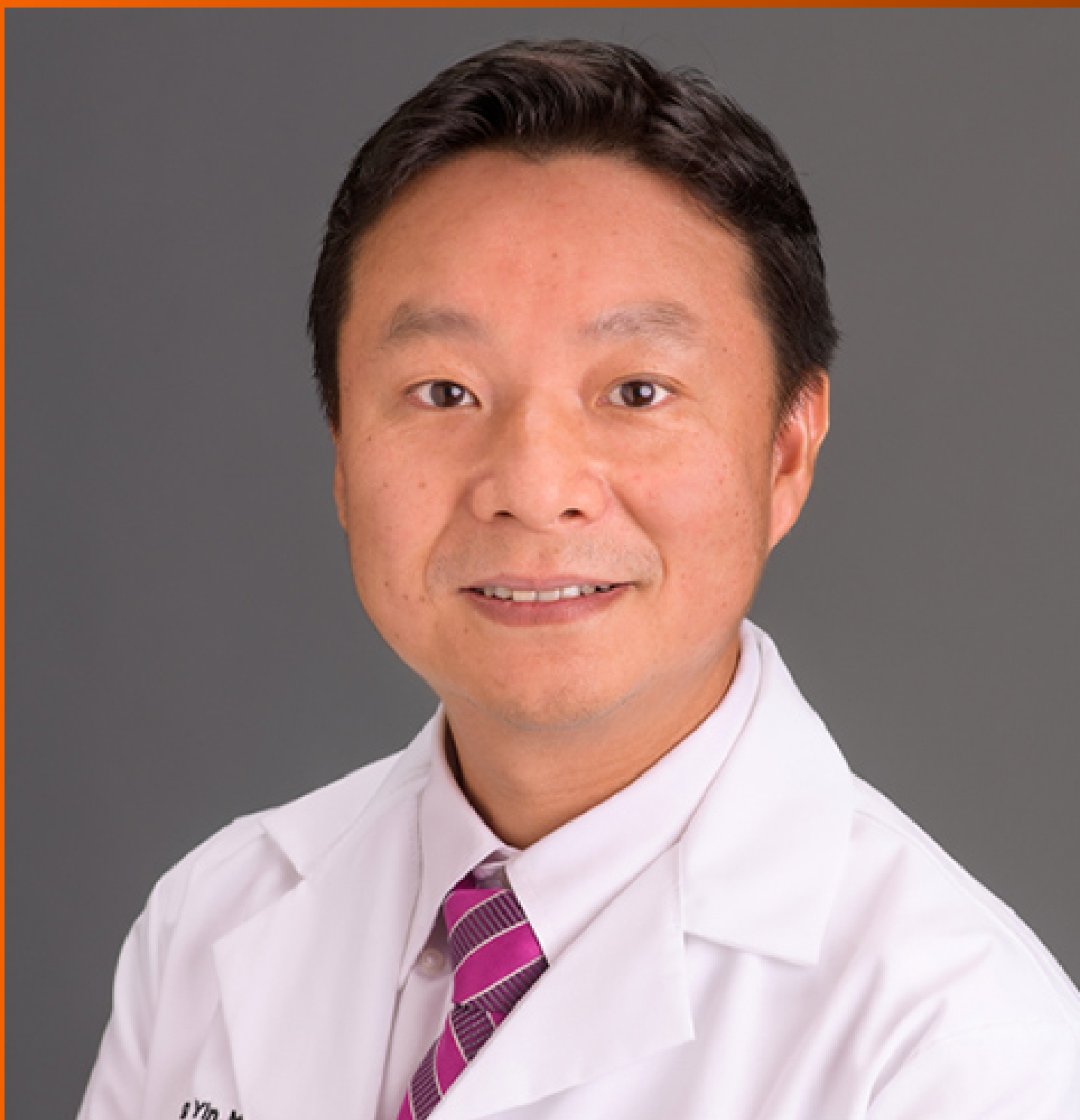


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# Acute esophageal obstruction after ingestion of psyllium seed husk powder: A case report

Sujeong Shin, Jung Ho Kim, You Ho Mun, Han Sol Chung

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## Abstract

### BACKGROUND

Bezoar is a mass of hardened external material found in the gastrointestinal (GI) tract. It may form anywhere in the GI tract, but esophageal bezoar is rare because of the short esophageal transit time. Psyllium seed husk is an indigestible natural derivative that is widely used as an herbal laxative. Herein, we report a case of acute esophageal obstruction caused by a bezoar after ingestion of psyllium seed husk powder.

