ACG CASE REPORTS JOURNAL

CASE REPORT | COLON

Penile Prosthetic Pump Reservoir Mimicking a Cecal Subepithelial Mass

Prince Addo Ameyaw, MD[1], and Harry R. Aslanian, MD, FACG[2]

[1]*Department of Medicine, Bridgeport Hospital-Yale New Haven Health, Bridgeport, CT*
[2]*Section of Digestive Diseases, Department of Medicine, Yale University School of Medicine, New Haven, CT*

ABSTRACT

Intestinal subepithelial lesions are often encountered during endoscopy. Etiologies can include lesions intrinsic or extrinsic to the gastrointestinal wall. They can present a diagnostic dilemma as simple mucosal biopsies are often nondiagnostic. The combination of characteristic radiographic, endoscopic, and endosonographic features can aid in a definitive diagnosis precluding the need for unnecessary tissue sampling of extrinsic compressive etiologies. The location of the space of Retzius which is the traditional site of penile prosthetic pump reservoir insertion can predispose to cecal compression. We present a rare case of a penile prosthetic pump reservoir presenting as a cecal subepithelial mass on endoscopy.

KEYWORDS: endosonography; subepithelial lesion; cecal neoplasm; penile prosthesis; erectile dysfunction

INTRODUCTION

Extrinsic compression of the right colon may be visualized during colonoscopy mimicking subepithelial lesions (SELs) (including lipoma, leiomyoma/gastrointestinal stromal tumor, neuroendocrine, and vascular tumors) and should be included in the differential diagnosis of SELs.[1] Etiologies of extrinsic colonic compressive lesions include adjacent normal organs (including small bowel and uterus), tumors, ovarian cysts, vascular structures, and rarely prosthetic devices.[2,3] Endosonography can help distinguish true SELs from extracolonic lesions by the determination of the wall layer of origin and echotexture of the lesion and preclude unnecessary tissue biopsies.[4] Catheter-based mini-probe endosonography may be used to access lesions in the proximal colon, which is typically not possible to reach with endoscopic ultrasound (EUS) scopes.[5] We present a rare case of a penile prosthetic pump reservoir presenting as a cecal subepithelial mass on endoscopy.

CASE REPORT

A 50-year-old man with a history of penile prosthetic implant for erectile dysfunction, urothelial bladder cancer treated with radical prostatectomy, and neobladder creation presented for further evaluation of a subepithelial cecal mass. A screening colonoscopy performed 4 weeks prior had shown a subepithelial cecal mass with normal-appearing overlying mucosa. Histopathology of the mucosal biopsies taken were reported as representing normal cecal mucosa. He denied any recent weight loss, hematochezia, melena, or change in bowel habits. His complete blood count revealed a hemoglobin of 13.1 g/dL, mean corpuscular volume 88.0 fL, mean corpuscular hemoglobin concentration 3.2 g/dL, and platelet count of 172 $\times 10^3/\mu$L. A review of previous abdominopelvic computed tomography scan images demonstrated the spherical, smooth rounded appearance of his penile prosthetic pump reservoir in the right lower quadrant with no overt bowel compression or new intrabdominal anomaly (Figure 1).

A repeat colonoscopy showed a round, smooth structure with normal overlying mucosa in the cecum adjacent to a normal-appearing appendiceal orifice (Figure 2). It was firm on palpation with the closed forceps. With cecal insufflation, a prominent 3–4 cm round bulging structure was seen. The 12 MHz mini-probe ultrasound revealed a 4.0 $\times$ 3.5 cm, anechoic, fluid-filled round structure with a thin, regular wall, abutting a normal cecal wall (Figure 3). The cecal bulge was not reproducible after a few minutes of additional inspection due to a change in cecal position (Figure 4).

ACG Case Rep J 2024;11:e01413. doi:10.14309/crj.0000000000001413. Published online: July 12, 2024

Correspondence: Prince Addo Ameyaw, MD (prince.ameyaw@bpthosp.org).

Figure 1. Computed tomography abdomen axial plane showing a fluid-filled penile prosthesis reservoir in the right lower quadrant.

