

Abdominal Abscess Related to Endoscopically Placed AspireAssist[®] Device

Mihajlo Gjeorgjievski, MD¹, Naveen Reddy, MD¹, Veslav Stecevic, MD¹,
and Mitchell S. Cappell, MD, PhD^{1,2}

¹Division of Gastroenterology and Hepatology, Department of Medicine, William Beaumont Hospital, Royal Oak, MI

²Division of Gastroenterology & Hepatology, Department of Medicine, Oakland University William Beaumont School of Medicine, Royal Oak, MI

ABSTRACT

We report a 55-year-old diabetic woman with abdominal pain, pyrexia, and leukocytosis 3 months after aspiration tube placement. Abdominal computed tomography revealed a hypodense mass (10.8 × 7.2 cm) extending into the right anterior abdominal wall. Aspiration of the abscess revealed purulent fluid that grew *Streptococcus intermedius*. The aspiration tube was removed and 4 endoclips were deployed to close the intragastric stoma. The patient recovered well with 21 days of antibiotics, with resolution of the abscess and full wound healing.

INTRODUCTION

Aspiration therapy, a relatively new endoscopic treatment for morbid obesity, promotes weight loss by endoscopically inserting an aspiration tube, which is a modified percutaneous endoscopic gastrostomy (PEG) tube, to aspirate and discard about one third of intragastric food after meals.¹ Scant data exist on aspiration tube complications due to little clinical experience. Only one case of a small, sterile, aseptic abdominal cavity at gastrostomy site status-post aspiration tube insertion has been reported in the literature.²

CASE REPORT

A 55-year-old diabetic woman presented with abdominal pain and intermittent pyrexia for 3 weeks. She described peristomal cutaneous seepage of apparent gastric contents around an aspiration tube (AspireAssist[®], Aspire Bariatrics, King of Prussia, PA) inserted 3 months prior for morbid obesity. To our knowledge, this procedure was performed per PEG guidelines from the American Society for Gastrointestinal Endoscopy.³ The patient reported that she cleaned the seepage twice daily using toilet paper held with her bare hands, and that she had used such unsterile techniques for the previous month. Physical examination revealed normal vital signs, except for an elevated temperature of 37.8°C; a round, smooth, tender, fluctuant, right-sided, anterior abdominal bulge, without rebound tenderness; an aspiration tube external bumper 5 cm away from this bulge; and non-purulent, cutaneous leakage of gastric contents around the aspiration tube catheter. The leukocyte count was 12,300/mL, and the absolute neutrophil count was 8,100/mL.

Abdominal computed tomography revealed a thick-walled, septated, hypodense, homogeneous, cystic mass (10.8 × 7.2 cm) centered in the right anterior abdominal wall musculature, extending toward the gastric antrum and compressing liver and adjacent bowel intraperitoneally (Figure 1). The abscess was drained percutaneously, evacuating 120 mL purulent fluid. *Streptococcus intermedius* was isolated from bacterial cultures of the drained fluid. During esophagogastroduodenoscopy, the external bumper was cut, the aspiration tube was endoscopically

ACG Case Rep J 2018;5:e12. doi:10.14309/crj.2018.12. Published online: February 14, 2018.

Correspondence: Mitchell S. Cappell, Division of Gastroenterology & Hepatology, MOB #602, William Beaumont Hospital, 3535 W Thirteen Mile Rd., Royal Oak, MI 48073 (mscappell@yahoo.com).



Copyright: © 2018 Gjeorgjievski et al. This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0>.

