

# A case of seminal vesicle cyst associated with ipsilateral renal agenesis diagnosed during an investigation of urinary incontinence

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## ABSTRACT

Seminal vesicle cysts are rare and usually associated with ipsilateral renal agenesis. The diagnosis of seminal vesicle cysts may be delayed or missed because of the non-specific symptoms of this condition. In this study, we aimed to discuss the diagnosis and treatment of a left seminal vesicle cyst that was associated ipsilateral agenesis in a 24-year-old patient who presented to our outpatient department with urinary incontinence. Ultrasonography and magnetic resonance imaging revealed a seminal vesicle cyst measuring 40x45 mm in diameter. Although the patient's symptoms were relieved with cyst aspiration via transrectal ultrasonography, the symptoms recurred 6 months later.

**Key words:** Ipsilateral renal agenesis; seminal vesicle cyst; urgency incontinence.

## Introduction

Congenital seminal vesicle cysts (SVCs) are rare and usually associated with ipsilateral renal agenesis.<sup>[1]</sup> SVC diagnosis may be delayed or missed because of the non-specific symptoms of this condition. In this article, we present a case of SVC associated with ipsilateral renal agenesis.

## Case presentation

A 24-year-old male patient presented to our outpatient department with urge incontinence. He also had perianal pain, postcoital discomfort and hemospermia. Previously, he had been diagnosed with chronic prostatitis and prescribed several antibiotics. At that time, however, his symptoms were not relieved. Physical examinations of the abdomen and prostate were normal. Abdominal ultrasonography (USG) revealed a hypoechoic and well-defined mass that appeared cyst-like, and the patient's left kidney was missing. Abdominal magnetic resonance imaging (MRI) revealed a multiple cyst formation, which was hyperintense on T1- and T2-weighted sequences, without contrast enhancement at the seminal vesicle location and with a maximum dimension of 40x45 mm (Figures 1, 2). The MRI

also confirmed left renal agenesis (Figure 3). We decided to perform a cystoscopy to rule out other bladder-related pathologies; according to the cystoscopy, the hemitrigone was missing, with a protrusion image on the left side. The patient underwent trans-rectal ultrasonography (TRUSG), and concomitant cyst aspiration was performed; the aspirate contained spermatozoa. The patient's symptoms were relieved during the postoperative period, without any complication. At the 6-month follow-up, his symptoms recurred, and open cyst resection was recommended; however, the patient requested follow-up without surgical intervention.

## Discussion

The embryogenic developments of urinary and reproductive systems are closely related. The ureteral bud originates from the caudal end of the mesonephric duct at approximately gestational week 4, and proper interaction between the mesonephric duct and urogenital sinus results in the correct anatomical placement of the ureteral orifice on the bladder trigone. The ureteral bud also grows cranially towards the metanephrogenic blastema to stimulate renal development. In the 13<sup>th</sup> week of gestation, the seminal vesicles proliferate from the mesoneph-

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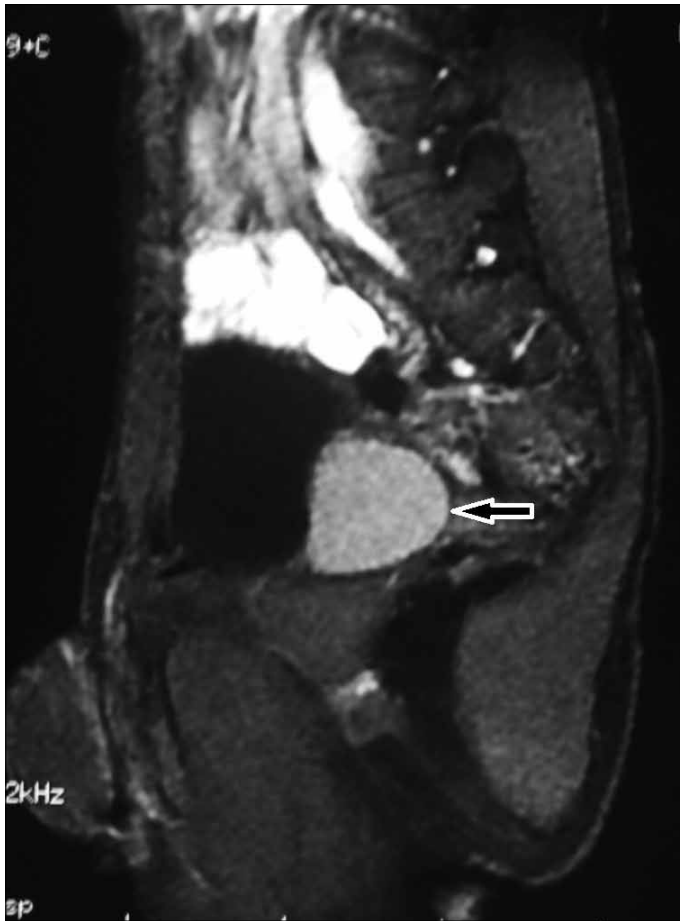


