

Migration of the Gastric Band to the Colon and Excretion Seven Years After Placement

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ABSTRACT

Introduction: Intra-gastric band migration (IGBM) is a rare but serious late complication of laparoscopic adjustable gastric banding (LAGB). It is the result of a complete transmural migration with a simultaneous effective resolution of the gastric wall perforation. In some rare cases, the band can migrate distally into the jejunum, ileum, colon, and rectum, causing mechanical obstruction or intestinal perforation.

Case Description: We present a case of a 58-year-old woman with an unusual and infrequent complication of gastric band erosion through the stomach, and its subsequent migration to the colon and spontaneous excretion per rectum 7 years after its placement.

Discussion: IGBM can be completely asymptomatic. If the patient presents with prolonged epigastric pain or regains weight, diagnostic studies should be performed to prevent more severe associated complications. This situation went unnoticed by the patient who reported only general symptoms, and did not reach the stage of severe complication, such as mechanical obstruction and intestinal perforation. In the literature, reports of distal migration to the intestine are even rarer, and migration to the sigmoid colon and rectum, as in our patient, is extremely rare.

Key Words: Band erosion, Gastric band complication, Laparoscopic gastric banding, Migration.

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INTRODUCTION

Obesity is a public health problem worldwide. Morbid obesity (MO), on the other hand, is a more serious medical condition that affects a patient's overall survival and health.¹ In addition, it is related to multiple comorbidities such as type 2 diabetes; hypertension; cancer; and respi-

ratory, circulatory and osteoarticular system diseases.² In patients with a body mass index (BMI) of 30–35, life expectancy is reduced by 2 to 4 years, while severe obesity (BMI > 40) reduces life expectancy by 10 years.^{3,4} Current options for the management of obese patients include lifestyle changes, pharmacological therapies, behavioral changes, and bariatric surgery. Surgery is the only

option that can provide dramatic and lasting weight loss in these patients.⁵ The most commonly used bariatric procedures are sleeve gastrectomy, gastric bypass, and adjustable gastric banding. Laparoscopic adjustable gastric banding (LAGB) is one of the most popular bariatric procedures in the world, because it encompasses a restrictive surgery that offers the advantage of being less invasive, reversible, generally effective, and safe, with low morbidity and mortality rates. In this case report, we present an unusual complication of gastric band erosion through the stomach and its subsequent migration to the colon and spontaneous excretion 7 years after its placement. In addition, this case demonstrates the complications that may appear years after the original procedure

and shows that computed tomography (CT) remains an extremely important tool in the diagnosis and evaluation of future complications.

CASE REPORT

A 58-year-old female patient with a history of MO (weight, 136 kg; BMI, 46 kg/m²) underwent LAGB surgery in 2006, obtaining a 50-kg (37%) decrease in body weight. Initially, the patient did not develop any complications related to the gastric band, nor with the 3 subsequent band readjustments. Seven years after surgery, the patient presented to the emergency department with an episode of localized epigastric pain, vomiting, and an increase in blood pres-

