Acute Small Intestinal Obstruction—An Unusual Complication of Capsule Endoscopy

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Abstract We report a case of endoscopic capsule impaction causing acute small intestinal obstruction in a patient with Crohn's disease (CD), having obscure gastrointestinal bleeding. A 57-year old female presented with features of acute small bowel obstruction 2 days after capsule endoscopy elsewhere for the evaluation of intermittent bleeding per rectum and iron deficiency anemia. Patient underwent an exploratory laparotomy with right hemicolectomy for the diseased ileocecal region which mimicked malignancy. The capsule was found to be impacted in the strictured lumen of the terminal ileum. Post operative histopathological examination revealed it to be Crohn's disease.

Keywords Crohn's disease · Capsule endoscopy · Small bowel obstruction

Introduction

Wireless video capsule endoscopy (VCE) offers a higher diagnostic yield for small bowel pathology where traditional endoscopic and radiographic approaches have had limitations. VCE is indicated in the setting of obscure gastrointestinal bleeding with a high diagnostic yield [1]. Depending on the population examined and indications, the rate of capsule retention varies widely from 0 to 21 % [2–4]. Patients with extensive abdominal surgery, chronic NSAIDS use, or severe small-intestinal Crohn's disease are considered high risk for capsule retention [3]. Here, we report a case of a 57-year old

female having undergone capsule endoscopy for obscure GI bleeding and presenting with acute small bowel obstruction.

Case Report

A 57-year old female had undergone endoscopy, colonoscopy, and small bowel follow-through radiograph elsewhere for intermittent bleeding per rectum and iron deficiency anemia, all of which showed negative results. She had no history of abdominal pain, distension, vomiting, or other symptoms suggestive of obstruction. Capsule endoscopy was performed which revealed non progression of capsule due to a concentric noduloproliferative, ulcerated, friable strictured segment in the distal small intestine at 3 h and 54 min after ingestion. No active bleeding was seen (Fig. 1a).

Approximately 36 h after swallowing the capsule, the patient had severe colicky abdominal pain accompanied by nausea and vomiting and presented to us with features of small bowel obstruction. Plain abdominal radiograph in erect posture had signs of small bowel obstruction with capsule visible in the lower right abdomen (Fig. 1b).

As the abdominal pain worsened with persistent vomiting, the patient was taken for operation in emergency. At laparotomy, the entire small bowel was found distended till the distal end. The ileocecal region was found to be firm, irregularly thickened with fat laden serosal surface giving a suspicion of malignancy. No gross evidences of malignancy were found in the rest of the abdomen. As there was no facility for a frozen-section biopsy in the emergency setting, a right hemicolectomy with extended ileal resection was done. Upon transecting the specimen, the retained capsule was found impacted in the narrow and thickened terminal ileum (Fig 2). Post operative recovery was uneventful. The histopathological report confirmed it to be Crohn's disease, and the patient was put on medical therapy.

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Fig. 1 **a** Video capsule photograph of a strictured ileal segment. **b** Plain abdominal radiograph with capsule shadow

Discussion

Capsule endoscopy has been found superior to barium x-rays and push enteroscopy in the investigation of obscure gastrointestinal bleeding and in the evaluation of suspected Crohn's disease [5]. Capsule impaction is a well-known complication of capsule endoscopy. According to a consensus statement from the International Conference on Capsule Endoscopy, capsule impaction is defined as the retention of the capsule in the small bowel for 2 weeks or longer [6].

In patients with a normal small bowel follow-through examination before capsule endoscopy, the capsule impaction rate is only 0.75 % [7]. Capsule retention occurred in 13 % of patients with known Crohn's disease, but only in 1.6 % with suspected Crohn's [8]. A retained capsule may indicate unsuspected strictures in Crohn's that may require an unexpected, but therapeutic, surgical intervention.

Capsule impaction usually occurs at sites of structural abnormality in the small bowel, usually ulcers, masses, or strictures as caused by Crohn's disease, nonsteroidal anti-inflammatory drug use, radiation enteritis, or surgical

anastomosis [3]. There have been no reported cases of capsule impaction occurring in a normal small intestine.

In our case, capsule endoscopy was done to investigate the cause of obscure GI bleeding; thus, in situations where capsule endoscopy is being used to localize the site of small intestinal pathology, we need to prepare for the possibility of acute symptomatic obstruction, perhaps necessitating emergent surgery.

Conclusion

Small bowel impaction is a common enough complication of capsule endoscopy to warrant its inclusion in the informed consent in case emergency surgery is required, should acute obstruction or perforation occur. A normal small bowel series does not rule out the possibility of an undetected stricture that will lead to video capsule retention. Further investigation into factors that might be used to predict the risk of obstruction should be undertaken.

Conflict of Interest The authors do not have any disclosable interest.

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Fig. 2 Cut ileal segment of the right hemicolectomy specimen with impacted capsule

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