

Removal of Rare Esophageal Impacted foreign Bodies Using an Endoscopic Esophageal Balloon Catheter with an Attached PTCA Inflation Device

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Abstract

We herein report two very rare cases of esophageal foreign bodies that were removed using an endoscopic esophageal balloon dilation catheter with an attached percutaneous transluminal coronary angioplasty (PTCA) inflation device. Esophageal food impaction is a common medical emergency that often requires endoscopic therapy. However, the cases we report involve an ume seed and a shell, respectively, which are very rare in food impaction. We attempted to remove the foreign bodies using the usual endoscopic removal technique, but were unable to do so. As an alternative approach, we used an endoscopic esophageal balloon dilation catheter, and this proved to be successful and safe. Therefore, we conclude that this removal technique is useful for difficult cases of food impaction that cannot be treated using the normal procedure. (Kitakanto Med J 2007 ; 57 : 179~181)

Key Words : esophagus, foreign body, endoscopy, balloon catheter, PTCA

Introduction

Foreign object ingestion occurs commonly and often requires a visit to a hospital. The majority of foreign bodies that reach the gastrointestinal tract are passed spontaneously, but 10% to 20% require non-surgical intervention, and 1 % or less require surgery.¹ Deaths caused by foreign body ingestion are rare,^{2,3} and the mortality rates in recently reported large series have been zero among 852 adults and one death among 2206 children.⁴⁻¹⁰ We experienced two cases of impacted esophageal foreign bodies that we removed using an esophageal balloon dilation catheter with an attached percutaneous transluminal coronary angioplasty (PTCA) inflation device. These cases both involved foreign bodies that are rarely reported in food impaction: an ume seed and a shell. Herein, we show that the modified endoscopy method allowed safe removal of the impacted food in both cases.

Case Reports

Case 1 : A 67-year-old woman visited our hospital with acute onset dysphagia after eating an ume seed. Endoscopy revealed a large stone impacted below the cricopharyngeal area (Fig. 1A). The stone could not be advanced with forward pressure from the endoscope and due to its immediate subcricopharyngeal location it could neither be easily grasped nor maneuvered. A 15-mm diameter through-the-scope esophageal CRETM balloon dilation catheter of 3-cm in length (Microvasive[®], Boston Scientific Corporation, USA) attached to a PTCA inflation device (Boston Scientific Corporation, USA) (Fig. 2) was cautiously advanced beyond the impaction through the working channel of the endoscope (Fig. 1B). The balloon was inflated with saline with reference to the scale of the PTCA device, and then withdrawn until resistance was encountered. At this point, the patient was placed in a left-sided position and the scope and the balloon were withdrawn simultaneously. The motion successfully

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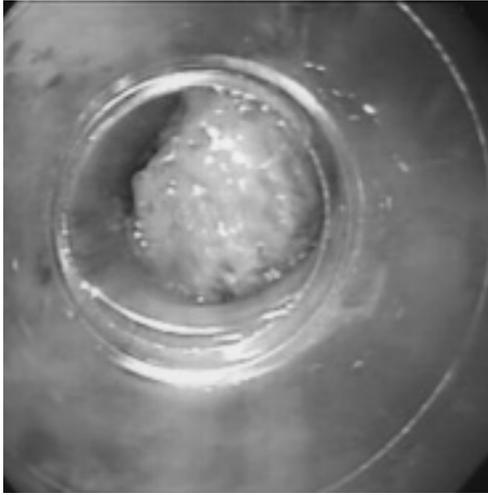


Fig. 1A Esophagoscopy showing a brownish colored ume seed in the cricopharyngeal area.

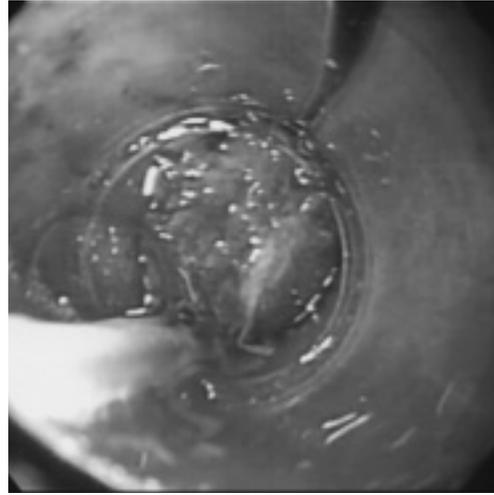


Fig. 1B The endoscopic esophageal balloon is passed to the distal side of the foreign body through the working channel of the endoscope.



Fig. 2 An endoscopic esophageal balloon catheter with an attached PTCA inflation device. The handle of the proximal side controls the pressure and diameter of the balloon.