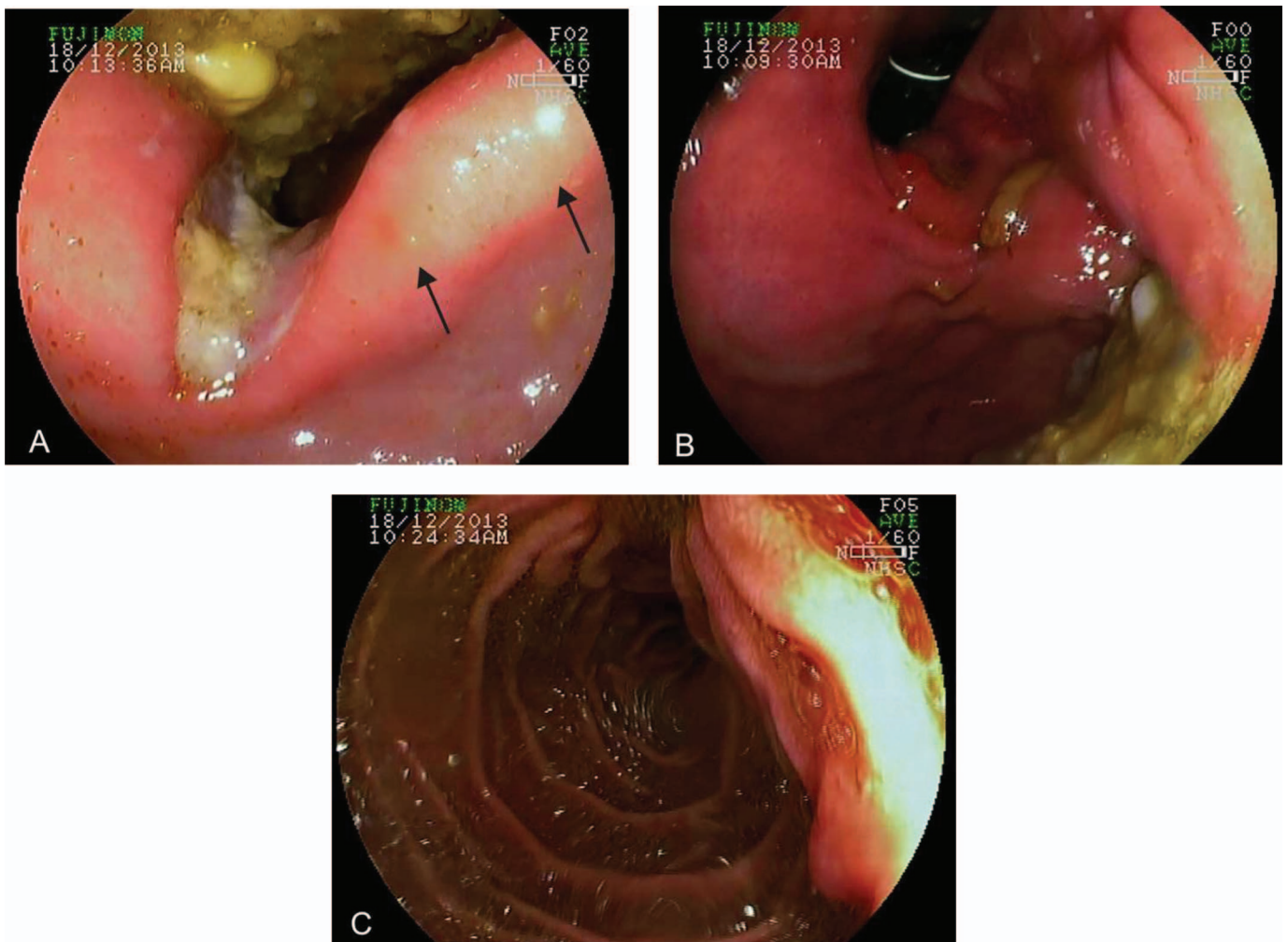


Figure 1. (A) Giant ulcer of the lesser curvature of the stomach (*arrows*). (B) Normal stomach shape and distensibility, with a mucous pool composed of semidigested food remnants. (C) Duodenal bulb of medium size, with normal shape and distensibility, without gastric band visualization or evidence of gastric perforation from the LAGB.