DISCUSSION

Intestinal SELs are often asymptomatic, rarely presenting with bleeding or obstruction,[6] and are frequently incidentally identified by endoscopic or radiologic studies. Twenty-nine percent of suspected gastrointestinal SEL in an endosonographic series were due to extrinsic compression.[7] Penile prostheses have traditionally been indicated for erectile dysfunction unresponsive to conservative therapies. A spherical fluid reservoir is typically implanted in the space of Retzius and a manual pump is used to transfer fluid to the inflatable penile prosthesis. Adverse events related to bowel impingement have rarely been reported.[3]

Bulging areas with normal overlying mucosa may occasionally be seen during colonoscopy, particularly in the right colon, raising the possibility of an intramural lesion vs extrinsic compression.[7–10] Reduction of colonoscope loops, reducing luminal insufflation with suctioning and palpation with forceps may help distinguish intramural lesions vs extrinsic compression during colonoscopy. Duplication cysts and lipomas will typically be soft to palpation

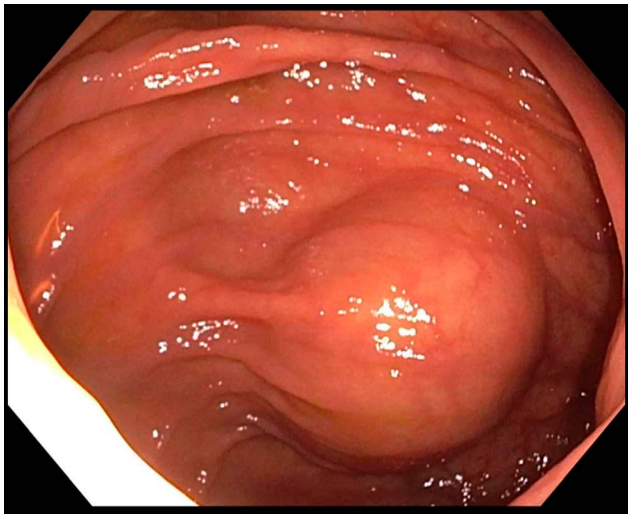

Figure 2. Endoscopic image showing a round, smooth cecal structure with normal overlying mucosa adjacent to the appendiceal orifice.

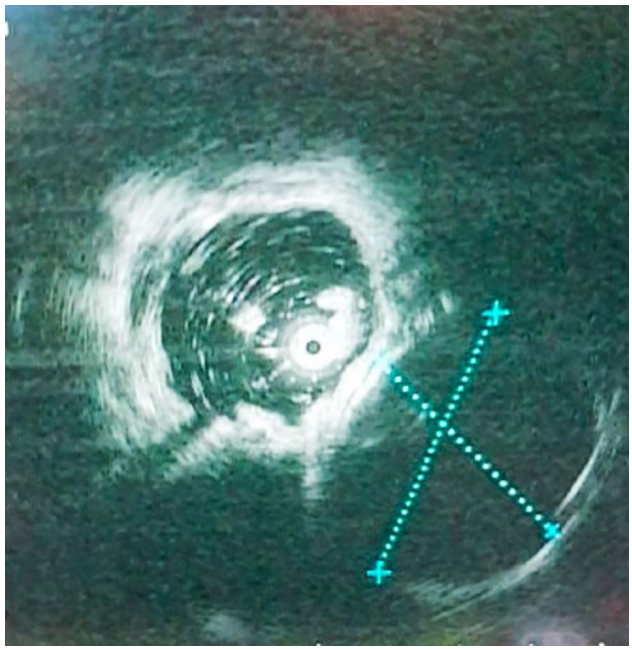

Figure 3. Sonographic image of a 4.0 × 3.5 cm, anechoic, fluid-filled round structure with a thin, regular wall, abutting a normal cecal wall.

and may have a translucent or yellowish coloration.[7–10] Leiomyoma/gastrointestinal stromal tumors and neuroendocrine tumors may have a more rounded appearance and are typically firm to palpation. The firm, rounded appearance of a penile prosthesis reservoir, as seen in this case, may mimic a leiomyoma/gastrointestinal stromal tumor. Tunnel forceps biopsy is frequently nondiagnostic as it is difficult to access lesions located in the submucosa and muscularis propria.[7–10] Passage of the oblique viewing linear EUS scope to the right colon is typically not possible due to the short scope length and challenging oblique viewing optics; thus, EUS-fine needle aspiration is typically not an option for diagnosis.[7,8,11] The EUS mini-probe may be passed through the working channel of the pediatric or adult colonoscope, accessing