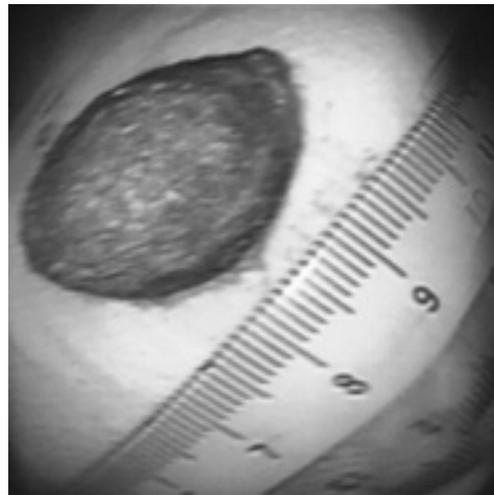


Fig. 3 An ume seed of about 2.5cm in diameter that was removed endoscopically from the esophagus.

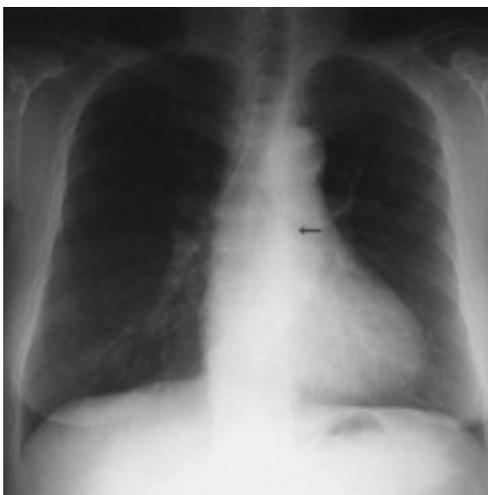


Fig. 4 A chest X-ray showing a shell in the middle esophagus (indicated by the arrows).

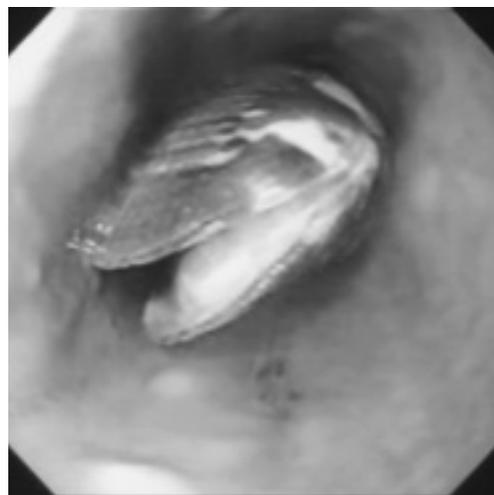


Fig. 5 Esophagoscopy showing a shell in the middle esophagus.

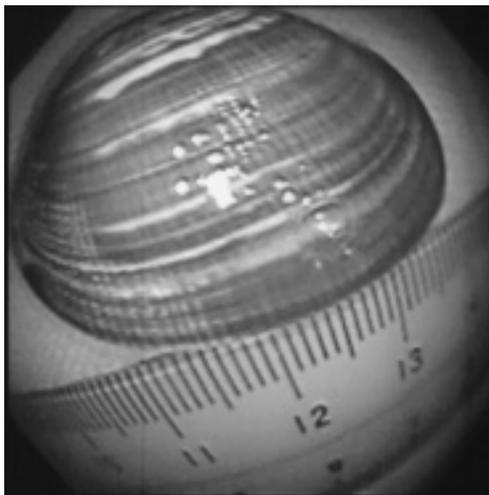


Fig. 6 A shell of about 2.5cm in diameter that was removed endoscopically from the esophagus.

dislodged the stone, displacing it into the oropharynx, from which it was readily removed (Fig. 3). Further endoscopy revealed no obvious rings or obstructing lesions.

Case 2: A 66-year old woman visited another hospital for impaction caused by swallowing the shell of a short-neck clam. A chest X-ray showed a shell shadow in the middle esophagus (Fig. 4), but removal of the shell was unsuccessful, and she was transferred to our hospital. Endoscopic removal was attempted using rat-tooth forceps and a retrieval net, but this procedure could not be carried out. However, since the shell was round and could be moved to the oral side (Fig. 5), we used the balloon technique to remove the shell (Fig. 6). After removal, endoscopy showed slight damage and bleeding of the esophageal mucosa, but chest X-ray findings were within normal limits.

Discussion

Esophageal food impaction is a common medical emergency that often requires endoscopic therapy. Webb reported the management of 242 foreign bodies,⁴ and found that meat impaction was most common; however, ume seeds and shells are rarely encountered in this context, and there are no guidelines for management of these foreign bodies.¹¹

We have typically used a balloon catheter attached to a PTCA inflation device for balloon dilation in treatment of gastrointestinal stenosis. The diameter of the balloon is easily controlled by checking the scale of the PTCA inflation device. Since in our cases the foreign bodies were easily movable, despite their round shape, we tried to remove them using the balloon-catheter approach. The balloon is

passed through the working channel of the endoscope, and inserted on the distal side of the foreign body, after which the balloon is inflated and withdrawn to engage the foreign body. The balloon, foreign body, and endoscope are then removed as a unit.

The procedure was well tolerated in our cases, and this technique of foreign body removal has been performed on similar patients,¹² as well as being a well-established method for coin removal in infants.¹³ Our experience shows that the balloon technique using a PTCA device is useful for cases of food impaction that are difficult to manage with normal techniques.

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