Transduodenal drainage of a malignant ovarian pseudocyst for palliation of gastroduodenal and biliary obstruction (with video)

Ryan Law, Michael D. Leise, Todd H. Baron

A B S T R A C T

Transmural drainage of intraabdominal fluid collections can be successfully performed utilizing a variety of endoscopic techniques. Here we present a case of metastatic ovarian cancer forming a fluid-filled cystic (pseudocyst) lesion that caused gastroduodenal and biliary obstruction and which resolved following transduodenal endoscopic drainage. A self-expandable nitinol stent, anchored by a double-pigtail plastic stent, was placed into the malignant pseudocyst cavity after transmural puncture. Following the successful procedure, the patient had rapid relief of her obstructive symptoms. Repeat cross-sectional imaging demonstrated near-complete decompression of the cyst cavity. Endoscopic transenteric drainage should be considered in patients with any type of fluid collections, abscesses, or hematomas in close apposition to the gastrointestinal tract.

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Introduction

Transmural drainage of pancreatic and nonpancreatic fluid collections is well described in the current literature.1–4 These procedures can be performed with or without endoscopic ultrasound (EUS) guidance. Here we report a successful transduodenal drainage procedure to relieve gastroduodenal and biliary obstruction caused by a cystic lesion associated with metastatic ovarian adenocarcinoma.

Case report

A 71-year-old woman with previous diagnosis of metastatic ovarian cancer presented for evaluation of recent onset early satiety, nausea, and vomiting after meals.

Five years prior to presentation she was diagnosed with advanced-stage ovarian cancer (papillary serous adenocarcinoma). Treatment consisted of neoadjuvant chemotherapy followed by surgical debulking (total abdominal hysterectomy, bilateral salpingo-oophorectomy, resection of the sigmoid colon, omentectomy, resection right hemidiaphragm). Since that time, she has been treated with multiple chemotherapeutic regimens and has undergone additional debulking surgery. More recently, she developed biliary obstruction secondary to a hilar lesion requiring intrahepatic placement of two plastic biliary stents. Her liver chemistry improved dramatically and all stents were subsequently removed prior to initiation of her most recent chemotherapy regimen. Several weeks after biliary decompression she developed the aforementioned symptoms of early satiety and nausea with vomiting. An abdominal and pelvic computed tomography (CT) scan showed marked gastric dilatation with retention of fluid and oral contrast consistent with gastric outlet obstruction (Fig. 1). A large, cystic structure with an internal density of 15 Hounsfield units (water density = 0–20 Hounsfield units) was observed compressing the duodenum and extrahepatic biliary tree. Additionally, her liver function tests were notable for elevated levels of alkaline phosphatase (506 UI/L) and aspartate transaminase (62 IU/L).

A decision was made to proceed with endoscopic palliative transduodenal drainage of the cystic mass. Under general anesthesia and with the patient in the supine position, a therapeutic-channel video-duodenoscope (TJF-160VF; Olympus America, Center Valley, PA, USA) was passed into the stomach where >1 L of fluid and retained solid material were encountered. Entry into the duodenum was met with obvious extrinsic compression along the posterior wall of the duodenal bulb, consistent with the patient’s cystic lesion seen on cross-sectional imaging. Using a sclerotherapy needle (Marcon-Haber; Cook Endoscopy, Winston-Salem, NC, USA), the cyst was punctured with obvious outflow of cystic fluid. A 0.46-mm,
angled-tip guidewire (Roadrunner; Cook Endoscopy), was passed through the needle and coiled within the cystic cavity. The needle was withdrawn, leaving the wire in place. A standard 5F triple lumen biliary catheter was passed over the wire into the collection. The guidewire was removed, and 20–30 mL of nonturbid, amber-colored fluid was aspirated and sent for cytologic analysis. The guidewire was replaced with a standard 0.9-mm wire and an 8-mm internal diameter by 4-cm, fully-covered self-expandable nitinol stent (Viabil; W.L. Gore Flagstaff, AZ, USA) was deployed (Fig. 2) with excellent drainage of mucinous material. A 10F double-pigtail stent was placed inside the existing nitinol stent to anchor the position and prevent migration.5

