Images – Large symptomatic seminal vesicle cyst treated with robotic-assisted seminal vesiculectomy

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Introduction

Zinner syndrome is a congenital abnormality of the mesonephric duct and consists of unilateral renal agenesis, ipsilateral seminal vesicle cyst, and ipsilateral ejaculatory duct obstruction.[1] These findings are due to arrested development in embryogenesis, which affects the caudal end of the Mullerian duct. Fewer than one hundred cases have been reported to date. Seminal vesicle (SV) cysts may also be acquired and have been associated with benign prostatic enlargement, prostatic surgery, and malignancy.[2] Though most often asymptomatic, the most common symptoms are lower urinary tract symptoms (dysuria and frequency) and perineal pain.[3] Treatment options for symptomatic cysts include: surgical excision, transurethral de-roofing and aspiration. Minimally invasive approaches provide an opportunity to maximize surgical results while minimizing morbidity. To date only a few cases of robotic assisted laparoscopic seminal vesiculectomy have been described. We report the largest SV cyst in the current literature to be managed by robotic-assisted laparoscopic vesiculectomy.

Clinical history

A 21-year male with Zinner syndrome was referred for management of a massive, symptomatic, right 17.9 cm SV cyst. He reported a six-year history of lower urinary tract symptoms (intermittent mild frequency and urgency) and perineal pain. The pain was described as a dull ache exacerbated by prolonged sitting. Initially, these symptoms were intermittent, lasting for a few days and resolving spontaneously. He then had a severe episode of pain that lasted for three weeks. This prompted him to seek medical advice. Physical examination revealed a cystic mass in the prostatic region and was otherwise unremarkable.

Imaging

Ultrasound and computed tomography images were obtained. A large pelvic cyst arising from the right seminal vesicle was appreciated along with a solitary left kidney. The cyst occupied much of the pelvis, measuring 8 cm in width (Fig. 1). The length of the cyst measured 17.9cm and it extended up to the L5 vertebrae (Figs, 2, 3). The cyst was seen to be distorting the contour of the bladder, perhaps accounting for his LUTS.

Intervention

There are few reported cases of robot-assisted laparoscopic seminal vesiculectomy in the literature likely due to the rarity of the diagnosis, in addition to most SV cysts being asymptomatic. The surgery was completed using the da Vinci Si robotic system. The ports were placed in a standard configuration for a transperitoneal robot-assisted radical prostatectomy, but more cephalad, given the cyst extended up to the level of L5.

Pneumoperitoneum was established and followed by retraction of the small bowel and sigmoid laterally; the SV cyst could easily be seen within the retroperitoneum. The peritoneum was incised on the right lateral wall and the SV cyst was identified. The peritoneal incision was carried down towards the right side of the pelvis and the pubic bone. Similar dissection was performed on the left side of the SV cyst down towards the pelvis. Dissection then continued down to lift the cyst off the lateral wall on the right (Fig. 4) and off the reflected peritoneum on the left. Due to the massive size of the cyst, we then carried our dissection cephalad to reach the apex of the cyst. Dense fibrosis was encountered in this region. We turned back toward the distal aspect of the cyst. As we carried out our dissection on the right side, a significantly dilated and tortuous vas deferens was encountered consistent with ejaculatory duct obstruction (Fig. 5). The vas deferens was isolated, clipped, and ligated to facilitate dissection of the massively dilated SV cyst. Dissection of the cephalad aspect of the cyst was extremely difficult due to dense fibrosis and inflammation. Once narrowed down to a stock at its most cephalad extent the SV cyst was ligated with a Hem-o-lok clip and divided leaving a very small portion of the cyst in place. The posterior attachments of the cyst were then mobilized and we came back towards the prostate. At this point the SV cyst was attached by a relatively narrow stock right before its insertion to the SV. The cyst was divided at the stock (Fig. 6) and placed within a 10mm Endocatch bag to be extracted later. The transected SV stump was then over-sewn with 3-0 Vicryl in a running continuous fashion. Hemostasis within the pelvis was confirmed. Our specimen was extracted by morcellation in the Endocatch bag through the 12mm supraumbillical port.

