



Small Bowel Obstruction from a Displaced Penile Prosthesis Reservoir: Case Report and Review of the Literature

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

Case Study

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ABSTRACT

Aims: To alert practitioners to complications regarding inflatable penile prostheses.

Presentation of Case: A 56 year-old male with a history of an inflatable penile prosthesis and multiple revisions was found to have a small bowel obstruction. Computed tomography scan and subsequent surgery demonstrated a disconnected, displaced penile prosthesis reservoir as the cause of his bowel obstruction.

Discussion: The inflatable penile prosthesis is a commonly used device for the treatment of erectile dysfunction. While patient satisfaction is high, this device is prone to complications that arise with prosthetic, mechanical implants.

Conclusion: Inflatable penile prostheses are common devices that can have immediate and delayed complications. Practitioners should be aware of the device and its complications when evaluating patients.

Keywords: Infection; urology; penile prosthesis; erectile dysfunction; complication.

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1. INTRODUCTION

Erectile dysfunction is a common medical problem, with estimates around 50% for men aged 40-70 years [1]. The preservation or reinstatement of erectile function has emerged as a critical aspect of urological care. The inflatable penile prosthesis is commonly used to treat erectile dysfunction refractory to medical management. In this procedure, the fluid reservoir for the device is classically placed in the retroperic space. Should the prosthesis ever warrant removal, attempts are made to remove the reservoir, but it may be disconnected and left *In situ*. In this report, we discuss the diagnosis of a small bowel obstruction from the disconnected and displaced reservoir of an inflatable penile prosthesis.

2. PRESENTATION OF CASE

A 56 year old male was evaluated for recurrent abdominal pain for 2-3 years. He described this pain as episodic, crampy, occurring 2-3 times per week, and lasting 5 minutes per episode. He reported a cholecystectomy 3 years earlier and 5 operations for IPP placement and revision. His IPP was once functional but had not been working for several years. He was otherwise healthy. He received a plain film of his abdomen that demonstrated multiple air-fluid levels in the left upper quadrant and a paucity of colonic gas suggesting complete bowel obstruction. The scrotal pump and erectile bodies of the IPP were appreciated on plain films. Fig. 1 He subsequently underwent computed tomography scan to determine the location and etiology of his obstruction. This revealed a mechanical obstruction caused by an intraperitoneal, disconnected intra-abdominal IPP reservoir. Fig. 2 He subsequently underwent exploratory laparotomy to remove the freely-floating reservoir, followed by resolution of abdominal pain and return of bowel function.

