

# Laparoscopic Removal of a Congenital Seminal Vesicle Cyst in Zinner's Syndrome

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## ABSTRACT

**Introduction:** Seminal vesicle cysts are rarely diagnosed, but symptomatic congenital seminal vesicle cysts are reported in the literature describing Zinner syndrome.

**Case Description:** We present the case of a 26-year-old patient admitted to the urology department because of abdominal pain. A left seminal vesicle cyst and left kidney agenesis were found on examination, and the patient qualified for laparoscopic removal of the left seminal vesicle cyst. The procedure was performed with transperitoneal access using 5 trocars. The peritoneum was incised between the bladder and the rectum to reveal the left seminal vesicle, which was resected from the surrounding tissue. A TachoSil (Takeda Pharmaceuticals, Zurich, Switzerland) hemostatic sponge was placed in the ledge after cutting the base of the seminal vesicle.

**Discussion:** The aim of this study was to evaluate usefulness of the laparoscopic technique to remove a cystic seminal vesicle. The procedure lasted 180 minutes, and the estimated blood loss was 50 mL. We did not record any intra- or postoperative complications. The patient was discharged from the hospital on the third postoperative day and remains symptom-free after 12 months. Histopathologic examination confirmed the presence of a seminal vesicle cyst, and renal agenesis and stenosis of the vas deferens suggests Zinner syndrome. Symptomatic seminal vesicle cysts are a good indication for the application of a laparoscopic technique and, in our opinion, this is better than the open technique because of the view into the surgical area. Therefore, it should be used as the method of choice in treating seminal vesicle defects.

**Key Words:** Laparoscopic technique, Pelvis surgery, Congenital defects, Seminal vesicle cyst, Zinner syndrome.

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## INTRODUCTION

Seminal vesicle cysts are a rarely diagnosed disease, seen in only 1 in 20,000 men.<sup>1</sup> Most of these cysts coexist with a congenital syndrome, first described by Zinner in 1914.<sup>2</sup> Zinner syndrome is characterized by the coexistence of vas deferens stenosis, renal agenesis, and an ectopic ureteral orifice in the prostatic part of the urethra or seminal vesicle.<sup>3</sup> This is caused by malformations of the distal portion of the mesonephric duct.<sup>3,4</sup> To date, only 100 cases of Zinner syndrome have been described in the literature.<sup>5</sup> Although the associated vesicle cysts are generally asymptomatic, they may cause symptoms such as perineal pain, painful ejaculation, hematospermia,<sup>6,7</sup> abnormal micturition,<sup>8</sup> lower urinary tract symptoms (LUTS), or dysuria.<sup>5</sup> They may also be accompanied by infertility.<sup>9,10</sup> The suspected presence of a cyst is based on ultrasonography (USG) and is confirmed by transrectal ultrasonography (TRUS), computed tomography (CT), or magnetic resonance imaging (MRI), which reveal fluid-filled spaces behind the bladder.<sup>5,8,9,11</sup> In general, digital rectal examination demonstrates a large, soft, fluctuant pelvic mass in the region behind the prostate.<sup>5,8,11</sup>

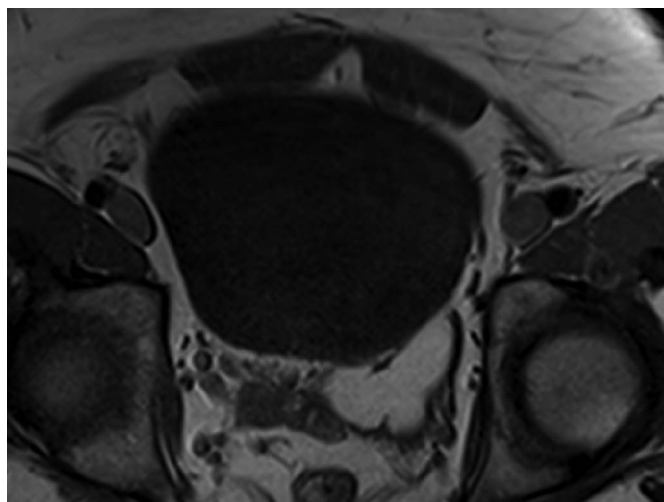
The treatment of choice for symptomatic seminal vesicle cysts is surgical resection. Other methods, such as transrectal or transurethral puncture, aspiration, or transurethral resection of the seminal colliculus and vas deferens, carry the risk of recurrent cysts.<sup>8</sup> Open surgery is not easy because of the location of the seminal vesicles deep beneath the bladder<sup>5</sup> and the possibility of damage to the bladder and rectum. We describe a case of a seminal vesicle cyst in a patient with Zinner syndrome who underwent laparoscopic surgery.