### CASE SUMMARY

A 76-year-old male with Parkinson's disease visited the emergency department with swallowing difficulty approximately 10 h after ingesting psyllium seed husk powder. Symptoms began a few hours after ingestion and progressed to severe dysphagia. There were no abnormal findings on simple radiography. However, a computed tomography scan revealed an approximately 2.0 cm × 2.5 cm mass located near the gastro-esophageal junction. After grinding, the mass was removed using an endoscopic capture net. Esophageal bezoars may cause life-threatening complications. Patients with Parkinson's disease may have esophageal motility dysfunction, which may increase esophageal transit time. Since our patient had Parkinson's disease, this effect may have contributed to the formation of the bezoar.

### CONCLUSION

Attention should be paid to using bulk-laxatives, and an appropriate specified regimen will be needed when marketed as a dietary supplement.

**Key Words:** Bezoar; Esophagus; Obstruction; Parkinson's disease; Psyllium; Case report

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**Core Tip:** In patients with functional esophageal disorders such as in those with Parkinson's disease, bulk-forming laxative regimens may increase the risk of esophageal bezoar formation. Furthermore, bulk-forming laxatives such as psyllium seed husk can be purchased cheaply over the counter in the form of herbal medications. Therefore, we recommend that physicians pay more attention to the use of bulk-forming laxative regimens in these patients. Furthermore, optimal usage guidelines and warning messages may need to be included when selling psyllium seed husk as a health supplement.

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## INTRODUCTION

Bezoar is a mass of hardened external material found in the gastrointestinal (GI) tract[1]. It is commonly found in the stomach, small intestine, and colon; however, esophageal bezoar is rare because the short esophageal transit time does not allow one to form[2]. Esophageal bezoar can be successfully removed by endoscopic intervention; however, bezoar removal requires attention because of the high failure rate of conservative or endoscopic intervention when mechanical obstruction is complicated[3].

Psyllium seed husk is an indigestible natural derivative of *Plantago ovata*, which consists of 65% insoluble polysaccharides[1,3]. It is inexpensive and widely used as an herbal laxative; however, it may have adverse effects. Cases of bezoar due to psyllium seed husk causing GI tract obstruction are rare but have been reported[1,3]. However, there are few reports of esophageal obstruction caused by bezoars due to psyllium seed husk[4].

Herein, we report a case of acute esophageal obstruction caused by a bezoar after ingestion of psyllium seed husk powder.

## CASE PRESENTATION

### Chief complaints

A 76-year-old man visited the emergency department (ED) because of swallowing difficulty and epigastric discomfort approximately 10 h after ingesting psyllium seed husk powder to relieve constipation.

### History of present illness

His symptoms began a few hours after the ingestion. Initially, his symptoms were not severe, and he was monitored at home. However, the symptoms continued to worsen. Therefore, he visited the local clinic, where he was administered metoclopramide, but the symptoms did not improve.

### History of past illness

He had hypertension, diabetes mellitus, and Parkinson's disease. He said that he sometimes suffered from dyspepsia or dysphagia after taking the powder previously as well, but the current symptoms were the most serious.

### Personal and family history

He was diagnosed with Parkinson's disease at our department of neurology 3 years before visiting the ED and started taking Stalevo (125 mg of levodopa, 31.25 mg of carbidopa, and 200 mg of entacapone) twice a day. After 7 mo of follow-up, he decided to consult a neurologist near his house for the management of Parkinson's disease. Additionally, he was taking psyllium seed husk powder, about 5 g with water per day, for constipation, purchased from a drugstore without a prescription.

### Physical examination

When he tried to swallow, immediate esophageal discomfort and regurgitation prevented any solid or liquid intake, even saliva. There were no accompanying GI symptoms, such as diarrhea or abdominal pain. He also did not present with any focal neurological abnormalities.

### Laboratory examinations

Initial biochemical results were as follows: white blood cell count: 6740/ $\mu$ L, levels of hemoglobin 13.7



g/dL, aspartate aminotransferase: 33 IU/L, alanine aminotransferase: 5 IU/L, total bilirubin: 2.34 mg/dL, direct bilirubin: 0.59 mg/dL, serum amylase: 68 IU/L, blood urea nitrogen: 17 mg/dL, serum creatinine: 1.13 mg/dL, and C-reactive protein: 0.052 mg/dL.

