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A RARE REMNANT CAUSING ROADBLOCK: OBSTRUCTIVE AZOOSPERMIA BY A GIANT PROSTATIC UTRICLE CYST

Urology

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ABSTRACT

Obstructive azoospermia is a surgically correctable cause of male infertility, accounting for approximately 40% of azoospermic cases. Among its rare etiologies is the giant prostatic utricle cyst, a midline pelvic cyst arising from Mullerian duct remnants. While most utricle cysts are asymptomatic and measure under 1 cm, larger cysts (>2 cm) can compress the ejaculatory ducts, leading to infertility without urinary symptoms. We present the case of a 25-year-old male with primary infertility and intermittent scrotal discomfort, but no lower urinary tract symptoms. Semen analysis revealed Azoospermia. Hormonal evaluation and scrotal ultrasonography were normal, aside from dilated vas deferens. MRI of the pelvis revealed a well-demarcated, midline prostatic utricle cyst measuring 28 x 19.7 x 18.7 mm, with communication to the prostatic urethra and mass effect on bilateral ejaculatory ducts. A diagnosis of giant prostatic utricle cyst causing ejaculatory duct obstruction was established. The patient underwent Transurethral Marsupialization of the prostatic utricle cyst. Intraoperatively, ejaculatory duct efflux and retrograde seminal vesiculography confirmed restoration of ductal patency. The postoperative course was uneventful. At 2 months, semen analysis showed marked improvement (sperm count- 40 million/ejaculate; concentration- 15 million/mL; motility 30%). At 6 months, the patient remained asymptomatic with normal semen parameters. Giant prostatic utricle cysts, though rare, should be considered in men with unexplained obstructive azoospermia, even in the absence of urinary symptoms. Early diagnosis using TRUS and MRI, followed by minimally invasive endoscopic intervention, can restore fertility, prevent unnecessary procedures, and significantly improve patient outcomes.

KEYWORDS

Giant Prostatic Utricle Cyst, Azoospermia, Male Infertility, Marsupialization

INTRODUCTION

Obstructive azoospermia, characterized by an absence of spermatozoa in the ejaculate despite normal spermatogenesis, accounts for approximately 40% of azoospermia infertility and is surgically correctable when the site of obstruction is identified and managed appropriately [1,2]. Prostatic utricle cysts represent rare Müllerian duct remnants located within the verumontanum, usually measuring less than 1 cm and remaining asymptomatic throughout life [3]. However, "giant" prostatic utricle cysts—arbitrarily defined as those exceeding 2 cm—are exceedingly uncommon and may manifest with urinary tract symptoms, ejaculatory duct obstruction, or, as in the present case, infertility [4,5]. The pathogenesis of utricle cyst enlargement remains unclear, though proposed mechanisms include active secretion by cyst epithelium, one-way valve phenomena at the urethral ostium, and secondary infection leading to expansion [6]. Given their midline location and potential communication with the prostatic urethra, large cysts can compress or obliterate the ejaculatory ducts, culminating in isolated obstructive azoospermia without hormonal abnormalities or testicular pathology [7]. Recognition of this entity is critical, as misdiagnosis can lead to unnecessary testicular biopsies or assisted reproductive procedures, whereas timely cyst decompression can restore fertility.

This report details a young male presenting solely with long-standing infertility who was found to harbour a giant prostatic utricle cyst causing bilateral ejaculatory duct obstruction successfully managed by endoscopic intervention- Transurethral Marsupialization of prostatic utricle cyst.

CASE CAPSULE

A 25-year-old unmarried male patient presented to the OPD with chief complaints of Dull aching intermittent scrotal pain for the last 3 months. Patient denied any history of fever, Lower Urinary Tract Symptoms (LUTS) and trauma. He had no comorbidities.

Past medical and surgical history was insignificant. General examination was normal. On physical examination, the abdomen was soft, non-tender and all hernia orifices normal. Genital examination revealed normal bilateral testis, epididymis and dilated palpable bilateral vas deferens. Blood investigations and Urine analysis were within the normal range. Serum FSH and Testosterone levels were within the normal range. The uroflowmetry showed a normal urinary flow. Ultrasonography of whole Abdomen and Pelvis revealed a midline cystic structure in the prostate. Scrotal Ultrasonography and Doppler revealed bilateral dilated vas with normal testicular size and epididymis. Semen analysis showed Azoospermia- Volume 1.2mL; Sperm concentration- 0 million/mL (Normal > or =16); sperm motility- 0% (Normal- > or = 42%); total sperm count 0 million/ejaculate (Normal > or =39), fructose: absent. Semen culture showed growth of Pseudomonas aeruginosa and based on the sensitivity report was started on culture specific antibiotic. Even after a 1-week course of culture specific antibiotic, patient reported similar complaints.

