Simultaneous endoscopic removal of 5 coins from the stomach without causing mucosal injury using specially designed devices

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Abstract Endoscopic retrieval of foreign bodies is sometimes a challenging task. We report a case of simultaneous removal of 5 coins from the stomach without causing mucosal injury using a specially-designed devices consisting of retrieval net, endoscopic attachment balloon and a disposable tip attachment. This technique has not been described before.

Keywords Gastrointestinal endoscopy · Mucosal damage · Plain radiography

Emergency upper gastrointestinal endoscopy is performed for retrieval of ingested foreign bodies. It is the nature of the foreign body that sometimes makes retrieval difficult as mucosal injury may occur during retrieval, which necessitates modification of the technique or equipment.1,2 We report a case of simultaneous endoscopic removal of 5 coins from the stomach without causing mucosal injury using specially designed devices.

A 52-year-old man was referred to our hospital 10 days after swallowing five 100 yen coins (diameter 22.6 mm, thickness 1.7 mm, mass 4.8 g, constituents: copper 75%, nickel 25%) when they failed to pass naturally. He had been under treatment for depression for 10 years. An abdominal radiography revealed 5 coins within the stomach.

In order to avoid damage to the mucosa of the esophago-gastric junction, the sites of physiological narrowing of the esophagus, and the esophageal entrance, we devised an indigenious appliance (Fig. 1) using a 25 mm diameter retrieval net (Roth Retrieval Net™, US Endoscopy, OH, USA), an 11 mm diameter endoscopic attachment balloon and an 18 mm diameter disposable tip attachment (Model D-206-02; Olympus, Tokyo, Japan). This device was passed endoscopically. We first caught all 5 coins with one scoop of the retrieval net. Once the coins were secured in the net, we retracted the net into the disposable tip attachment. The balloon was inflated at each point of physiological narrowing to prevent the retrieval net containing the coins from getting impacted at these points. Following retrieval of the coins, we confirmed the absence of gastric or esophageal mucosal damage by follow-up endoscopy.

Mucosal damage can occur at the time of endoscopic retrieval of foreign bodies. This underlines the need for innovations in equipment and techniques to avoid such damage.3,4 It is important to take a thorough history and perform

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plain radiography so that the best method of retrieval can be chosen, then grasp the foreign body firmly and remove it without damaging the mucosa.

References

A 72-year-old lady with portal hypertension due to cirrhosis presented with features of intermittent gastric outlet obstruction (GOO). Endoscopically, a large polypoidal lesion of the size of $8 \times 2$ cm was identified in the duodenum. The long polyp with smooth surface was rooted to the first part of duodenum with a broad stalk. The globular tip reached deep D2 crossing the ampulla (Fig. 1). Polypectomy was deferred due to coagulopathy and also since the stalk was located in proximal most part of D1, which made snaring to the base difficult.

Endoscopy during the second episode of GOO showed that the polyp had prolapsed into the stomach; surface was edematous and the polyp body was tightly fitting in the pyloric opening (Fig. 2). Patient was kept nil per orally for one day, with gastric lavage performed through 18 F Ryles tube and four units of fresh frozen plasma were infused. After intravenous injection of ‘hyoscine’ the polyp was pushed into D2. The stalk was snared using jumbo oval snare and cauterized. Oozing from the stalk was arrested by band ligation since repeated injection of adrenaline failed. Hemoclip application could not be done due to the difficult location in proximal D1.

Although gastric polypoidal lesions prolapsing in to the duodenum have been reported, duodenal polyps causing GOO is rare. Among duodenal polypoidal lesions, lipomatous polyps are extremely rare; commoner being adenomatous polyps and Brunner gland hyperplasia. To our knowledge, only one case of large lipomatous polyp of first part of duodenum causing GOO has been reported before; endoscopic removal of the same has not been reported earlier.

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