### Imaging examinations

Simple posteroanterior radiography at the ED showed no specific abnormal pathological findings. We suspected esophageal achalasia or food impaction; therefore, we decided to perform an abdominal computed tomography (CT) scan for differential diagnosis. Abdominal CT scan revealed an approximately 2.0 cm × 2.5 cm mass located just above the gastro-esophageal junction (Figure 1). We suspected a bezoar due to the presence of psyllium seed husk powder.

## MULTIDISCIPLINARY EXPERT CONSULTATION

He underwent gastroendoscopy for a definitive diagnosis and mass removal, which revealed focal mucosal hyperemia and an approximately 2.0 cm sized bezoar bolus at the gastro-esophageal junction (Figure 2A).

## FINAL DIAGNOSIS

The final diagnosis in the present case was esophageal obstruction due to bezoar of psyllium seed husk powder.

## TREATMENT

Immediately after the endoscopic diagnosis, removal of the bezoar using a capture net after grinding was performed (Figure 2B).

## OUTCOME AND FOLLOW-UP

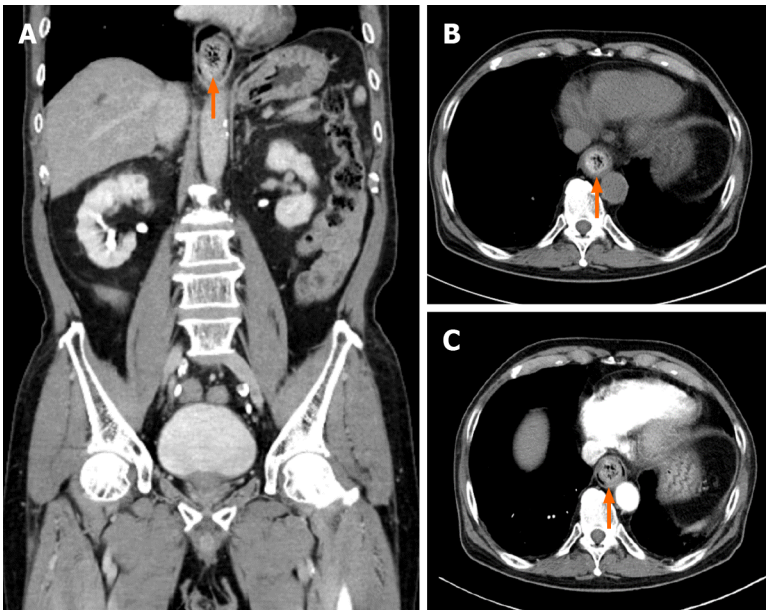
Two hours after endoscopic removal, food passage through the esophagus was good, and there were no specific abnormal symptoms or signs. We decided to proceed with evaluation for dysphasia, achalasia, or other GI pathologies at the outpatient department, and he was discharged.

## DISCUSSION

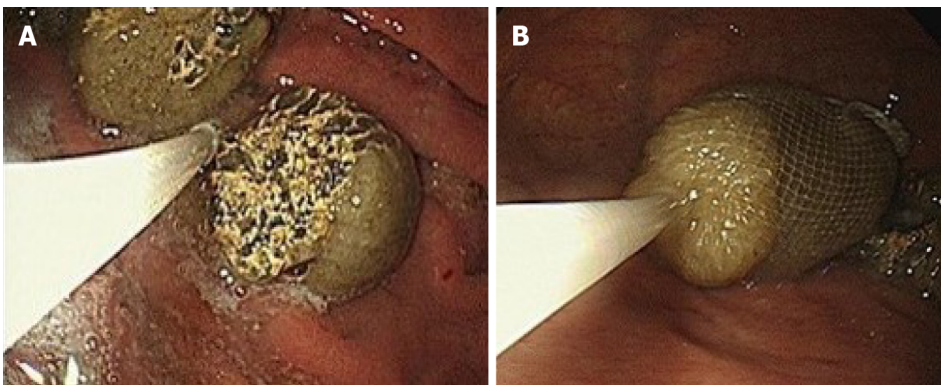
Psyllium seed husk contains indigestible polysaccharides and forms a gel in water. It also has hygroscopic characteristics that allow it to retain water and expand rapidly. Because of these properties, it is used as an herbal medication to treat constipation and hemorrhoids and to control weight[3]. Additionally, it has recently been used to achieve abdominal distension before CT enterography and magnetic resonance enterography to increase diagnostic accuracy[5]. However, several complications due to the use of psyllium seed husk have also been reported. Hefny *et al*[3] reported that intestinal obstruction resulted from ingestion of psyllium seed husk for constipation management without an adequate amount of water. Chen *et al*[5] reported small bowel obstruction caused by a bezoar due to psyllium seed husk, which was used as an oral contrast agent.