sure (175 mm Hg/115 mm Hg). She was diagnosed with dyspepsia, and her blood pressure was controlled. When her symptoms of epigastric pain persisted, the patient opted to consult a gastroenterologist and a cardiologist who diagnosed her with moderate chronic gastritis and treatment was initiated. Her symptoms of pain persisted for the next 3 months, for which the patient sought out her first treating bariatric doctor for a consultation. The doctor recommended that the gastric band be removed. According to her postoperative note, during the procedure, the subcutaneous adjustment port was surgically removed without localization of the band and tube because of multiple bowel and omentum adhesions, which hampered the search for the band by the first inexperienced group. A diagnostic endoscopy was performed that failed to locate the band. The patient was treated with broad-spectrum antibiotics, laxatives, and wound-healing therapy for 2 weeks, continuing with abdominal pain and vomiting on one occasion. The patient was referred to our bariatric center where she was ordered a series of imaging studies to localize the gastric band. An upper esophagogastroduodenoscopy (EGD) was performed, which found that the stomach exhibited a normal shape and distensibility, with an active giant ulcer (**Figure 1A**) in the lesser curvature of the stomach measuring $\sim 1.5 \times 4$ cm in diameter, with a mucous pool composed of semidigested food remnants (**Figure 1B**). The passage to the second portion of the duodenum showed no problems, with characteristic mucosa and intestinal folds (**Figure 1C**). Neither the gastric band nor evidence of gastric perforation by the LAGB was visualized. The patient continued to experience abdominal pain, without signs of peritoneal irritation and melena on 2 occasions. An abdominal X-ray was performed (**Figure 2**), in which a tubular image was observed running from the costal margin to the pelvic hollow in the portion of the left appendix, suggestive of the gastric band. Next, a contrast-enhanced CT of the abdomen and pelvis was requested (**Figure 3A, 3B**), where a foreign body was identified corresponding to the gastric band in an intraluminal position within the sigmoid colon. In the coronal (**Figure 3C**) and transverse (**Figure 3D**) sections, the gastric band was observed within the lumen of the sigmoid colon. The patient presented a fever for 1 day, which motivated the bariatric doctor to request a colonoscopy. The patient was started on a liquid diet and, during the same day, the patient went to the bathroom, where she spontaneously excreted the gastric band per rectum (**Figure 4**).



Figure 2. Anteroposterior abdominal radiograph showing the migration of the band in the left iliac fossa.

DISCUSSION

Intragastric band migration (IGBM) is a slow process, and its causes are not yet known, but several hypotheses have been suggested. The main etiological factor suggested is the pressure on the gastric wall, consisting of external pressure applied either through chronic overloading of the band or the inclusion of too much gastric wall during placement. This pressure generates internal pressure as a result of ingesting excessively large food boluses very early after the surgery.^{6,7} Other suggested factors are rejection of the silicone gastric band, with subsequent peripheral fibrous contraction and chronic inflammation surrounding the tissue adhering to the band.⁸ The fibrosis is thought to have an anchoring effect on the band, resulting in decubitus ulceration by pressure on the gastric wall or bowel that ultimately leads to perforation.⁹ In this case report, an ulcer was observed in the lesser curvature of the stomach, where it was thought that the band could have entered the gastric lumen. The wall of the stomach likely closed spontaneously, as no trace of any perforation was found. Once inside the gastric lumen, the band was propelled forward by peristalsis into the duodenum and colon. This situation went unnoticed by the patient, who reported only general symptoms, without reaching severe complications, such as mechanical obstruction and intestinal perforation. The band was ultimately excreted via rectum. Erosion and migration of the gastric band are