## Case Description

A 26-year-old obese patient (body mass index of 36) was admitted to the urology department because of recurrent abdominal and perineal pain and dysuria. USG revealed a fluid-filled space located behind the bladder on the left side. CT and MRI confirmed the presence of a left seminal vesicle cyst with a diameter of 8 cm (**Figures 1 and 2**) and ipsilateral renal agenesis. The patient qualified for laparoscopic removal of the left seminal vesicle cyst because of persistent pain.

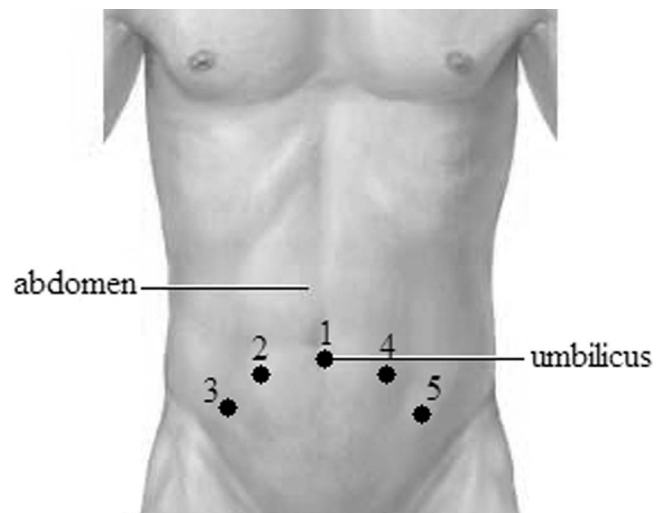


**Figure 1.** Preoperative CT scan of pelvis showing the left seminal vesicle cyst.

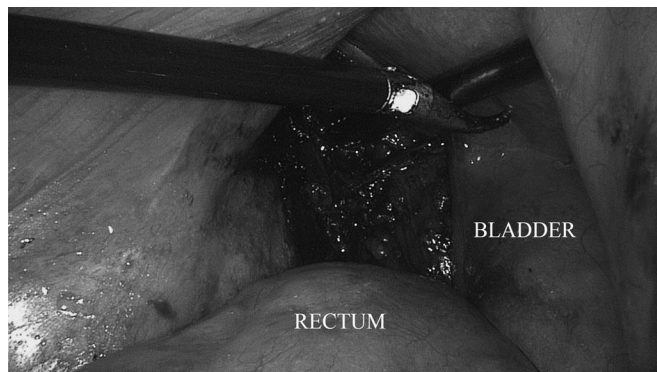


**Figure 2.** Preoperative pelvic MRI of the pelvis.

The procedure was performed with a laparoscopic technique by transperitoneal access. The patient was placed in the Trendelenburg position, and a catheter was placed into the urinary bladder and maintained during the whole procedure. Five trocars were inserted (**Figure 3**). Trocar 1 (10 mm) was added below the umbilicus for a 0-degree optic. Trocar 2 (5 mm) was placed for the left assistant hand to aid use of the suction, and trocar 3 (5 mm) was placed for the right assistant hand to use the retractor to hold the bowel or bladder; these were located between the umbilicus and the anterior iliac crest on the right side. Trocar 4 (10 mm) was for the right operator hand to use the harmonic scalpel or scissors, and trocar 5 (5 mm) was required for the left operator hand to use the bipolar



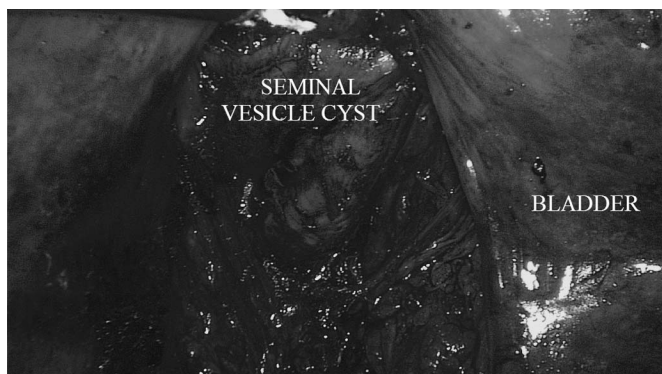
**Figure 3.** Trocar placement.



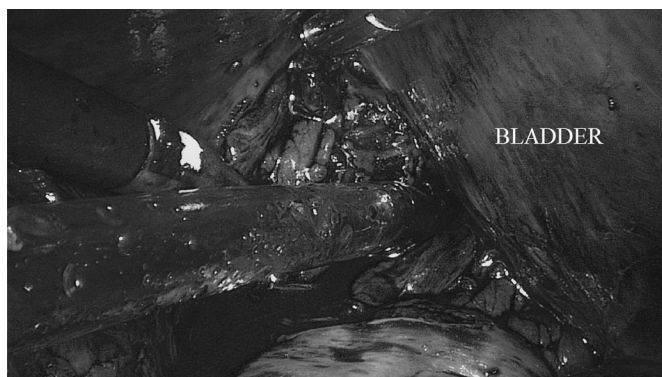
**Figure 4.** View after the peritoneal incision.

dissector; these were placed between the umbilicus and the anterior iliac crest on the left side.

