

A Case of Seminal Vesicle Cyst Associated with Ipsilateral Renal Agenesis Diagnosed during an Investigation of Perineal Pain

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Abstract

A 38-year-old man was referred to our hospital with perineal and micturition pain. Transrectal ultrasound (TRUS) revealed a cystic mass in the outer prostate. Pelvic cyst and left renal agenesis were confirmed by magnetic resonance imaging (MRI) and computerized tomography (CT), and we diagnosed seminal vesicle cyst. The symptoms have since subsided, the possibility of sterility has been ruled out, and the patient is showing good improvement. (J Nippon Med Sch 2008; 75: 122–126)

Key words: seminal vesicle cyst, ipsilateral renal agenesis, perineal pain

Introduction

First reported in 1872 by Smith NR, seminal vesicle cysts are rare. We report a case of seminal vesicle cyst associated with ipsilateral renal agenesis, which was discovered during an investigation of perineal pain, together with a review of the relevant literature.

Case Report

A 38-year-old man was referred to our hospital on January 24, 2006 with chief complaints of perineal and micturition pain. Digital rectal examination revealed a small hen egg-sized, elastic, hard, and smooth mass arising from the prostate. TRUS revealed a cystic mass as a homogeneous low echo in the base of the bladder, with the mass exerting

pressure on the top left of the prostate (**Fig. 1**). On MRI, a tube-like structure meandering along the rear wall of the bladder was recognized. The mass showed high T1- and T2-weighted signal intensity compatible with a cyst, which suggested bleeding (**Fig. 2**). At this point, we considered the possibility that the cyst was related to seminal vesicle changes in view of the hemorrhagic cyst-related change in the posterior aspect of the bladder, and the enlargement of and bleeding in the left ureter. Enhanced CT revealed left renal agenesis and a retroperitoneal cystic lesion (**Fig. 3**). Blood examinations were: WBC 8,490 /mm³; RBC 5.47 × 10⁶ /mm³; Hb 15.7 g/dL; Ht 47.2%; Plt 23.4 × 10⁴ /mm³. Laboratory evaluations were: TP 8.0 g/dL; Alb 5.1 g/dL; GOT 21 IU/L; GPT 22 IU/L; LDH 215 IU/L; ALP 193 IU/L; BUN 13.7 mg/dL; Cr 0.85 mg/dL; Na 141 mEq/L; K 4.6 mEq/L; Cl 103 mEq/L; CRP less than 0.3 mg/dL. Urinalysis was negative for

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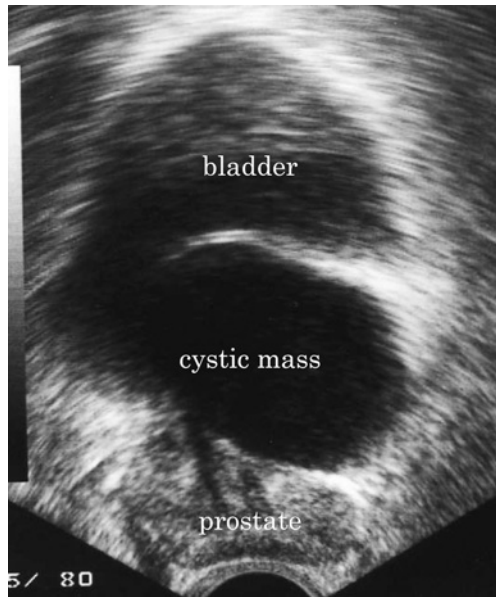


Fig. 1 TRUS shows a cystic mass as a uniform low echo located between the bladder base and the top left side of the prostate.

protein, sugar, RBC, and WBC. The patient was married but childless, so a 1.0 mL semen sample was examined. The sperm count was 53×10^6 sperm/mL, sperm motility was 43%, and the malformation rate was 18%. On the basis of the above findings, a seminal vesicle cyst with left renal agenesis was diagnosed. We recommended surgical enucleation, transurethral resection, and cyst puncture, but the patient requested follow-up without surgical intervention, as the symptoms were subsiding and the possibility of sterility had been ruled out by the sperm inspection. His condition is currently improving.

Discussion

Cystic masses in or near the prostate are not rare. For a cyst in the central zone of the prostate, the initial suspicion will be a prostatic utricle cyst or Muellerian duct cyst, while for a cyst in the paramedian zone or outside of the prostate, a spermatic duct cyst, ejaculatory duct cyst, or seminal vesicle cyst will be suspected¹.

