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Title: Management of giant seminal vesicle cyst together with ipsilateral urinary anomaly: Case report and review literature

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ABSTRACT

Introduction

Seminal vesicle cysts are rarely seen [1]. They are usually asymptomatic and symptomatic in large dimensions. Ectopic ureteral opening is less common with seminal vesicle [2-4]. Treatment is surgery in symptomatic patients. [10,20]. We will describe the patient with a seminal vesicle cyst and associated renal agenesis in the literature.

Case Report

At the age of 27, she applied to our clinic with lower urinary system complaints. Pelvic MR revealed a massive cyst in the right seminal vesicle. Transrectal ultrasound, cystoscopy and ultrasound-guided cyst puncture were performed for differential diagnosis of the patient, respectively. The results were evaluated and the operation was performed. During the operation it was observed that ureteral and rudimentary kidney were opened to the cyst. Nephroureterectomy, cyst excision were made.

Conclusion

Renal agenesis with seminal vesicle cyst is a rare disease. A few case reports are presented in the literature and no algorithm is available. Pelvic MR, cystoscopy, TRUSG should be performed for differential diagnosis in patients with seminal vesicle cysts. Surgical treatment is needed in symptomatic patients.

Keywords: Seminal Vesicle Cyst, renal dysplasia, transrectal ultrasound [TRUSG], MRI
**INTRODUCTION**
Renal agenesis has been supposed as the predominant cause of congenital solitary kidney and it has a prevalence of 1:1300 [1]. An ectopic ureter entering into a cystic seminal vesicle is more rare [2-4]. The seminal vesicle in the embryonic development and the kidney embryogenesis originate from the mesonephric duct [7]. Mesonephritic duct malformations rarely affect the kidney, ureter, seminal vesicle together [4,8]. The majority of patients are asymptomatic. Seminal vesicle cysts are usually present in the second and third decades of life and predominantly seen in patients [5-6]. There is no certain treatment management since they are rare. We will describe the diagnosis and treatment methods of a 27 year-old patient who complained to our clinic with a giant seminal vesicle cyst.

**CASE REPORT**
Twenty seven years old, married male patient who has two children referred to our clinic with difficulty during urination, frequent urination and pain in pelvic area complaints. Lack of right kidney and multiocular cystic lesion with a diameter of 70*84 mm neighboring rectum lateral in right pelvic area due to the USG and Abdomen CT were prediagnosed in the hospital he referred before [lymphangioma, mesenteric cyst?] Genitourinary system was normal in the physical examination. Soft cystic mass with unclear borders was palpated in the prostate right lobe superior in rectal exam. Urinary examination and culture were normal. Right kidney was not detected in urinary system ultrasound. Left kidney and bladder were normal. Transrectal ultrasound and pelvic MRI were taken. Cystic dilatations were observed in the right seminal vesicle in pelvic MRI and the biggest of them had a diameter of 70*60mm [Figure1]. It applied pressure on bladder and rectum. Same results were confirmed in the transrectal USG [Figure1]. Punction was made inside the cyst. Dark brown liquid was examined. Plenty of liquid spermium cells were observed. Malignant cells were not detected in cytology. Contrast material was given inside the cyst in transrectal ultrasound [TRUSG] and examined in fluoroscopy. No connection
with the other seminal vesicle was observed. Retrograde contrast material exit from pelvic area to the abdomen and bladder was not observed. Cystoscopy was made for the patient. Cyst pressure was observed in bladder right side wall. Right side uretary orifice was not observed. Open operation under general anesthesia was made since we couldn't completely explain pathogenesis examinations and bladder and rectum pressure was symptomatic. During the operation it was observed that uretary and rudimentary kidney opened to the cyst. Nephrouretectomy and cyst excision were made [Figure 2]. Patient's drain was taken out on the third day since the patient didn't have any post-operative complaints. The patient was discharged on the fifth day. The result of the pathology demonstrated lobular disorganization in the small kidney with primitive collecting ducts embedded in connective tissue and seminal vesicle.

DISCUSSION

Seminal vesicles and kidneys originate from mesonephritic duct [Wolffian] during embryogenesis. An isolated failure of the urethral bud results in renal agenesis, but the remaining genital tract is unaffected. However, maldevelopment of the mesonephric duct in gestational week 12 affects the ipsilateral seminal vesicle and vas deferens, as well as the ureter and kidney [8]. Depending on this effect, it may be a rare ureter opening into the seminal vesicle with ipsilateral renal agenesis. Over time, it causes cystic growth in the seminal vesicle.