Discussion

Seminal vesicle cysts are typically discovered incidentally on imaging in asymptomatic young men and can be associated with genitourinary conditions. In this case, our patient was symptomatic and was subsequently diagnosed with Zinner syndrome. While various approaches for the operative management of SV cysts have been described, experience is limited with minimally invasive techniques. Kavoussi et al described the principles of a laparoscopic approach to the SV.[4] With the introduction of the robotic platform, the ability to preform more precise dissection in the pelvis allows for this potentially challenging surgery to be preformed with more confidence. To date, nine reported cases of robotic seminal vesiculectomy have been published. To our knowledge, the cyst found in our patient (17.9cm) is the largest cyst to be removed with a robotic approach.

With robotic surgery, port placement is critical to maximize retraction and dissection with each robotic arm. We placed our ports more cephalad than the traditional configuration for a transperitoneal robot-assisted radical prostatectomy. This facilitated dissection of the most cephalad portion of the SV cyst, which extended to L5.

Conclusion

To our knowledge this is the largest SV cyst (17.9 cm) to be managed by robotic assisted laparoscopic seminal vesiculectomy in the current literature. A minimally invasive approach is safe and feasible, although experience with pelvic robotic surgery is recommended.

References

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Figures and Tables

Fig. 1.

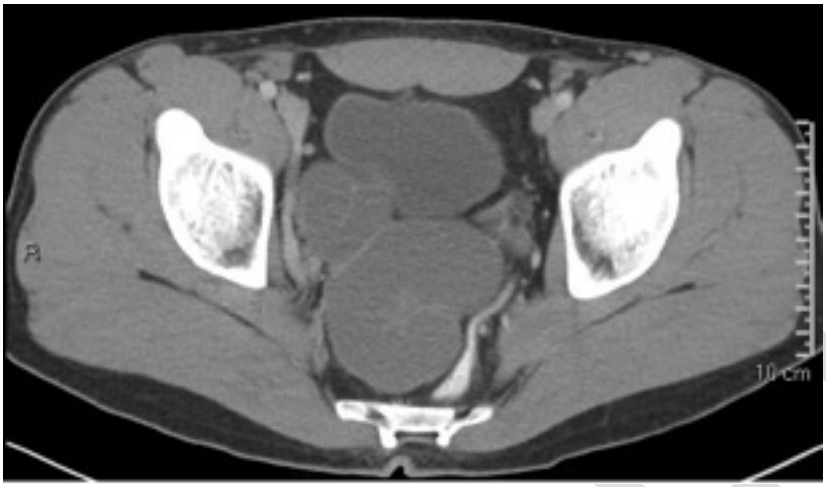

Fig. 2.