Patient was then subjected to MRI Pelvis that showed- a well-defined sharply demarcated cystic lesion in the midline prostate cranially measuring 28 x 19.7 x 18.7mm and was hypointense on T1 weighted image and hyperintense on T2 weighted images and completely suppressed on T1 fat sat images. It appeared to be beaking towards the urethra. The bilateral ejaculatory ducts and terminal part showed fluid level. Seminal vesicles dilated. All the findings were suggestive of obstruction. Bilateral vas deferens appeared dilated. All the findings were suggestive of a giant prostatic utricle cyst in midline postero-superior central zone of prostate causing mass effect on bilateral ejaculatory duct.

After consenting and comprehensive discussion, patient was scheduled for Transurethral Deroofing/Marsupialization of prostatic utricle cyst. Rigid 22 Fr, 30-degree Cystourethroscopy done revealed normal urethra. Bladder appeared normal. Around 3 x 2 x 2cm tense giant prostatic utricle cyst seen. During urethroscopy, the verumontanum was cannulated using a 6-Fr ureteric catheter loaded on 0.035" guidewire, and contrast was injected. It showed midline cystic structure. Vas was non-opacified. The guidewire was left in place. A 26-French monopolar resectoscope was then introduced into the urethra. Marsupialization of the prostatic utricle cyst done with Collins knife. Bilateral ejaculatory duct orifices identified, and both the orifices of the ejaculatory ducts dilated with Collins knife. Efflux of seminal fluid observed from both the ejaculatory ducts and bilateral ejaculatory ducts traced. Retrograde seminal vesiculography done-patency observed. Haemostasis achieved. 16 Fr Foleys inserted over guide wire. Surgery was uneventful.

The catheter was removed on postoperative day 1, and further postoperative period was uneventful. Patient was discharged on postoperative day 2. At 2 months the patient underwent a semen analysis, which revealed total count- 40 million/ejaculate and concentration- 15 million/mL; sperm motility was 30% and fructose: present. At 6-month follow-up, the patient was examined- bilateral vas and epididymis was normal. Patient reported no complaints and was doing well.

DISCUSSION

Prostatic utricle cysts originate from incomplete regression of the Müllerian ducts in males; true utricle cysts communicate with the prostatic urethra, distinguishing them from Müllerian duct cysts, which are isolated and lack urethral connection [3,5]. Although small utricle cysts are detected incidentally in up to 5% of men undergoing pelvic imaging, giant cysts (>2 cm) occur in fewer than 0.5% of cases and often present with complications due to their mass effect [3,4].

Typical presentations of large utricle cysts include urinary retention, recurrent infections, or hematospermia, but isolated infertility without urinary symptoms is rare [4,7]. In obstructive azoospermia, the combination of normal testicular volume, intact vas deferens, and normal hormonal profiles should prompt evaluation for distal obstruction [2]. Semen volume is usually normal in ejaculatory duct obstruction, but absence of sperm on centrifuged pellet examination confirms complete obstruction [1].

Transrectal ultrasonography serves as the first-line modality for detecting midline prostatic cysts, delineating size, location, and relationship to ejaculatory ducts [6]. MRI offers superior soft-tissue contrast, enabling assessment of cyst–duct communication, urethral involvement, and exclusion of neoplastic lesions [8]. Differential diagnoses include Müllerian duct cysts, ejaculatory duct cysts (paramedian with ipsilateral seminal vesicle dilation), and seminal vesicle cysts (posterolateral location) [5,9]. Recognition of urethral communication on imaging is pathognomonic for a prostatic utricle cyst [5]. Symptomatic or obstructive utricle cysts warrant intervention. Transurethral marsupialization/unroofing is minimally invasive, provides rapid decompression, and preserves surrounding structures; Choi et al. reported symptom relief in 87% of patients with low morbidity [10]. Laparoscopic or robotic-assisted excision can achieve complete cyst removal and reduce recurrence risk but may entail longer operative times and higher technical demands [11,12]. Selection of approach depends on cyst size, surgeon expertise, and patient preference.

Data on fertility restoration post-cyst management are limited. Singh and Baker observed return of sperm in 60% of patients by 3 months and natural conception in 20% within 12 months following transurethral management of ejaculatory duct–related cysts [13]. Ghonge et al. described a similar giant utricle cyst case resulting in azoospermia, with sperm recovery at 4 months and pregnancy at 8 months post-procedure [7].

In young men with isolated obstructive azoospermia, midline prostatic cysts must be considered even in the absence of urinary symptoms. A structured diagnostic algorithm—comprising hormonal assays, physical examination, TRUS, and MRI—facilitates early detection. Timely endoscopic intervention can restore fertility, obviating more invasive reproductive techniques.