The patient was discharged from our outpatient endoscopy unit and no immediate or delayed procedural adverse events were encountered. The cytology from the aspirated cystic fluid showed adenocarcinoma of the serous type. Following the procedure, she was able to tolerate peroral intake immediately. Follow-up CT (Fig. 3) demonstrated good decompression of the cyst with resolution of the gastroduodenal and biliary obstruction. Repeat liver function tests noted alkaline phosphatase at 246 IU/L, aspartate transaminase 22 UI/L, alanine transaminase 17 IU/L, and total bilirubin 4.0 mg/L.

Discussion

To our knowledge, this represents the first case of transmural endoscopic drainage for gastroduodenal obstruction secondary to metastatic ovarian cancer. To date, very few case reports have been published describing endoscopic transmural drainage for palliation of a malignant cystic lesion.6,7

Gastroduodenal obstruction is a rare complication occurring in 2.5% of women with ovarian cancer.8 In the 11 cases within this cohort, 50% had compression at the level of the gastric body with the remaining 50% at the gastric outlet or in the duodenum. Encysted malignant ascites within the lesser sac occurred in ~30%, similar to the presentation of our patient. Historically, surgical intervention and interventional radiologic approaches have remained standard therapy for loculated malignant ascites related to ovarian cancer.8,9 CT- and ultrasound-guided approaches are successful without the morbidity associated with surgical intervention. Transmural endoscopic drainage, as described in this case, appears to be successful for symptom palliation with minimal morbidity.

Transmural drainage is widely accepted and remains the standard of care for management of pancreatic pseudocysts.1,10 This technique can be performed with or without EUS guidance, via either a transgastric or transduodenal approach, and can be extrapolated to a variety of cystic lesions that are in apposition to the stomach or duodenum. Transesophageal and transcolonic drainage of intra-abdominal fluid collection or abscesses has also been reported.11 A small, prospective case series by Piraka et al demonstrated successful endoscopic drainage in 100% of patients with complete symptom relief in 89%. Indications for EUS-guided drainage in this study included pseudocysts, intra-abdominal abscesses (i.e., Crohn’s related, diverticular), postoperative hematoma, and biloma. Given the current armamentarium of therapeutic drainage options, most intra-abdominal fluid collections, hematomas, or abscesses will be drainable via an endoscopic approach.

A potential alternative approach in this case could have been ethanol ablation. Ethanol ablation of pancreatic cystic lesions has been previously reported and has demonstrated short- and long-term efficacy with an acceptable safety profile.12,13 Mucinous cystic neoplasms and intraductal papillary mucinous neoplasms are the majority of lesions treated, although three patients with pancreatic

![Fig. 1. Abdominopelvic computed tomography (CT) scan demonstrating a large (10 cm × 8 cm × 6 cm) cystic lesion causing gastroduodenal outlet obstruction.](image1)

![Fig. 2. Abdominopelvic computed tomography (CT) scan showing decompression of the cystic lesion and resolution of the gastroduodenal outlet obstruction.](image2)

![Fig. 3. Endoscopic image demonstrating mucin drainage following placement of a self-expandable metal stent.](image3)
pseudocysts also underwent ethanol ablation. The malignant pseudocyst in our patient was much larger (10 cm × 8 cm × 6 cm) than the lesions previously treated by DeWitt et al, which ranged in size from 1.0 cm to 5.8 cm in largest diameter. Prior studies have demonstrated successful ethanol ablation of large benign hepatic cysts up to 23 cm in the largest diameter, suggesting that this approach was feasible in our patient. Studies of ethanol injection into metastatic cystic lesions have not been previously reported, but this technique may be of some palliative benefit in patients with limited life expectancy.

Conflict of interest
None of the authors have any conflicts of interest relevant to this research.

Appendix A. Supplementary material
Supplementary video related to this article can be found online at http://dx.doi.org/10.1016/j.gii.2013.02.001.

References