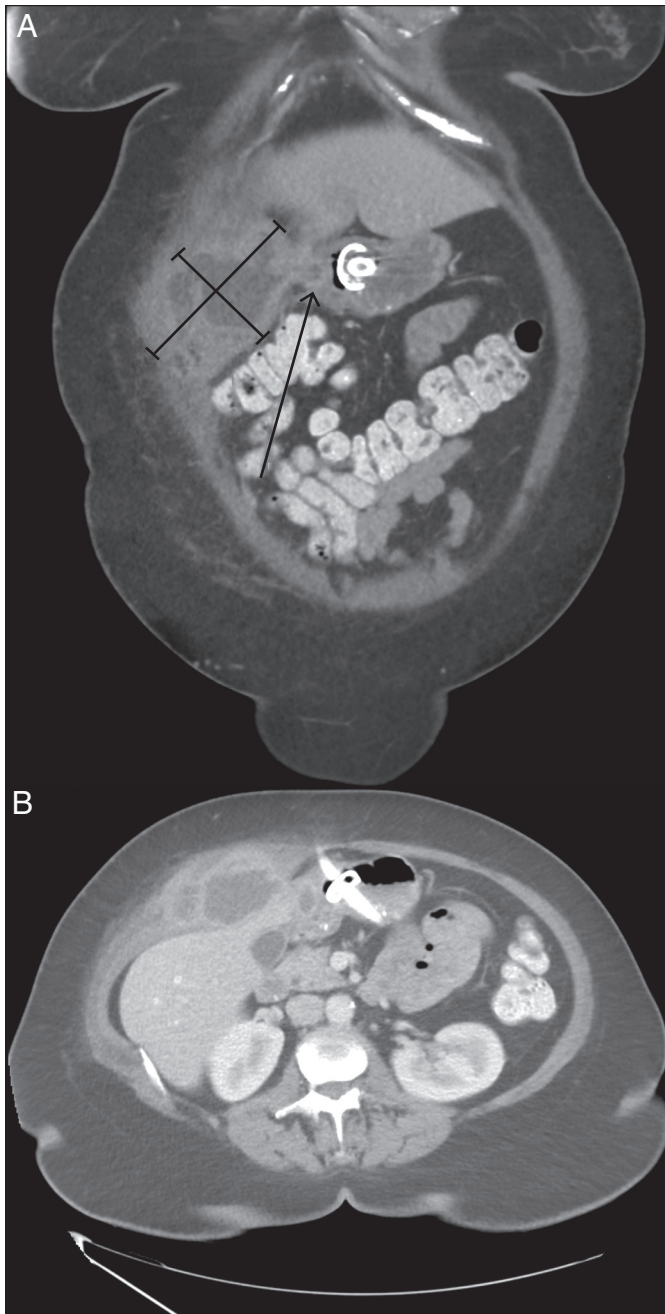


Figure 1. (A) Coronal and (B) axial views of abdominal computed tomography revealing a thick-walled, hypodense, homogeneous, cystic mass without internal calcifications or gas, which was centered in the right anterior abdominal wall musculature. The mass was emerging from gastric mucosa (arrow) and compressing the adjacent intraperitoneal liver and bowel.

removed, and 4 endoclips were deployed to close the intragastric stoma (Figure 2). No liquid leaked from the external stoma after the internal stoma was clipped. The patient recovered well in the hospital with intravenous piperacillin/tazobactam for 6 days, followed by oral amoxicillin/clavulanate therapy for 15 days. Follow-up abdominal ultrasound 4 weeks

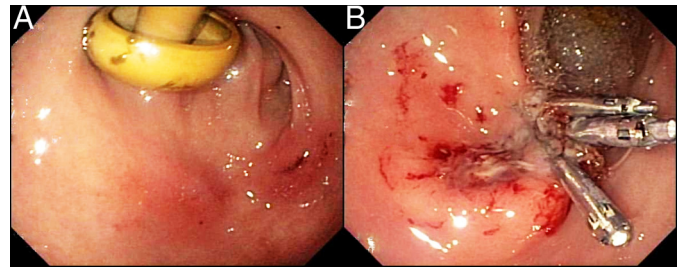


Figure 2. (A) Endoscopic view of the aspiration tube just before its removal. (B) Endoscopic view of 4 endoclips used to close the internal stoma after aspiration tube removal.

after aspiration tube removal revealed that the periaabdominal cavity had resolved. The patient was asymptomatic at 6 weeks, without abdominal pain or pyrexia.

DISCUSSION

There is a lack of literature on infectious complications of recently introduced aspiration tubes, so such complications are insufficiently characterized. Given the similarity to PEG tubes, complications related to aspiration tubes may be similar to those related to PEG tubes, which are well characterized by reporting on thousands of patients for >30 years.^{4,5}

An abdominal wall abscess is a rare complication of PEG tubes, with a low incidence rate.^{5,7} For example, in a prospective study of 1,041 patients receiving a PEG tube, severe infectious complications of peritonitis occurred in only 14 patients (1.3%), and most of the infections [115 patients (11.1%)] were local, cutaneous, and peristomal.⁸ PEG leakage around PEG stoma (combined with PEG tube blockage) occurred in 33 patients (3.1%), and no abscesses occurred.⁸ In another prospective study of 453 patients, infectious complications <2 weeks after PEG insertion included peristomal infection [50 patients (11%)] and peristomal leakage [43 patients (10%)], and no abscesses were reported among 373 patients followed up at 2 months.⁹ Necrotizing fasciitis is a rare, life-threatening complication of PEG tubes.¹⁰