In 1872, Smith² identified a seminal vesicle cyst, calling it a "hydrocele of the seminal vesicle," and many reports have appeared since Nakao et al. first reported a case of seminal vesicle cyst in our

country in 1939. Iwasaki et al. classified cysts occurring in seminal vesicle gland-related diseases into 5 categories: (1) cyst of the seminal vesicles; (2) Muellerian duct cyst; (3) ectopic ureterocele; (4) cystic dilatation of the seminal vesicles; (5) others (Table 1)³. Terai et al. reported that in an examination of 135 male ectopic ureters, the ectopic ureter opened into a seminal vesicle in 53 cases, and that renal dysplasia was also found in 48 of these cases⁴.

Seminal vesicle cysts occur as a result of a congenital obstruction of the ejaculatory duct. Similarly, cysts may be formed in another congenital abnormality where a persistent ureteral bud makes an ectopic orifice in the seminal tract. During embryonic development, the ureter grows from a ureteral bud formed along the distal end of the Wolffian duct. The segment of the Wolffian duct below the ureteral bud is incorporated into the cloacal wall and forms a part of the trigone of the bladder and urethra. The Wolffian duct segment above the ureteral bud forms the epididymis, spermatic ducts, seminal vesicles, ejaculatory ducts, etc. If the ureteral bud is formed at a higher than normal position on the Wolffian duct at 4 to 8 weeks' gestation, the ureter may remain connected to the seminal tract, and the contact between the metanephric tissue and the ureteral bud may only develop partially or not at all, often leading to ipsilateral renal agenesis or dysplasia. Cystic dilation or deformity of a seminal vesicle is considered to occur because of an ejaculatory duct obstruction which causes semen retention. When an ectopic orifice caused by a persistent ureteral bud is suspected, the patient's kidneys should also be examined¹.

A breakdown of the 29 cases reported in Japan during the past 20 years, including those of seminal vesicle cysts associated with ipsilateral renal dysplasia, is shown in Table 2⁵⁻²⁴. The average age of the patients was 31.1 years, indicating that many of these cases occurred during the period when the patients were sexually active. The most common complaints were perineal, micturition, and ejaculatory pain, followed by symptoms in the lower urinary tract such as pollakisuria, dysuria, etc. Other

Table 1 Classification of cystic lesions of and around the seminal vesicles

Group 1: Cyst of the Seminal Vesicles
Group 2: Muellierian Duct Cyst
Group 3: Ectopic Ureterocele (Cyst of the Seminal Vesicle with Ipsilateral Renal Agenesis)
Group 4: Cystic Dilatation of the Seminal Vesicles
Group 5: Others (Including Origin Unknown)
1) Utricular Cyst
2) Muellierian Duct Remnant
3) Wolffian Duct Cyst
4) Obstruction of the Ejaculatory Duct
5) Prostatic Retention Cyst

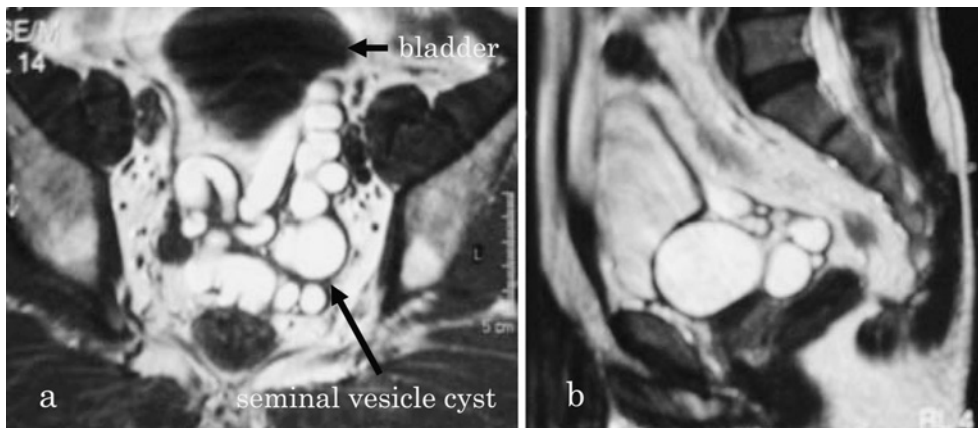


Fig. 2 T1-(a) and T2-(b)-weighted images show a high-signal cystic mass with a tube-like structure meandering along the rear wall of the bladder.

