Endoscopic management of small bowel obstruction caused by intragastric balloon using antegrade single-balloon 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/mm³. 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 a remove a migrated intragastric balloon. Meticulous care should be taken while gently with-
drawing the scope with the attached balloon tightly grasped. Trauma to surrounding inflamed mucosa should be kept to a minimum.

## Competing interests

The authors declare that they have no conflict of interest.