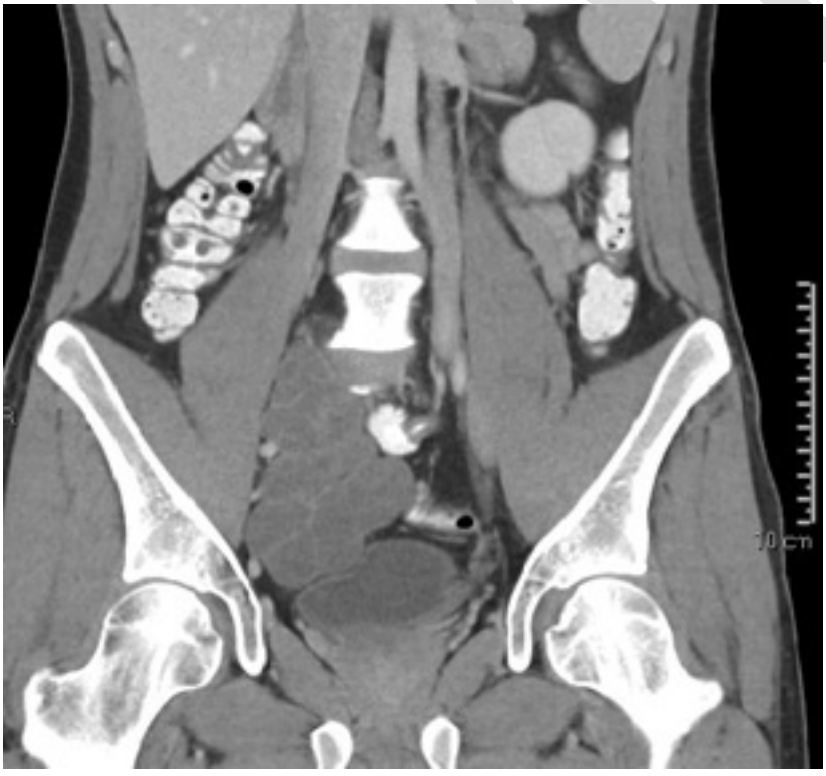

Fig. 3.

Fig. 4.

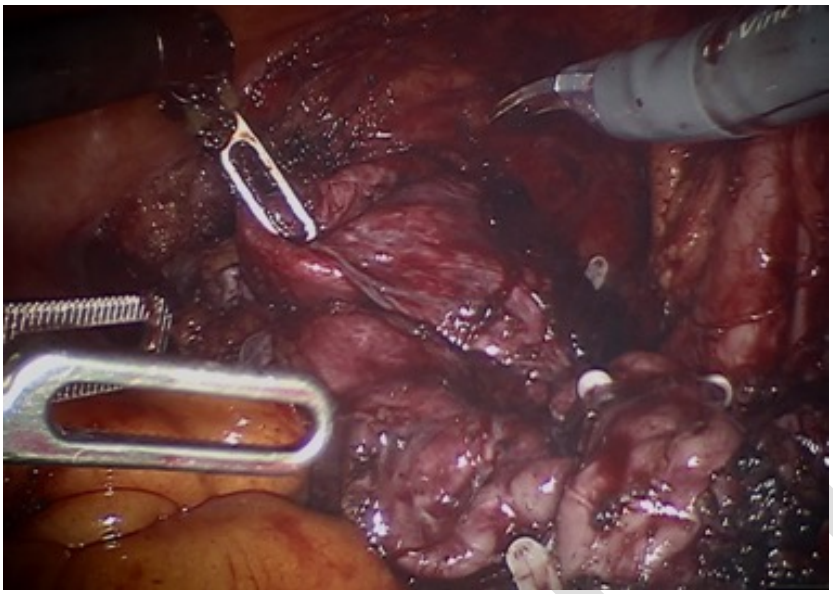

Fig. 5.

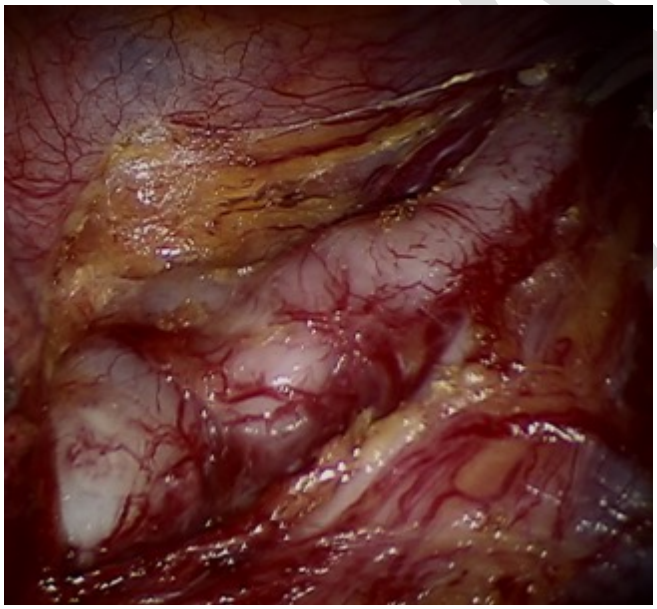

Fig. 6.