Most of these cases are asymptomatic and large cysts cause symptoms such as surrounding organ pressure caused lower urinary tract symptom [LUTS], prostatitis, pelvic pain, ejaculation disorder and epididymitis. [5,6,9,10] These patients have frequently been misdiagnosed and thus treated with long-term antibiotic, NSAID regimens. Chronic, non-recovering, pelvic pain and LUTS symptoms were present in our patient. Most seminal vesicle cyst cases are diagnosed in adults the third decades of life [7, 9-12]. Although the cause is not certain, it may be caused by spermatozoa accumulation with inadequate drainage in vas deferens due to the increase in sexual activities or accumulation of urine produced inagnesic kidney inside the cyst regardless of its small amount. An ectopic ureter entering the seminal
vesicle is a rare entity most commonly found on the left side which results in cystic dilatation of the seminal vesicle [13]. On the contrary, it was on the right side in our case.

In such patients, physical examination, ultrasound, TRUSG, abdominal CT and/or MR examinations are routinely suggested [14-16]. We preferred MR examination as it is the best non-invasive method in demonstrating the s. vesicle cyst and the surrounding structures [17].

There were no mesenteric cysts in MR and a right s. vesicle related, occulated, giant, multiple structured structure was observed. But it was impossible to make an evaluation in dysplastic kidney in MR. Then cystoscopy was made for the patient. Cystoscopy must be done in these patients. Thus the presence or ureter orifice, cyst pressure on bladder, presence of hemitrigone atrophy may affect the treatment modality [18].

Then we made TRUSG for the patient. TRUSG is important for both the diagnosis and treatment. It can be made easily in minimal invasive operations. Using TRUSG, we evaluated the cyst content in our case and giving contrast material at the same time, we evaluated the relation between the cyst content with any structure in abdomen or bladder. Also evaluating the presence of sperm, abscess, microbial and cytological evaluation in the cyst is leading for diagnosis and treatment.

The cyst content can be discharged completely using TRUSG. However, TRUSG-evoked cysts are usually at increased risk of recurrence and infection. Therefore, it is not a long-term effective treatment method [5,9,10,20]. In our case, we decided that discharged the large cyst in the patient with TRUSG would increase the risk of infection and recurrence, and that treatment would be inadequate. We decided that surgical treatment was more appropriate.

In literature, surgical interventions include open exploration with vesiculectomy, transrectal or transperineal aspiration of the cyst, or transurethral unroofing of the cyst, laparoscopic approach and robotic approach [5,7,9,10,19,20]. Treatment should only be considered on the basis of the presence of symptoms. Open surgery was the final choice since the case was asymptomatic, giant cysts were present and etiological cause couldn't be completely explained through examination. Operation cystectomy and partial seminal vesiculectomy were made. During the operation, cyst
related ureter and rudimented kidney were observed and excision was made. There were no post-operative complications and the patient was discharged on the fifth day. No cyst recurrence and ED were observed in yearly controls.

CONCLUSION
To the best of our knowledge, a case of renal dysplasia with the ipsilateral ectopic ureter mimicking seminal vesicle has not been reported so far. Cystic pelvic malformations in males may result from too cranial sprouting of the ureteral bud, with delayed absorption and ectopic opening of the distal end of the ureter. A clinical algorithm consists of the history and physical examination, primary stage TRUS should definitely be examined and cyst content and seminal vesicle and prostate relation should be investigated. MRI allowed us to define precisely the malformation anatomy. MRI may be considered an excellent diagnostic tool for evaluating patients with malformation of the seminal via. Although open surgery is recommended in giant cysts, we believe that laparoscopic and robotic surgery will be the primary treatment option with the development of technology and experience.

CONFLICT OF INTEREST
There is no conflict of interest between authors.

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Group 2 - Drafting the article, Critical revision of the article
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References


**FIGURE LEGENDS**

Figure 1: Right Seminal Vesicle Cyst (A, B) - MRI Scan (oblique and transverse sections) (C) - TRUSG guided has given contrast agent into the cyst, retrograde cystography (D) - cyst with a needle puncture through TRUSG.

Figure 2: (A, B, C) - Right Seminal Vesicle Cyst and renal dysplasia with an ectopic ureter opening into the seminal vesicle.
Figure 1: Right Seminal Vesicle Cyst (A, B) - MRI Scan (oblique and transvers sections) (C). TRUSG guided has given contrast agent into the cyst, retrograde cystography (D) - cyst with a needle puncture through TRUSG.
Figure 2: (A, B, C) - Right Seminal Vesicle Cyst and Renal Dysplasia with an ectopic ureter opening into the seminal vesicle