Esophageal bezoar formation is associated with structural or functional problems, such as previous GI surgery, GI stricture, and achalasia, which are risk factors for increased esophageal transit time[2,3]. Additionally, excessive persimmon ingestion or psychiatric disease may be related to esophageal bezoar formation[6]. Esophageal obstruction related to the malposition of a nasogastric tube has been reported in a patient with Parkinson's disease[7]. Swallowing difficulty due to oropharynx and esophageal dysfunction has been reported in up to 77% of patients with Parkinson's disease; esophageal motility dysfunction in these patients is characterized by increased transit time, abnormal peristalsis, achalasia, *etc*[8]. Therefore, esophageal motility impairment and increased esophageal food residence time may increase the chances of bezoar formation in patients with Parkinson's disease. Our patient had Parkinson's disease, which may have collaterally contributed to the formation of the bezoar due to psyllium seed husk. Additionally, he had sometimes experienced dyspepsia or dysphagia after taking psyllium seed husk powder previously, did not eat any other solid foods until symptoms appeared, and symptoms developed not long after taking powder. In this regard, we believe that his bezoar was due to psyllium seed husk powder, although componential analysis was impossible in our hospital.





**Figure 1** Abdominal computed tomography scans in the emergency department. The red arrows indicate an approximately 2.0 cm × 2.5 cm bezoar located just above the gastro-esophageal junction. A: Coronal view; B and C: Plain view.



**Figure 2** Endoscopic removal of the psyllium seed husk bezoar. Endoscopic diagnosis and removal of the bezoar was performed. A: Gastroendoscopy showing focal mucosal hyperemia, and an approximately 2 cm food bolus at the gastro-esophageal junction. B: After grinding, the large bezoar was endoscopically removed and was captured using a capture net.

Esophageal bezoar may cause life-threatening complications, such as severe intestinal obstruction, perforation, or asphyxia due to aspiration[9]. Fortunately, regurgitation in our patient did not cause aspiration or progression to other serious complications. However, patients with chronic medical problems, such as Parkinson's disease, have a high risk of serious complications such as pneumonia or respiratory arrest due to aspiration, and esophageal bezoar formation may increase this risk. Additionally, such patients frequently use GI bulking agents, such as psyllium seed husk, to control GI problems such as constipation.

There are a few methods for the treatment of esophageal bezoar, including dissolution using proteolytic enzymes, endoscopic removal, and surgical procedures[10]. In our case, the bezoar was pushed into the stomach, followed by fragmentation and extraction.

In addition to psyllium hull powder, there are various bulk laxatives. Additionally, the dosage and concentration of the medication may be more important than the type of regimen in patients with esophageal motility disorders. However, psyllium seed husk powder is a widely used bulk laxative, and some specific regimens can cause unexpected problems in people with certain comorbidities. Therefore, we believe that uncontrolled bulk-forming laxative regimens may increase the risk of esophageal bezoar formation in patients with functional esophageal disorders, such as those with Parkinson's disease. Furthermore, bulk-forming laxatives such as psyllium seed husk can be purchased cheaply over-the-counter as herbal medications. Therefore, we recommend that physicians pay more attention to the use of bulk-forming laxative regimens in these patients. Furthermore, optimal usage guidelines and warning messages may need to be included when selling psyllium seed husk as a health supplement.

# CONCLUSION

Bulk-forming laxatives can be purchased easily but may increase the risk of esophageal obstruction in patients with functional esophageal disorders. Therefore, physicians should take this into account, and specify the appropriate regimen when marketed as a dietary supplement.

# FOOTNOTES

**Author contributions:** Kim JH was the patient's emergency physician, reviewed the literature and performed review and editing; Shin S reviewed the literature and contributed to manuscript drafting; Mun YH and Chung HS reviewed the literature; Shin S and Kim JH were responsible for the revision of the manuscript for important intellectual content; all authors issued final approval for the version to be submitted.

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