The differential diagnosis for midline cystic pelvic lesions in males includes:

Müllerian duct cysts: typically larger, lack urethral communication, and may extend into the retrovesical space [8].

Ejaculatory duct cysts: usually paramedian and associated with ipsilateral seminal vesicle dilation.

Seminal vesicle cysts: posterolateral to the bladder base, often accompanied by renal agenesis (e.g., Zinner syndrome) [5].

CONCLUSION

Giant prostatic utricle cysts, although rare, represent a clinically significant and potentially reversible cause of male infertility, particularly in cases of isolated obstructive azoospermia. Their insidious presentation—often lacking urinary or systemic symptoms—can delay diagnosis, especially when the patient presents solely with infertility. This underscores the importance of maintaining a high index of suspicion in azoospermic men with preserved testicular volume, normal endocrine profiles, and palpable vas deferens. A structured diagnostic pathway that includes transrectal ultrasonography (TRUS) followed by multiparametric pelvic MRI is essential to identify midline prostatic cystic lesions, assess their communication with the urethra, and evaluate their impact on ejaculatory duct anatomy. Our case highlights the effectiveness of transurethral marsupialization in relieving ejaculatory duct obstruction, resulting in the return of sperm to the ejaculate and natural conception within months. This non-invasive intervention not only restores fertility potential but also avoids unnecessary assisted reproductive techniques, testicular biopsy, or more invasive surgeries. In conclusion, giant prostatic utricle cysts should be considered in all men presenting with unexplained obstructive azoospermia, even in the absence of typical genitourinary complaints. Early recognition and minimally invasive surgical management can lead to excellent outcomes in terms of reproductive function and quality of life.

CONFLICTS OF INTEREST- NONE

FIGURE 1- After contrast injection showing midline prostatic utricle cyst and non-opacified seminal vesicle.

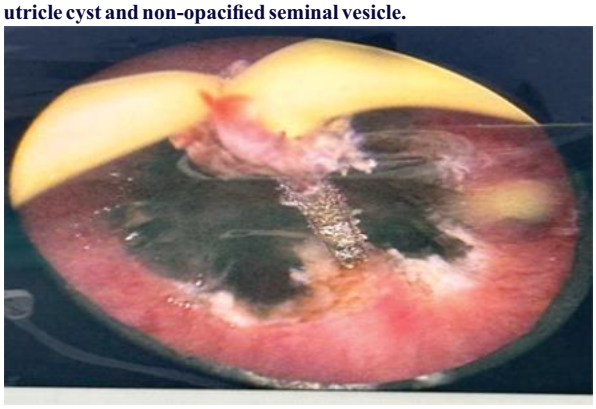


FIGURE 2- Marsupialization of Giant prostatic utricle cyst.

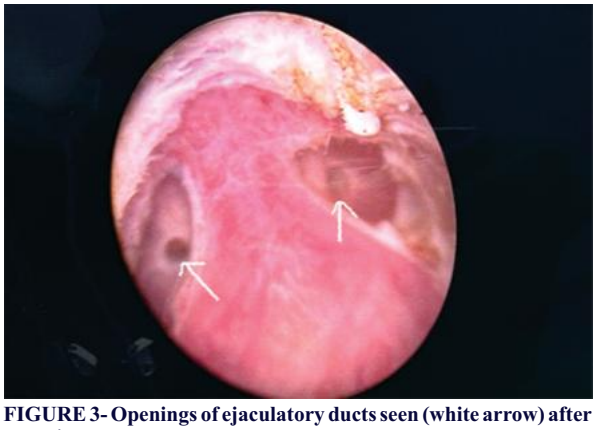
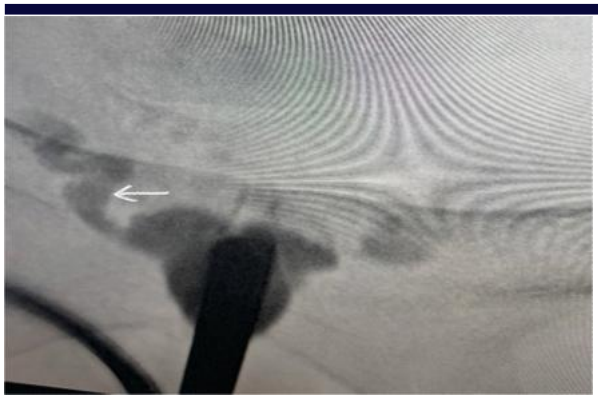


FIGURE 3- Openings of ejaculatory ducts seen (white arrow) after resection.

FIGURE 4- Post resection Retrograde seminal vesiculography showing dilated vas (white arrow). Patency seen.



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