

Endoscopic management of small bowel obstruction caused by intragastric balloon using antegrade single-balloon enteroscopy



► **Fig. 1** An abdominal computed tomography scan revealed a distally migrated intragastric balloon (white arrow) with evidence of luminal obstruction.



► **Fig. 2** Migrated intragastric balloon at mid-jejunum totally occupied the lumen of the mid-jejunum.



► **Fig. 3** Proximal jejunum showed erythematous and edematous mucosa with circumferential ulceration.



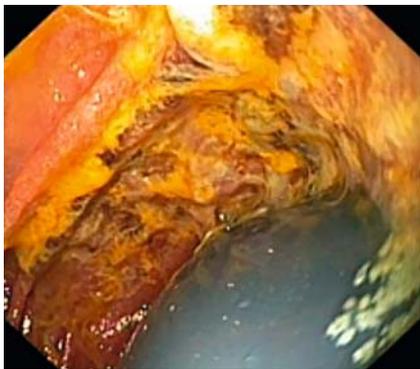
► **Video 1** Removal of the migrated intragastric balloon using antegrade single balloon-assisted enteroscopy.

A 44-year old woman with type 2 diabetes mellitus who underwent intragastric balloon (Spatz3) insertion 1 year ago presented with acute abdominal pain for 3 days. Abdominal examination showed mild tenderness at the epigastrium. Laboratory investigation showed a white blood cell count of $12,630/\text{mm}^3$. An abdominal computed tomography (CT) scan revealed a distally migrated intragastric balloon in the mid-jejunum causing a small bowel obstruction (► **Fig. 1**). After a discussion regarding treatment options, she decided to undergo endoscopic removal using antegrade single balloon-assisted enteroscopy.

On endoscopy, an intragastric balloon filled with methylene blue completely occupied the jejunal lumen (► **Fig. 2**). Duodenal and proximal jejunal mucosa, especially the surrounding area, was markedly inflamed and covered with exudates (► **Fig. 3**, ► **Fig. 4**). The balloon was punctured with a 25G needle, aspirated until completely collapsed, and then retrieved using a polypectomy snare (► **Video 1**, ► **Fig. 5**). A broad-spectrum intravenous antibiotic was given post-

procedure. She was able to advance her diet and was safely discharged after hospitalization for 3 days.

Intragastric balloon insertion is a minimally invasive and effective procedure with favorable safety profiles. Migration of an intragastric balloon occurred in approximately one percent of cases whereas 0.3 percent had an intestinal obstruction [1]. The risk of spontaneous balloon deflation and possible subsequent migration increases over time, especially after 6 months [2]. An intragastric balloon causing obstruction in the proximal duodenum is likely to be successfully removed endoscopically, whereas more distal migrations have been successfully treated laparoscopically, with few reports of percutaneous aspiration [2, 3]. At present, only two cases of successful endoscopic treatment of a migrated intragastric balloon using double balloon-assisted enteroscopy have been reported [4, 5]. We reported the first experience using antegrade single-balloon enteroscopy to remove a migrated intragastric balloon. Meticulous care should be taken while gently with-



► **Fig. 4** Endoscopic image of surrounding jejunal mucosa showed erythematous, edematous changes, and ulceration with overlying yellowish sludge.



► **Fig. 5** The balloon was firmly grasped with a polypectomy snare before gentle removal.

drawing the scope with the attached balloon tightly grasped. Trauma to surrounding inflamed mucosa should be kept to a minimum.

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Competing interests

The authors declare that they have no conflict of interest.

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