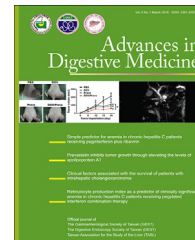




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CASE REPORT

Condoms used to assist difficult endoscopic removal of impacted upper esophageal foreign bodies



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KEYWORDS

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Summary The use of a homemade balloon dilator and protector hood composed of condoms for assisting the removal of sharp foreign bodies lodged in the upper esophagus in difficult cases is reported. A conventional endoscopic method failed to remove two sharp bones and two press-through packages became impacted in the upper esophagus. A condom was used to make a balloon dilator that was attached to a flexible endoscope in an attempt to dilate the upper esophageal sphincter to dislodge the impacted sharp bones. This handmade condom balloon dilator succeeded in dislodging the two tightly impacted sharp bones and assisted in removing the impacted objects in the upper esophagus. Additionally, a condom was tied to the distal end of the scope to act as a protector hood to protect the esophageal mucosa when removing the sharp packages. The two impacted press-through packages were pushed into the lower esophagus or stomach and removed uneventfully using the condom protector hood. Subsequent endoscopy disclosed no relevant mucosal damage after the successful removal and the patients did well after discharge from the emergency department. In conclusion, condom-based endoscopic balloon dilatation is a simple and accessible method for assisting the endoscopic removal of tightly impacted, sharp foreign bodies in the upper esophagus. A condom can also be used as a protector hood to avoid mucosal injury when removing impacted, sharp press-through packages when a commercial protector hood is not available.

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Introduction

Sharp foreign body (FB) impaction in the upper esophagus is dangerous and should be addressed as soon as possible because more complications are associated with delayed removal [1]. However, it is difficult to dislodge impacted, large, sharp FBs in the upper esophagus because of the limited working space and because esophageal injury may result from attempted forced removal [2]. Here, a simple method is presented whereby condoms were used to assist flexible endoscopy for remove of sharp objects lodged in the upper esophagus in difficult cases. The accessory instruments and methods of flexible endoscopy that are used to remove sharp objects impacted in the upper esophagus are reviewed.

Case Reports

Patient 1 was a 72-year-old man and Patient 2 was a healthy 52-year-old woman, who presented to the emergency department (ED) with odynophagia after eating a fish head several hours previously. Esophagogastroduodenoscopy showed a large fish bone impacted in the upper esophagus of these two patients. The bones were firmly impacted in the bilateral esophageal wall and they could not be moved by rat-tooth forceps or by endoscopic push. Patient 3 was a 31-year-old woman and Patient 4 was a 54-year-old woman, who presented to the ED with neck pain and odynophagia within 1 hour after swallowing a press-through pack by accident. Esophagogastroduodenoscopy disclosed the large pack, with sharp and pointed edges, lodged in the upper esophagus. The packs were pushed into the lower esophagus by a scope but failed to be pulled into an overtube.

Method 1. Two layers of condoms (Taiwan Fuji, Taipei) were fastened, with a biliary cannula catheter (Olympus PR214Q, Tokyo, Japan) inside, to the distal end of the endoscope (Olympus GIF-XQ-240, Tokyo, Japan) using rubber bands to make an oral-side endoscopic balloon dilator (Fig. 1). The scope was intubated close to the foreign body without conscious sedation and the balloon dilator was inflated to ~3 cm to release one end of the fish bone from the esophageal wall. The fish bone was then pushed by a scope or forceps, captured with rat-tooth forceps, pulled into the overtube, and extracted (Fig. 2). Subsequently, endoscopy revealed a mucosal ulcer at the impacted site in

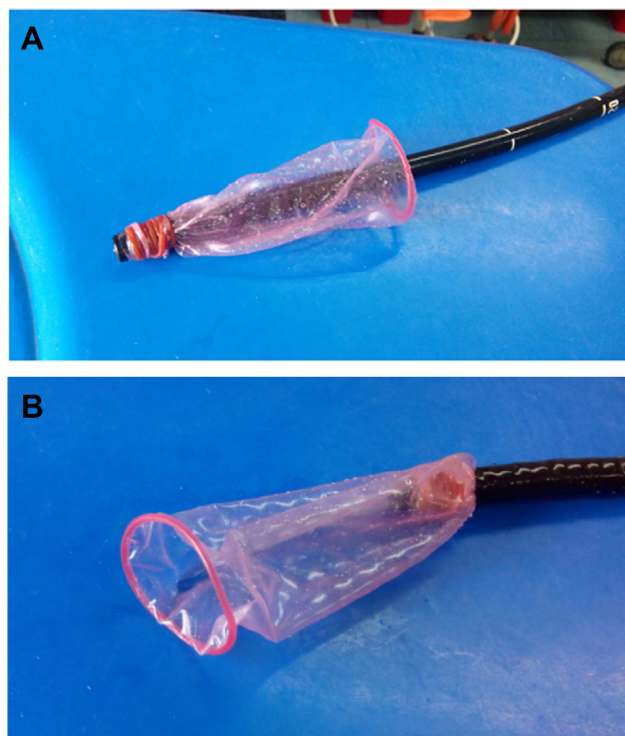


Figure 2 (A) A condom was fastened to the scope end with a rubber band to act as a protection hood. (B) The rubber ring kept the hand-made hood open when the condom slipped over the scope during withdrawal of the scope.

Patient 1 and Patient 2. They were discharged from the ED after observation for several hours and no complications subsequently developed.

Method 2. A single condom was tied to the distal end of a scope with a rubber band, leaving a wide opening 6–8 cm away from the endoscopic lens (Fig. 3). A dry run was then performed *in vivo* to confirm that the wide opening could freely flip away from the scope to cover the captured FB when the scope was drawn through the narrow lumen. The two impacted packages were captured and were covered by the condom protector hood when removed by the scope. Patient 3 had mucosal erythema in the upper esophagus and was discharged after removal. Patient 4 was observed

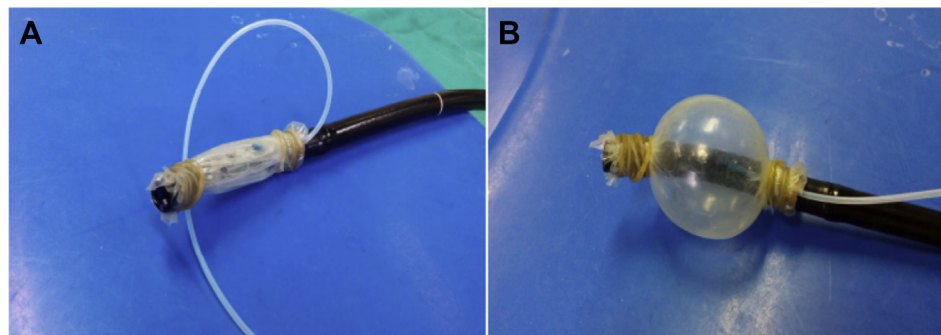


Figure 1 (A) Two layers of condom and a cannula were tied to the distal end of the scope with rubber bands. (B) The balloon was inflated with air through the cannula.

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