Reaching the vesicorectal recess was difficult because of the patient's obesity and numerous peritoneal adhesions from a previous appendectomy. The first stage of treatment involved lifting the urinary bladder to reveal the vesicorectal recess. The peritoneum was then incised between the bladder and the rectum (**Figure 4**). Cystic formations were located after removal of the fat layer (**Figure 5**). This failed to separate the vas deferens, which was constricted and conjoined to the seminal vesicle as previously described in Zinner syndrome.<sup>2</sup> The seminal vesicle was excised using a harmonic scalpel and bipolar coagulation (**Figure 6**). Blood vessels reaching the bottom of the seminal vesicle were clipped. A hemostatic sponge (TachoSil, Takeda Pharmaceuticals, Zurich, Switzerland) was placed in the ledge after cutting off the base of the seminal vesicle (**Figure 7**). The TachoSil (Takeda



**Figure 5.** Left seminal vesicle cyst.



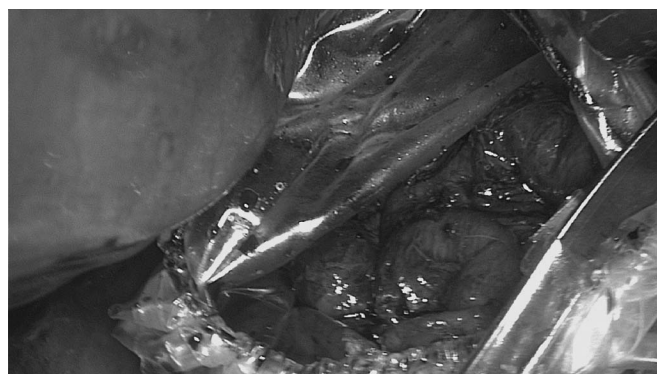
**Figure 6.** View after seminal vesicle cyst removal.



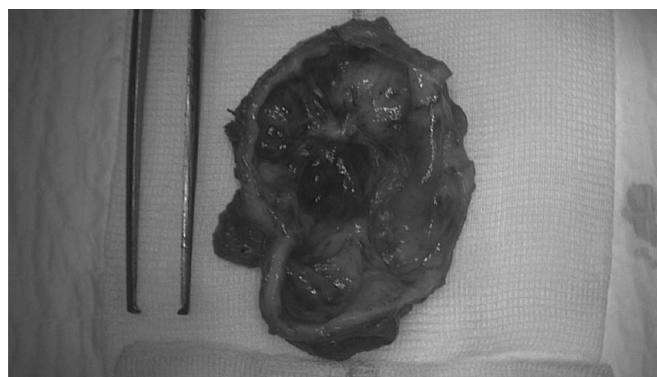
**Figure 7.** Hemostasis sponge.

Pharmaceuticals) was effective for hemostasis. The excised cyst was placed in an endobag and removed from the body (**Figures 8 and 9**). One drain was left at the end of the operation.

The procedure lasted 180 minutes, and the estimated blood loss was 50 mL. The patient was discharged home on the third postoperative day, and there were no postoperative complications. His preoperative symptoms



**Figure 8.** Excised seminal vesicle cyst in the endobag.



**Figure 9.** Cyst outside of the body.

completely resolved after surgery. Histopathologic examination confirmed the presence of a seminal vesicle cyst. At the time of publication, the patient remains symptom free after 12 months of constant follow-up.

## DISCUSSION

Zinner syndrome is a rarely diagnosed disease characterized by renal agenesis, an ectopic ureteral orifice in the prostatic part of the urethra or seminal vesicle, vas deferens stenosis, and a seminal vesicle cyst. English-language literature describes only 100 cases.<sup>12</sup> Seminal vesicle cysts are generally small (<5 cm), asymptomatic, and do not require treatment; however, they can also achieve a much greater size.<sup>13</sup> A growing cyst may result in perineal pain, painful ejaculation, hematospermia,<sup>6,7</sup> abnormal urination,<sup>8</sup> LUTS or dysuria,<sup>5</sup> and infertility.<sup>10,14</sup> Seminal vesicle cysts may be identified incidentally during digital rectal examination or USG. Digital rectal examination reveals a resilient formation palpable behind the prostate,<sup>5</sup> but only USG is capable of diagnosing a cyst and determining its relative size, location, or structure. The lesion is anechoic, has a smooth wall, and is filled with homogeneous fluid.<sup>15</sup>



