



Don't Interrupt! A Case Report of Continuing Peritoneal Dialysis After Endoscopic Gastric Tumor Resection

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Abstract

Rationale: The evidence supporting the safety of restarting peritoneal dialysis (PD) immediately after abdominal surgery and interventions is scant. In particular, there are no reported cases characterizing perioperative management of PD for patients undergoing endoscopic submucosal dissection for gastric intramucosal tumor removal.

Presenting concerns of the patient: A 66-year-old female with end-stage kidney disease secondary to diabetic nephropathy, currently on nocturnal automatic PD, presented with new iron-deficiency anemia. Workup revealed an intramucosal gastric lesion proximal to the pylorus, without surrounding lymph node involvement. Endoscopic submucosal dissection was performed with en bloc endoscopic resection of a 5-cm, partially flat, partially sessile mass along the posterior wall and lesser curvature of the gastric antrum. Pathology revealed low-grade dysplasia without features of malignancy. There was no evidence of hemorrhage or leak post-dissection.

Diagnoses: The clinical presentation was consistent with an uncomplicated endoscopic submucosal dissection.

Interventions: Peritoneal dialysis was held for 48 hours and restarted thereafter with no complications. The patient did not require bridging with hemodialysis.

Outcomes: The patient had an uncomplicated post-endoscopic course, with no subsequent episodes of PD-associated peritonitis after at least 6-month follow-up.

Novel finding: This is the first reported case of PD reinitiation after endoscopic submucosal dissection of a gastric tumor.

Abrégé

Justification: Les données probantes soutenant l'innocuité de la reprise de la dialyse péritonéale (DP) immédiatement après une procédure ou une chirurgie abdominale sont rares. Surtout, il n'existe aucun cas signalé caractérisant la prise en charge périopératoire de la dialyse péritonéale chez les patients subissant une dissection sous-muqueuse endoscopique pour l'ablation d'une tumeur de la muqueuse gastrique.

Présentation du cas: Une patiente de 66 ans atteinte d'insuffisance rénale terminale consécutive à une néphropathie diabétique. La patiente était traitée par dialyse péritonéale nocturne automatique et présentait une anémie ferriprive. Le bilan a révélé une lésion gastrique intramucosale à proximité du pylore, sans atteinte des ganglions lymphatiques environnants. Une dissection sous-muqueuse endoscopique a été pratiquée, avec exérèse endoscopique en monobloc d'une tumeur de 5-cm, partiellement plate et partiellement sessile, le long de la paroi postérieure et de la petite courbure de l'antrum pylorique. L'examen pathologique a révélé une dysplasie de bas grade sans caractères de malignité. Aucun signe d'hémorragie ou de fuite n'a été observé après l'intervention.

Diagnostic: Le tableau clinique était typique d'une dissection sous-muqueuse endoscopique sans complication.

Intervention: La dialyse péritonéale a été interrompue pour 48 heures, puis redémarrée sans complication. La patiente n'a pas eu besoin d'hémodialyse entre temps.

Résultats: Le parcours post-endoscopique de la patiente s'est avéré simple, aucun épisode subséquent de péritonite associée à la DP n'a été rapporté après au moins six mois de suivi.

Conclusion: Il s'agit du premier cas rapporté de reprise d'une dialyse péritonéale après la dissection sous-muqueuse endoscopique d'une tumeur gastrique.

Keywords

peritoneal dialysis, endoscopic submucosal dissection, gastric tumor

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What was known before

Multiple case reports have shown that peritoneal dialysis has been resumed after various procedures involving the gastrointestinal tract, including appendectomy, cholecystectomy, hernia repairs, hysterectomy, bariatric surgery, nephrectomy, and hemicolectomy, without complications. To our knowledge, however, there are no reports assessing restarting peritoneal dialysis after endoscopic submucosal dissection.

What this adds

This is the first case report in the literature demonstrating that it is feasible to restart peritoneal dialysis 48 hours after endoscopic submucosal dissection of a gastric tumor.

Introduction

Patients with end-stage kidney disease (ESKD) who undergo general surgical procedures are at particularly high risk for post-operative complications and death.¹ Minimally invasive, low-risk procedures may reduce these risks. For patients receiving peritoneal dialysis (PD), the literature demonstrating the safety of restarting PD immediately after abdominal surgery is scant; it is also unclear whether the risks are reduced with early introduction of PD in minimally invasive abdominal surgery.²⁻⁴ Here, we describe the perioperative management of PD in a 66-year-old female who underwent endoscopic submucosal dissection (ESD) for a suspected gastric intramucosal malignancy. The patient's substitute decision maker provided written consent for publication of her case.