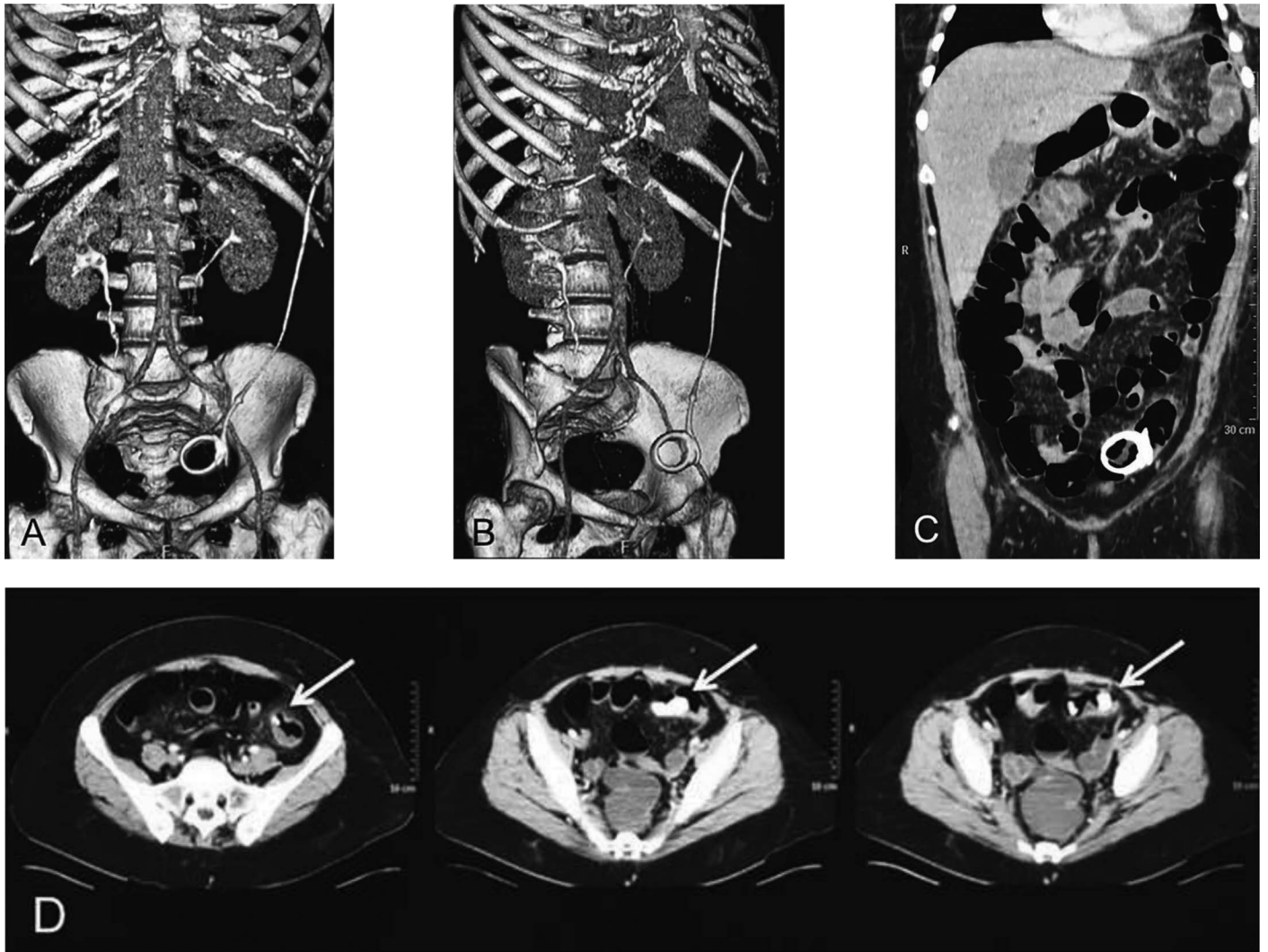


Figure 3. (A) and (B) Axial CT of the abdomen with contrast, revealing the intraluminal position of the band within the sigmoid colon. (C) Coronal CT section of the abdomen, showing the gastric band within the lumen of the sigmoid colon. (D) CT scan of the abdomen, revealing the transmural migration of the band to the colon (arrows).

considered the most severe complications in the late post-operative period, with an incidence of 0.6 to 3%.¹⁰ Several studies with large samples of patients describe an incidence of 1%,^{11,12} although some publications have reported rates of up to 11%.⁷ In the literature, reports of distal migration to the intestine are even rarer, and migration to the sigmoid colon and rectum, as in our patient, is extremely rare.

CONCLUSION

IGBM is a rare but serious late complication of LAGB. It is the result of a complete transmural migration of the band to the gastric cavity, and a simultaneous effective resolution

of the gastric wall perforation with its subsequent migration into the intestine. In some cases, these bands can migrate distally into the jejunum, ileum, colon, and rectum, causing mechanical obstruction or intestinal perforation. However, we have presented the imaging studies and diagnosis of an unusual case involving the erosion of the band toward the gastric lumen and its subsequent migration to the sigmoid colon without causing mechanical obstruction or perforation of the intestinal wall, resulting in the passing of the band without clinical support. It is important to recognize the failed attempt to locate the band after the surgery and delay in diagnosis, which leads us to believe the band



Figure 4. Gastric band excreted via rectum spontaneously.

had completely eroded from the port and migrated from the gastric cavity to the colon and rectum.