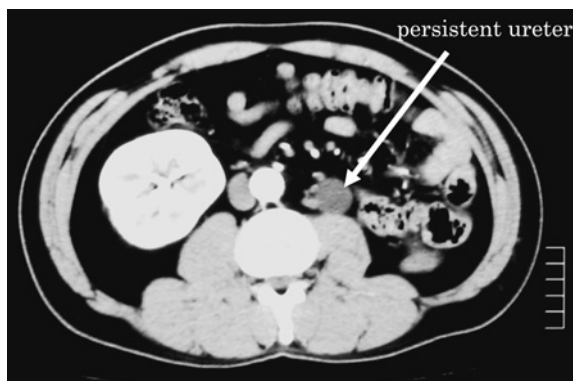


Fig. 3 CT shows left renal agenesis and a retroperitoneal cystic lesion.

complaints included gross hematuria, lower abdominal mass, infertility, and fever²⁵. No significant difference was observed between the right- and left-sided cases, except that ipsilateral renal dysplasia or agenesis was invariably observed on the same side as the seminal vesicle cyst. Applicable diagnostic methods include digital rectal examination, excretory urography, TRUS, CT, MRI, cystoscopy,

vasography, etc.^{5,17}. If the condition is asymptomatic, observation without treatment is the norm^{18,26}, but surgical resection, transurethral resection, cyst puncture, etc. may be performed if symptoms are observed¹⁸. Regarding surgical resection²⁷, a case of laparoscopic vesiculectomy was recently reported²⁸. A case of cyst puncture in which minocycline instillation^{22,29,30} successfully reduced the cyst and prevented relapse has also been reported. Known complications associated with transurethral resection and cyst puncture include infection and recurrence of cysts³⁰. In addition, there are post-operative risks of retrograde ejaculation, dysuria, and epididymitis¹⁸. Around the year 2000, the mainstream treatment shifted from radical vesiculectomy to more QOL-oriented cyst puncture and observation. While this shift may be coincidental, the remarkable advances made in imaging technologies such as TRUS, CT, and MRI may well have played a part.

The chief complaints of our patient were perineal and micturition pain, suggesting that the growing

Seminal Vesicle Cyst

Table 2 The 29 cases of seminal vesicle cyst with ipsilateral renal dysplasia reported in Japan since 1987

age (9–69 years old)	average age	31.1
chief complaint	pain	12
	dysuria	3
	abdominal mass	3
	renal dysplasia	3
	pollakisuria	2
	hematuria	2
	infertility	2
	fever	2
	side	right
left		12
unknown		1
complication	agenesis	21
	dysplasia	8
treatment	vesiculectomy	7
	(nephro) ureterovesiculectomy	6
	nephroureterectomy	2
	puncture	9
	observation	4
	TUR	1

cystic mass was pressing against the bladder neck and the prostate. In addition, the TRUS images led us to suspect cystic disease of the outer prostate, while the MRI images suggested hemorrhagic cystic diseases of the dorsal bladder wall, hemorrhages in the ureter, and seminal vesicle cysts. In the end, left renal agenesis was confirmed by CT scans, which was consistent with the other findings described above, and seminal vesicle cyst was diagnosed. Treatment options presented to the patient included surgical enucleation, endoscopic surgery and cyst puncture, with the following provisos: while surgical enucleation would improve subjective symptoms, it remained uncertain whether it would improve the patient's sperm properties as well²⁶; as for endoscopic surgery, transurethral fenestration of the cystic wall might reduce the cystic size, though it might not stem the urinary backflow; cyst puncture by transrectal aspiration is known to be effective in diagnosis and treatment, but there have also been reports of subsequent recurrence²⁵. Although the patient initially complained of perineal and micturition pain, these symptoms faded after cernitin pollen extract and tamsulosin hydrochloride were administered. Since the semen analysis showed no abnormalities suggesting infertility and the

patient did not give consent for any invasive treatment options, he is currently under continued observation. If symptoms emerge in the future, however, one or more of the surgical options may have to be reconsidered.

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(Received, October 9, 2007)

(Accepted, January 31, 2008)