Case Report

This 66-year-old patient had a medical history notable for ESKD secondary to type II diabetes mellitus, requiring a renal transplant. The transplant failed after 8 years, and so she was started on nocturnal automated PD (typical ultrafiltration 300-400 mL/day; the patient was anuric with <50 mL of urine output per day). Other comorbidities included renal cell carcinoma that was treated with left radical nephrectomy, obstructive sleep apnea, dyslipidemia, hypertension, hypothyroidism, and gastroesophageal reflux disease. Six months after her transplant failed, she developed iron deficiency anemia and underwent endoscopic workup. A gastric

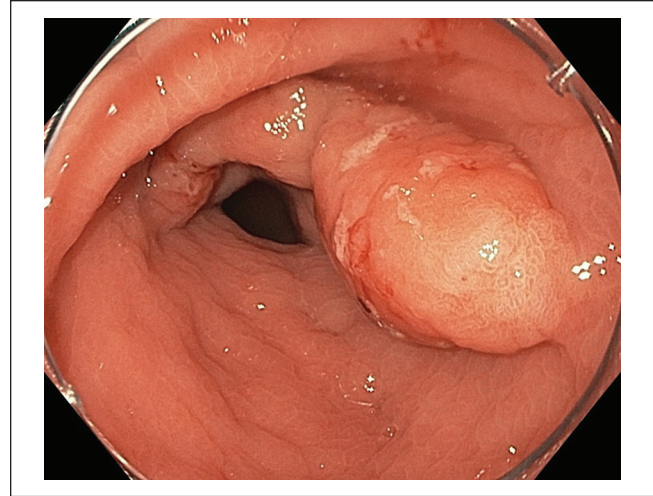


Figure 1. A 5-cm, partially flat, partially sessile mass along the posterior wall and lesser curvature of the gastric antrum. Note. Pathology revealed a 0-IIa + Is lesion of low-grade dysplasia, with no malignancy.

lesion proximal to the pylorus was found, which was suspicious for intramucosal malignancy. Biopsy revealed high-grade dysplasia. Endoscopic ultrasound confirmed that the mass was isolated to the mucosa, without surrounding lymph node involvement. As such, 3 months after diagnosis of her iron-deficient anemia, ESD was performed with en bloc endoscopic resection of a 5-cm, partially flat, partially sessile mass along the posterior wall and lesser curvature of the gastric antrum (Figure 1), resulting in a deep submucosal injury without perforation. She received antimicrobial prophylaxis prior to the procedure. Pathology revealed low-grade dysplasia with no malignancy. There was no evidence of hemorrhage or leak post-resection. Her PD was held for 48 hours and restarted thereafter. She received five 1.9 L exchanges for more than 9 hours, the day dwell was held. There were no complications, including no subsequent episodes of PD-associated peritonitis after at least 6-month follow-up. At no point was she bridged with hemodialysis (HD).

Discussion

To our knowledge, this is the first reported case of PD reinitiation after ESD of a gastric tumor. Multiple other case

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reports have shown that PD has been safely resumed after various procedures involving the gastrointestinal (GI) tract, including appendectomy, laparoscopic cholecystectomy, emergent, open incarcerated hernia repair, elective open and laparoscopic hernia repair, laparoscopic hysterectomy, bariatric surgery, laparoscopic radical nephrectomy, and laparoscopic hemicolectomy.^{2,5-16} Although the International Society for Peritoneal Dialysis guidelines recommend prophylactic antibiotics for PD patients undergoing colonoscopy, the evidence for prophylaxis prior to upper endoscopy is scant.^{17,18} However, we proceeded with antimicrobial prophylaxis in this case given the higher risk of leak associated with ESD compared with conventional gastroscopy.¹⁹

Endoscopic submucosal dissection is a relatively new technique for the en bloc resection of mucosal tumors arising in the GI tract.²⁰ It involves marking the lesion's perimeter with cautery, injecting fluid into the submucosa to elevate the lesion, cutting the surrounding mucosa of the lesion, and then dissecting the submucosa beneath the lesion.^{19,20} It is an effective modality for the treatment of early gastric cancer, with rates of negative margins ranging from 88% to 93%, a recurrence rate of 1%, and 5-year survival greater than 96%, achieving oncologic outcomes similar to surgical resection of these lesions.¹⁹ Endoscopic submucosal dissection leaves a large submucosal defect, often with exposed muscle fibers, which may pose risk for subsequent bleeding, perforation, and theoretically microperforation that may have implications for PD.

Immediate bleeding during the resection occurs in virtually all cases and is more frequent in gastric resections.¹⁹ Delayed bleeding typically presents with melena within 48 hours of resection and may occur in up to 5% of the cases, although is usually amenable to endoscopic hemostasis. Bleeding is not necessarily a contraindication to resuming PD.¹⁹ Full-thickness perforation of the intestinal wall is much less common and is more likely to occur after colorectal resection.¹⁹ Perforation identified during the procedure can be successfully treated by placement of clips to close defects in the muscularis propria. It would be unusual for a gastric leak to occur in the absence of visible damage to the muscle wall. If muscle injury occurs during the ESD resection without a full-thickness defect, the concern for microperforation/leak is higher, potentially affecting the safety of resumption of PD. In this case, patients should be treated with endoclips, nasogastric suction, fasting, and appropriate antimicrobial therapy.¹⁹ Rarely, patients experience delayed perforation, 2 or more days after successful ESD. Risk factors for this include poorly controlled diabetes mellitus, permanent HD, lesions located at surgical anastomoses, and being anticoagulated.¹⁹

In summary, PD should be delayed for at least 4 weeks when perforation/leak is suspected by the endoscopist and possibly longer depending on the extent of the injury. During this PD-free time, patients need to be bridged by HD, which

carries the risks of hemorrhage, infection, catheter-associated bacteremia, or thrombosis, and abruptly interrupting lifestyle as patients now have to travel to the HD clinic thrice weekly. However, as our case illustrates, it appears that it is feasible to resume PD 48 hours after gastric ESD, so long as there is no evidence of a leak or significant bleeding. Prospective studies are needed to establish the optimal timing for resumption of PD following this emerging method of endoscopic tumor resection.

Declaration of Conflicting Interests

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