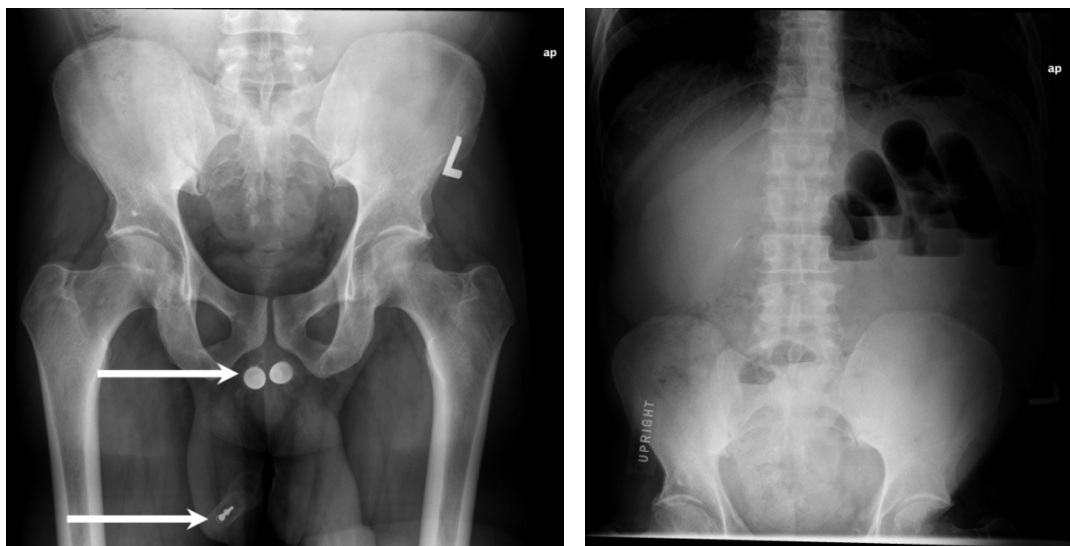


Fig. 1. Abdominal plain films revealing small bowel obstruction. The pump and proximal tips of the erectile cylinders are visible (arrows), but the reservoir is not appreciable



Fig. 2. Non-contrast CT with arrow identifying the IPP reservoir

3. DISCUSSION

A major advancement in the surgical management of erectile dysfunction occurred with the introduction of the inflatable penile prosthesis in 1973 [2]. The most commonly used device has three components—erectile cylinders within the corpora cavernosa of the penis, a pump that resides within the scrotum, and a fluid reservoir that is typically located in the retroperic space—all linked together by hydraulic tubing. Many improvements in technology and surgical technique have been introduced to improve the safety, ease of placement, and ease of use. As a result, this type of prosthesis has a high patient satisfaction rate (greater than 90%) and a low mechanical revision rate (96% successful at 5 years, 60% successful at 15 years) [3].

Despite its high satisfaction, the IPP has nontrivial complication rates. The most common early complication is infection (1-3% for initial implantation, 7-18% for IPP revision) [4]. This is typically seen within the first 3 months following implantation. The treatment is explantation with prolonged antibiotic therapy. Cultures drawn at the time of explantation are predominantly gram-positive flora [5]. The most common late complications are hydraulic fluid leakage or autoinflation of the IPP resulting in mechanical malfunction (4.3%-35.3%) and corporal perforation/erosion (1-11%) [5]. More rare complications include glans bowing, also known as the supersonic transport deformity, and distal erosion of the erectile cylinders through the glans. Complications specific to the IPP reservoir are rare. Herniation of the reservoir, especially when the penoscrotal approach is used, is less than 1%. Only case reports exist of IPP reservoirs eroding into adjacent structures, including small bowel and

bladder. In these extremely rare cases, previous major abdominal/pelvic surgery may be a risk factor.

It is important that practicing surgeons and physicians be cognizant of these complications for surgical planning and postoperative care, respectively. In patients who are being treated for post- pelvic surgery or radiation-induced impotence, the space of Retzius may be obliterated. Intra peritoneal reservoir placement has been performed without significantly increased reporting of injury. However, blind attempts to place the reservoir retroperitoneally may result in inadvertent bowel, bladder, vascular, and hernia complications. Indeed, a survey of the Sexual Medicine Society of North America reported 81% of members find IPP placement more difficult in patients who have undergone robotic assisted laparoscopic prostatectomy [6]. The survey respondents also strongly recommend that IPP surgeons learn alternative reservoir placements, as it may be beneficial for patient safety. Reservoirs can be ectopically placed in between the rectus abdominis muscle and transversalis fascia in patients with prior pelvic surgery. The reservoir may be palpable in patients who are thin, although flat or low-profile reservoirs may minimize this. The space between the transversalis fascia and peritoneum can be alternatively used if normal anatomic planes are available. Alternatively, a high, retroperitoneal location can also be utilized.

4. CONCLUSION

We describe a complication of an IPP which involved disconnection of the reservoir leading to small bowel obstruction. In patients with obliterated spaces of Retzius, such as post-trans peritoneal robotic prostatectomy patients, alternative reservoir placement may minimize the potential complications. When planning surgical treatment of erectile dysfunction, urologists must be aware of these technical challenges and versed in performing alternative techniques to reservoir placement. Physicians must likewise be aware of the complications associated with these devices when evaluating patients for pelvic and abdominal complaints.

CONSENT

All authors declare that written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images.

ETHICAL APPROVAL

Not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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