The aspiration tube complication profile could, however, differ substantially from that of PEG tubes for several reasons. Whereas PEG tubes are used in malnourished patients, aspiration tubes are used in patients who frequently have morbid obesity and diabetes. These are risk factors for necrotizing fasciitis, and morbid obesity may promote dislodgement or burying of the internal bumper in thick abdominal pannus.¹¹ In terms of physical characteristics, aspiration tubes usually have a wider tube lumen and a thicker tube wall than PEG tubes, and they have a 15-cm fenestrated intragastric tube connected to the internal bumper, which is not present with PEG tubes. From a functional perspective, aspiration tubes work via intragastric, negative-pressure food aspiration, whereas PEG tubes work via intragastric, positive-pressure

food infusion. Finally, patients with aspiration tubes often self-aspirate, while healthcare workers administer feedings via PEG tubes.

We have presented a novel case of a large, abdominal wall abscess after aspiration tube insertion. Our patient had abscess risk factors of diabetes, unsterile wiping of peristomal effluent, and delayed presentation to physicians. We suggest that aspiration tubes may be more prone than PEG tubes to cause abscesses because of the larger tube diameter of aspiration tubes, frequent mild immunosuppression from diabetes in morbidly obese patients, greater tube manipulation to aspirate ingested gastric contents, and higher risk of contamination due to patients' self-maintenance of aspiration tubes.

DISCLOSURES

Author contributions: M. Gjeorgjievski, N. Reddy, and V. Stecevic wrote the manuscript. MS Cappell wrote and edited the manuscript, and is the article guarantor. M. Gjeorgjievski and MS Cappell share first authorship.

Financial disclosure: MS Cappell is a member of the speaker's bureau for AstraZeneca and Daiichi Sankyo, and he is a consultant for the U.S. FDA Advisory Committee for Gastrointestinal Drugs.

Informed consent was obtained for this case report.

Received August 18, 2017; Accepted December 12, 2017

REFERENCES

1. Bazerbachi F, Vargas Valls EJ, Abu Dayyeh BK. Recent clinical results of endoscopic bariatric therapies as an obesity intervention. *Clin Endosc.* 2017;50(1):42-50.
2. Sullivan S. Aspiration therapy for obesity. *Gastrointest Endosc Clin N Am.* 2017;27(2):277-288.
3. ASGE Standards of Practice Committee, Khashab MA, Chithadi KV, et al. Antibiotic prophylaxis for GI endoscopy. *Gastrointest Endosc.* 2015;81(1):81-89.
4. Ljungdahl M, Sundbom M. Complication rate lower after percutaneous endoscopic gastrostomy than after surgical gastrostomy: A prospective, randomized trial. *Surg Endosc.* 2006;20(8):1248-1251.
5. Finocchiaro C, Galletti R, Rovera G, Ferrari A, Todros L, Vuolo A, Balzola F. Percutaneous endoscopic gastrostomy: A long-term follow-up. *Nutrition.* 1997;13(6):520-523.
6. Sakai H, Inamori M, Sato T, et al. Giant subcutaneous abscess after percutaneous endoscopic gastrostomy. *Endoscopy.* 2007;39(Suppl 1):E264.
7. Santos PM, McDonald J. Percutaneous endoscopic gastrostomy: Avoiding complications. *Otolaryngol Head Neck Surg.* 1999;120(2):195-199.
8. Richter-Schrag HJ, Richter S, Ruthmann O, Olschewski M, Hopt UT, Fischer A. Risk factors and complications following percutaneous endoscopic gastrostomy: A case series of 1041 patients. *Can J Gastroenterol.* 2011;25(4):201-206.
9. Blomberg J, Lagergren J, Martin L, Mattsson F, Lagergren P. Complications after percutaneous endoscopic gastrostomy in a prospective study. *Scand J Gastroenterol.* 2012;47(6):737-742.
10. Artul S, Nseir W, Assaf V, Abboud N. Abdominal wall necrotizing fasciitis due to dislodged percutaneous endoscopic gastrostomy tube. *BMJ Case Rep.* 2014;2014:bcr2013201346.
11. El Hajj II, Watkins J, Easler J, Fogel E, Sherman S, Lehman GA. Different endoscopic management of 2 cases of acute buried bumper syndrome. *VideoGIE.* 2017; 2(11):297-298.