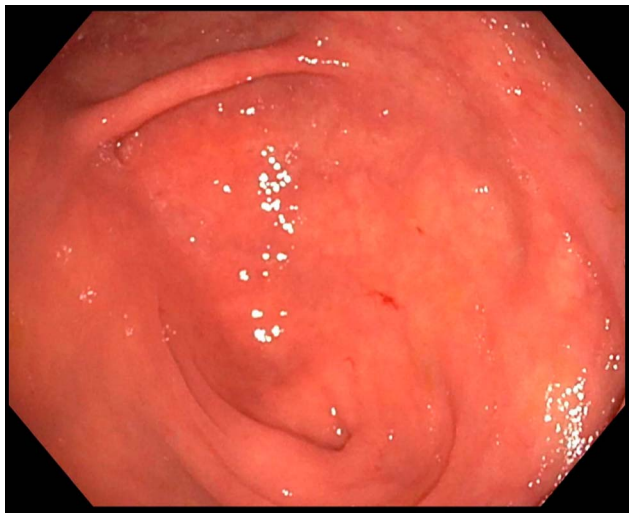

Figure 4. Endoscopic image showing a normal cecum without any demonstrable mass.

any portion of the colon, and may provide useful diagnostic information.[4] In this case, we were able to visualize the fluid-filled, thin-walled spherical reservoir adjacent to the cecal wall with a similar appearance as seen on computed tomography imaging. EUS mini-probe was successfully used to diagnose all suspected colorectal SEL in a series involving 40 patients, with diagnosis confirmation by cross-sectional imaging and biopsy.[4]

We identified 1 prior case report of a penile prosthesis mimicking a SEL.[3] We report the first EUS mini-probe imaging findings and detail the resolution of the extrinsic bulge with a change in cecal positioning. There has been a global and national increase in penile prosthesis procedures since the early 2000s,[12] with the 2018 American Urological Association guidelines on erectile dysfunction recommending penile prosthetic devices as a first-line therapy consideration.[13] Endoscopist awareness of the possible appearance of the penile prosthesis as a rounded intramural cecal bulge during colonoscopy may prevent additional unnecessary diagnostic evaluations.

DISCLOSURES

Author contributions: PA Ameyaw performed the chart review, review of the literature, and produced the draft and final manuscripts. HR Aslanian was the supervising and attending clinician, led content designing, and edited and approved the final manuscript. PA Ameyaw is the article guarantor.

Financial disclosure: HR Aslanian is a consultant for Boston Scientific and Olympus.

Informed consent was obtained for this case report.

Received February 25, 2024; Accepted May 31, 2024

REFERENCES

1. Pickhardt PJ, Kim DH, Menias CO, et al. Evaluation of submucosal lesions of the large intestine: Part 1. Neoplasms. *Radiographics*. 2007;27(6):1681–92.
2. Nguyen-Tang T, Shah JN, Sanchez-Yague A, et al. Use of the front-view forward-array echoendoscope to evaluate right colonic subepithelial lesions. *Gastrointest Endosc*. 2010;72(3):606–10.
3. Esmadi M, Ahmad DS, Hammad HT. Education and imaging. Gastrointestinal: Penile prosthesis reservoir appearing as a cecal submucosal mass. *J Gastroenterol Hepatol*. 2014;29(9):1660.
4. Chen TH, Lin CJ, Wu RC, et al. The application of miniprobe ultrasonography in the diagnosis of colorectal subepithelial lesions. *Chang Gung Med J*. 2010;33(4):380–8.
5. Standards of Practice C, Faulx AL, Kothari S, et al. The role of endoscopy in subepithelial lesions of the GI tract. *Gastrointest Endosc*. 2017;85(6):1117–32.
6. Chak A. EUS in submucosal tumors. *Gastrointest Endosc*. 2002;56(4 Suppl):S43–8.
7. Polkowski M, Butruk E. Submucosal lesions. *Gastrointest Endosc Clin N Am*. 2005;15(1):33–54, viii.
8. Nishida T, Kawai N, Yamaguchi S, et al. Submucosal tumors: Comprehensive guide for the diagnosis and therapy of gastrointestinal submucosal tumors. *Dig Endosc*. 2013;25(5):479–89.
9. Jacobson BC, Bhatt A, Greer KB, et al. ACG clinical guideline: Diagnosis and management of gastrointestinal subepithelial lesions. *Am J Gastroenterol*. 2023;118(1):46–58.
10. Kim TO. Colorectal subepithelial lesions. *Clin Endosc*. 2015;48(4):302–7.
11. Lee LS, Lee LS. SpringerLink. *ERCP and EUS: A Case-Based Approach*. 1st edn. New York, NY: Springer; 2015.
12. Kohn TP, Rajanahally S, Hellstrom WJG, et al. Global trends in prevalence, treatments, and costs of penile prosthesis for erectile dysfunction in men. *Eur Urol Focus*. 2022;8(3):803–13.
13. Burnett AL, Nehra A, Breau RH, et al. Erectile dysfunction: AUA guideline. *J Urol*. 2018;200(3):633–41.