Calcium polystyrene sulfonate bezoar in the ileum: diagnosis and treatment with double-balloon endoscopy

An 86-year-old man, admitted for transarterial chemoembolization of a hepatoma, developed fever and acute renal failure following the procedure. He was given antibiotic therapy and oral calcium polystyrene sulfonate (30g daily) for hyperkalemia. After 1 week, the patient developed bilious vomiting with abdominal pain. An abdominal X-ray disclosed diffuse dilatation of the small bowel (Fig. 1) and computed tomography was suspicious for a bezoar in the ileum along with intestinal obstruction (Fig. 2). A surgeon was consulted but surgical therapy was declined due to the high surgical risk. The patient received conservative medical therapy but his intestinal obstruction failed to resolve. A decision was made to carry out retrograde enteroscopy to remove the bezoar. When the ileum was entered, we found a large, tubular-shaped, firm yellowish bezoar occupying the intestinal lumen (Fig. 3 and Video 1). There were also some ileal ulcers. Irrigation with water and fragmentation using a snare helped mobilize the bezoar. Multiple small brownish granules were seen after the bezoar was fragmented (Fig. 4) and the aspirated fluid contained resin granules. Given the endoscopic findings and the drug history of the patient, he was diagnosed as having a calcium polystyrene sulfonate resin-associated bezoar. Despite the efforts to remove the bezoar, the patient died of multiple organ failure 1 month later.

Calcium polystyrene sulfonate is an exchange resin used to treat hyperkalemia. A few cases of resin-related bezoars with intestinal obstruction have been reported [1 – 3]. Such bezoars most often form in critically ill infants [1 – 3] or in debilitated elderly patients with decreased bowel mobility and prolonged usage of the agent. The treatment of polystyrene sulfonate-related intestinal obstruction is surgery; only one case of non-surgical management has been reported [3]. The present case report documents the endoscopic findings related to resin-associated bezoar. In addition, we have found enteroscopy may be a useful tool in the treatment of intestinal obstruction resulting from the presence of such a bezoar.

Fig. 1 Abdominal X-ray showing diffuse small-bowel dilatation in an 86-year-old man with a drug-induced bezoar.

Fig. 2 Abdominal computed tomography (CT) showing radiopaque material (arrows) in the ileum and which caused the intestinal obstruction.

Video 1 A calcium polystyrene sulfonate resin-associated bezoar in the small intestine removed by endoscopic fragmentation.

Competing interests: None
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Fig. 3 Endoscopic view showed a large, tubular and firm, yellowish structure occupying the ileal lumen.

Fig. 4 Post-fragmentation endoscopic view of the bezoar. Multiple small granules (arrows) were observed.