Additional diagnostic methods such as transrectal ultrasonography, CT, or MRI are used to exclude other pelvic lesions, as well as to find the causes of cyst formation and confirm the nature of a cyst.<sup>5,8,11</sup> We used CT and MRI to identify a smooth-walled anechoic space, including the seminal vesicle, located behind the bladder. The image was so characteristic that the diagnosis of Zinner syndrome was beyond doubt, especially given the concurrent presence of ipsilateral renal agenesis.<sup>5,8,9,11</sup> Cystoscopy can also help to confirm the absence of a ureteral orifice.<sup>11</sup> In the patient described here, the diagnosis was given because of recurrent abdominal and perineal pain with dysuria. USG demonstrated a fluid-filled space behind the bladder and the absence of the left kidney. CT scan and MRI confirmed the diagnosis (**Figures 1** and **2**). Initially, the patient was treated conservatively because this can sometimes elicit the desired effect. One case of successful conservative treatment of a patient with LUTS symptoms for Zinner syndrome has been described. They received short-term antibiotic treatment and  $\alpha$ -blockers for 6 months, and the symptoms were resolved permanently after these treatments.<sup>5</sup> In our patient, the predominant symptom was severe perineal and abdominal pain, which has been reported as the most common indication for surgical treatment.<sup>8,11</sup> We considered the possibility of aspirating the fluid via perineal access. The patient was obese, which was an indication for this treatment.<sup>14</sup> However, reported poor effects of therapy with a high probability of cyst recurrence and the exposure of a young patient to the possible need to repeat the procedure prompted us to attempt to remove the cyst laparoscopically.<sup>11,14</sup> We performed the operation in a similar way to the first stage of laparoscopic radical prostatectomy with transperitoneal access, as performed in our institution between 1999 and 2002. In accordance with the original Montsouris technique, in the first stage of the operation we always prepared the seminal vesicles, reaching them through an incision in the peritoneal vesicorectal recess.<sup>16</sup> Similar access was described in 1993 by Kavoussi et al.<sup>17</sup> Similarly, we inserted 5 trocars (3  $\times$  10 mm and 2  $\times$  5 mm) in the typical locations for prostate resection. Although numerous adhesions and a thick layer of body fat complicated the surgery, the view of the operative field was ideal after reaching the vesicorectal recess. We clearly saw the cystically expanded left seminal vesicle and resected it from the surrounding tissue. Seo et al described 4 operations involving laparoscopic removal of seminal vesicle cysts<sup>11</sup> that used 4 trocars. Treatment began by preparing the retroperitoneal space to identify the kidney and ureter and moving downward to reach the seminal vesicle. However, Jang et al reported the successful application of

laparoendoscopic single-site surgery,<sup>8</sup> and, as we did, they also began preparation by making an incision of the peritoneum in the vesicorectal recess to directly reach the seminal vesicle. The literature also describes the use of a robot to remove seminal vesicle cysts with easier instrument manipulation, greater movement precision, and excellent visualization.<sup>17,18</sup>

The operation reported here lasted 3 hours, which was slightly longer than the surgeries described by other authors (from 100 to 180 minutes).<sup>5,11</sup> However, our patient was very obese and had numerous peritoneal adhesions from a previous complicated appendectomy, and this prolonged the time needed to reach the recess. The preparation of the seminal vesicle using a laparoscopic technique was not difficult; a harmonic scalpel facilitated preparation, and placing a TachoSil (Takeda Pharmaceuticals, Zurich, Switzerland) hemostatic sponge allowed us to control bleeding from numerous small vessels. The view into the operative field achieved with the laparoscopic technique was perfect and certainly much better than with the classical treatment; this point is emphasized by many who use this surgical technique.<sup>6,7</sup> The patient was discharged home on the third postoperative day, and we did not record any intra- or postoperative complications. Rather, the long hospital stay after laparoscopic surgery was a benefit of the health care system in Poland. A good view of the operative field with appropriate magnification makes the procedure safer, which is extremely important in such a difficult and inconvenient location in proximity to the rectum and bladder. It is difficult to draw general conclusions based on one case, but, as other authors have done, we emphasize that the laparoscopic or robotic technique is an excellent choice for treating seminal vesicle diseases.<sup>6,7,19,20</sup>

## CONCLUSIONS

The diagnosis of a seminal vesicle cyst with renal agenesis and stenosis of the vas deferens is suggestive of the very rare condition of Zinner syndrome. A symptomatic seminal vesicle cyst is a good indication for using a laparoscopic technique. Compared with the open technique, laparoscopic surgery is safe and, in our opinion, provides a better view of the operated area.

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