Figure 1. Arrow shows seminal vesicle cyst as a hyperintense image on an MRI T1 sequence

ric duct in a location more caudal than the ureteral bud. The vas deferens, ejaculatory duct and lower two-thirds of the epididymis also arise from mesonephric duct system.<sup>[2]</sup> The maldevelopment of the distal mesonephric duct and faulty ureteral budding may lead to renal agenesis or dysplasia, and atresia of the ejaculatory duct may cause obstruction and cystic dilatation of the seminal vesicle.<sup>[3]</sup>

SVCs measuring < 5 cm in diameter are usually asymptomatic.<sup>[3,4]</sup> Symptomatic SVCs usually occur in the second to fourth decades of life, as the result of accumulated seminal fluid in the seminal vesicle caused by a blocked ejaculatory duct.<sup>[1,5]</sup> Symptoms generally develop because of irritation of the adjacent organs by the enlarged and inflamed cyst. Urgency, frequency, dysuria and hematuria may be the result of bladder irritation, and cyst distention may cause perineal/perianal or suprapubic pain, hemospermia, post-coital discomfort or painful defecation.<sup>[1,2]</sup> In our patient, the maximum dimension of the cyst was 40×45 mm, which was slightly smaller for a symptomatic cyst. The patient also experienced incontinence, which is rarely mentioned in the literature as a symptom.

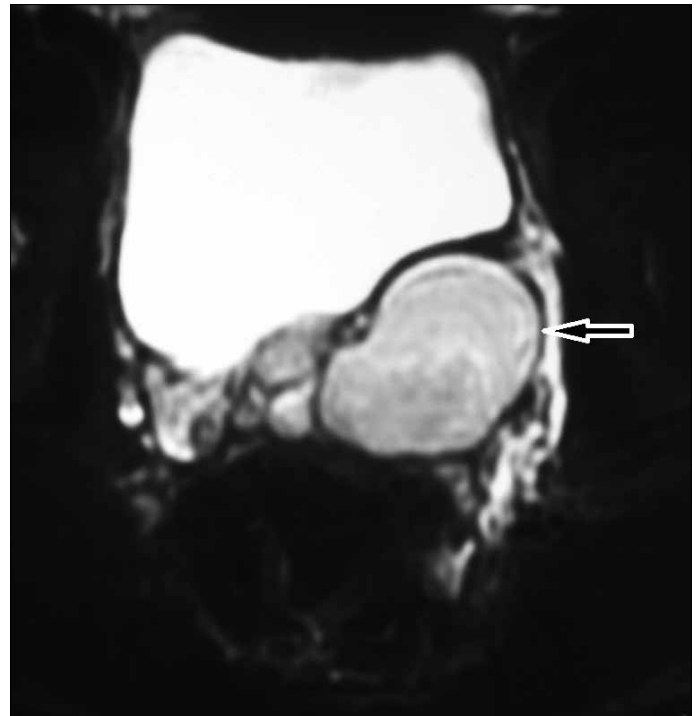


Figure 2. Arrow shows a seminal vesicle cyst as a hyperintense image on an MRI T2 sequence