Our literature search located only 2 articles with 3 reported cases.^{13,14} In the first reported case, the patient developed an access port infection that needed drainage and removal of the port, with posterior migration to the colon causing transient distal small bowel obstruction and ultimately emerging per rectum. In the second reported case, the surgeons decided to cut the inflation tube from the port, which allowed free migration of the band and its consequential evacuation 24 hours after with the feces. In the third reported case, the surgeons opted for a conservative approach and removed only the port, which caused the band to migrate to the rectum. The patient reported feeling a foreign body and through digital rectal examination, the band was withdrawn. It is important to emphasize that the condition can be completely asymptomatic. If a patient presents with localized epigastric pain of prolonged duration or regains weight, it is necessary to perform diagnostic studies to prevent more severe associated complications. The use of contrast-enhanced CT should be the diagnostic modality of choice in distal migration, because it allows the location of the band to be identified with greater precision and enables the analysis of possible complications.¹⁵

References:

1. Afonso BB, Rosenthal R, Li KM, Zapatier J, Szomstein S. Perceived barriers to bariatric surgery among morbidly obese patients. *Surg Obes Relat Dis.* 2010;6:16–21.

2. Hady HR, Dadan J, Soldatow M, et al. Complications after laparoscopic gastric banding in own material. *Videosurg Other Miniinvasive Tech [Wideochirurgia i inne Tech Maloinwazyjne].* 2012;7:166–174.

3. Whitlock G, Lewington S, Sherliker P, et al. Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies. *Lancet* 2009;373:1083–1096.

4. Meissner W, Krokowicz L, Bobkiewicz A, Drews M. Late band migration after SAGB. Case Report. *Pol Przegl Chir.* 2015; 87:362–364.

5. Farhan-Alanie OM, Benyounes H, Stephens NA. Multiple intraabdominal abscesses after endoluminal bariatric surgery: case report and literature review. *Surg Obes Relat Dis.* 2014;10: e1–e4.

6. Sapalidis K, Liavas L, Panteli N, et al. Intrajejunal migration of adjustable gastric band: a case report. *Curr Heal Sci J.* 2013;39: 118–120.

7. Rogalski P, Hady HR, Baniukiewicz A, et al. Gastric band migration following laparoscopic adjustable gastric banding (LAGB): two cases of endoscopic management using a gastric band cutter. *Videosurg Other Miniinvasive Tech [Wideochirurgia i inne Tech maloinwazyjne].* 2012;7:114–117.

8. Dogan UB, Akova A, Solmaz S, Aydin M. Gastroscopic removal of a migrated adjustable gastric band: a case report. *Turk J Gastroenterol.* 2010;21:297–301.

9. Tekin A. Migration of the connecting tube into small bowel after adjustable gastric banding. *Obes Surg.* 2010;20:526–529.

10. Oppliger F, Rios H, Manriquez L. Migration and perforation of a gastric band in the small bowel. *Cirug Esp.* 2015;93:601–603.

11. McBride CL, Kothari V. Evolution of laparoscopic adjustable gastric banding. *Surg Clin North Am.* 2011;91:1239–1247.

12. Bueter M, Thalheimer A, Meyer D, Fein M. Band erosion and passage, causing small bowel obstruction. *Obes Surg.* 2006;16: 1679–1682.

13. Bassam A. Unusual gastric band migration outcome: distal small bowel obstruction and coming out per-rectum. *Pan Afr Med J.* 2012;13:59.

14. Vasconcelos PMPJ, T V. Let loose technique: an option in band migration. *Obes Surg.* 2012;22:316–319.

15. Salar O, Waraich N, Singh R, Awan A. Gastric band erosion, infection and migration causing jejunal obstruction. *BMJ Case Rep.* 2013; pii: bcr2012007737