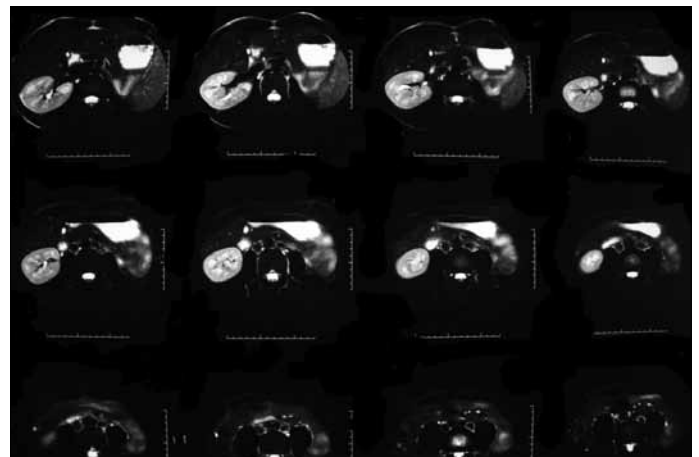


Figure 3. MRI shows the right kidney, however the left kidney was agenetic

A physical examination may reveal an indurate, tender epididymis and ductus deferens, or a palpable cystic mass associated with seminal vesicle upon a digital rectal examination. However, the physical examination may exhibit normal findings.<sup>[2]</sup>

Different types of imaging techniques, including excretory urography (EU), USG, computerized tomography (CT) and MRI can be utilized in a differential diagnosis of SVC from other cystic pelvic masses.<sup>[3]</sup> As initial diagnostic tools, SG or

TRUSG can confirm the cystic content of the pelvic masses and determine the sizes and locations.<sup>[2,3]</sup> EU can exhibit ipsilateral renal agenesis. However, SVC may not be clearly visualized with this method. CT shows SVC as a well-defined retrovesicular mass of water or near-water attenuation that arises from the seminal vesicle cephalic to the prostate gland. On MRI, SVC usually appears hypointense on a T1 sequence and hyperintense on a T2 sequence, without contrast enhancement. However, SVC may show hyperintensity on both sequences because of proteinaceous material or hemorrhage.<sup>[3]</sup> MRI features, including multiplanar imaging capability, superior soft-tissue contrast, and lack of ionizing radiation, makes it a better tool to accurately define anatomic relationships when one is planning to excise a seminal vesicle cyst or if one is considering a difficult differential diagnosis. MRI may also reveal the opening of the associated ectopic ureter.<sup>[6]</sup> After an initial diagnosis with USG, we preferred MRI, which successfully displayed the cystic nature of the pelvic mass and the relationship with the adjacent organs.

Cystoscopy may reveal an absent ipsilateral hemitrigone, intravesical cyst protrusion and any other anatomical abnormality of the bladder.<sup>[2]</sup> In our patient, the left hemitrigone was missing, with an existing ipsilateral protrusion. Cystoscopy was also beneficial for ruling out any intravesical pathology.

The following factors should be considered in differential diagnoses: cystadenomas and papillary adenomas of the seminal vesicles, Müllerian duct cysts, diverticula of the ejaculatory ducts or ampulla of the vas, prostatic cysts, adenocarcinoma or sarcoma of the seminal vesicles, and secondary malignant tumors of the vesicles caused by adjacent organs and lymphomas.<sup>[7]</sup>

Asymptomatic patients who are incidentally diagnosed should be followed without intervention. In a symptomatic patient, several treatment modalities are available, such as transurethral unroofing, transurethral resection of the ejaculatory canal, transurethral endoscopic aspiration, transabdominal aspiration, transperineal aspiration, transrectal aspiration, open surgery, laparoscopic surgery and robotic surgery.<sup>[2,7,8]</sup> We preferred to perform transrectal aspiration because the patient preferred not to undergo major surgery. Although transrectal aspiration is a simple and safe procedure, recurrence, the return of symptoms

and infection are possible risk factors. Open surgery for SVC is challenging because of the deep location of the seminal vesicles in the retrovesical space and the needed large incision (with extensive bladder mobilization). Laparoscopy provides excellent intraoperative access and visualization with minimal postoperative morbidity.<sup>[2]</sup> Similar good results are also achieved with robotic surgery, and features such as maneuverability and a shortened learning curve for the robotic systems make it an attractive method<sup>[8-10]</sup>

**Conflict of Interest:** No conflict of interest was declared by the authors.

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