

## Midline Prostatic Cyst in a Young Man with Difficult Voiding

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### INTRODUCTION

Congenital midline prostatic cysts are not uncommon clinically, however a presentation in a young man with difficult voiding is rare. In a literature review, Moore reported a near 1% incidence of prostatic cysts in an autopsy study [1]. Hamper et al. reported that 7.9% of patients showed at least one intraprostatic cystic lesion on biplane transrectal ultrasonography [2]. Dik et al. found medial prostatic cysts in 5% of patients with bladder outlet obstruction or lower urinary tract symptoms [3]. Prostatic cysts are simply classified according to their location and relation to the prostate and urethra as follows: (a) midline, prostatic utricle and Mullerian duct cysts; (b) paramedian, cysts of the ampulla of the vas deferens and ejaculatory duct; and (c) lateral, seminal vesicle and prostatic cysts [4]. Our reported case fulfilled the definition of a midline prostatic cyst. Ishikawa found midline prostatic cysts in 7.6% of healthy men during physical checkups using transabdominal ultrasonography [5]. However, the real incidence of prostatic cysts in the general healthy male population is still unknown.

Herein, we present the case of a young adult man with obstructive lower urinary tract symptoms and a small amount of ejaculate. A midline prostatic cyst was diagnosed after ultrasonography of the prostate. His obstructive lower urinary tract symptoms and small amount of ejaculate were cured uneventfully after transurethral unroofing of the midline prostatic cyst.

### CASE PRESENTATION

A 21-year-old man complained of poor stream, hesitancy, forking of the urine stream, frequency and decreased ejaculatory amount for two weeks. Urinalysis revealed 0-5 red and white blood cells per high power field on microscopy. A digital rectal examination revealed a 3 x 3 cm smooth prostate with a rubbery consistency, normal anal tone, no tenderness and no nodules. A physical examination revealed normal exogenitalia, and no neurological deficits or surgical scars were found. There was no response to initial treatment with an  $\alpha$ -blocker and antibiotics. As uroflowmetry showed a constrictive flow pattern (maximal flow rate [Qmax] 10 mL/sec, voiding volume 334 mL), he underwent cystofibroscope under the impression of suspected mechanical (anatomical) obstruction of the urethra. A rubbery, distended mass originating from the posterior wall of the prostatic urethra proximal to the verumontanum was found (Fig. 1). A midline prostatic cyst approximately 2 mL in volume was seen on transrectal ultrasonography of the prostate (Fig. 2). Semen analysis showed a semen volume of only 0.5 mL with no sperm. We performed transurethral marsupialization of the prostatic cyst to release the anatomical obstruction, and

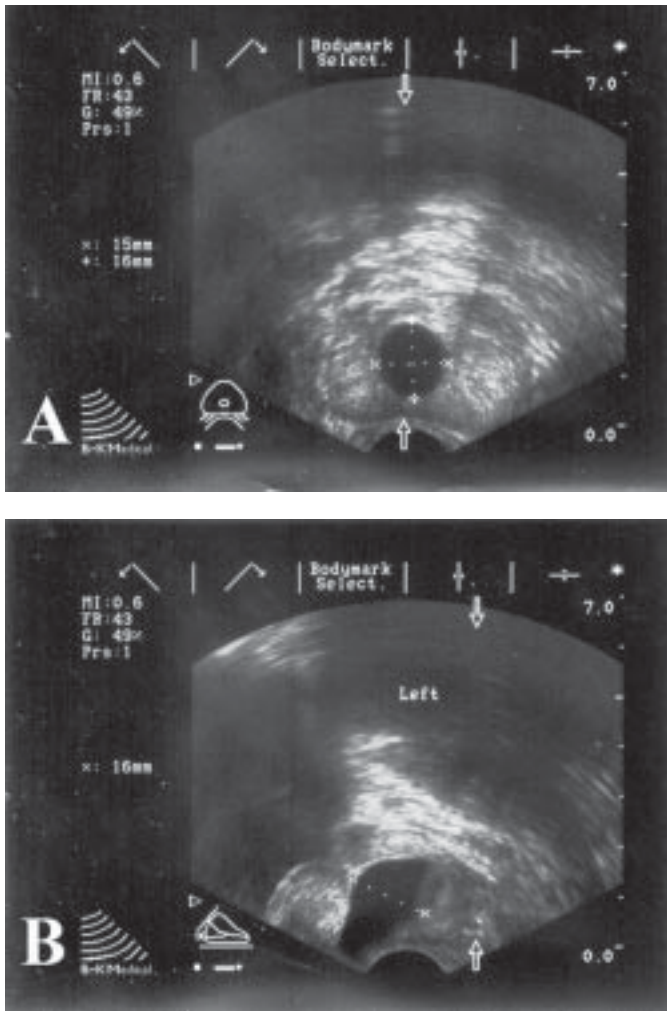


**Fig. 1.** Cystofibroscope reveals a rubbery, distended mass originating from the posterior wall of the prostatic urethra with obliteration of the prostatic urethra. It is proximal to the verumontanum, leading to symptoms of bladder outlet obstruction.

milky fluid efflux was evident during the unroofing procedure. The pathological report of the cystic wall showed a picture of a retention cyst of the prostate composed of a cystic structure lined with flattened prostatic glandular epithelium. One month after the operation, his obstructive lower urinary tract symptoms had improved dramatically, with the Qmax increasing to 51 mL/sec and a continuous flow pattern with a voiding volume of 430 mL on uroflowmetry. He regained a normal amount of ejaculate without retrograde ejaculation, and semen analysis disclosed a semen volume of 4 mL, with 145 million sperm per mL, 90% normal forms and a grade of III for forward progression of motility in 90% of the sperm.

### DISCUSSION

Prostatic cysts are not uncommon incidental findings on transrectal ultrasonography for various clinical urological problems. Classically, midline prostatic cysts are categorized into Mullerian duct cysts or prostatic utricle cysts. These terms are used interchangeably and have been assumed to be the same lesion in various reports [6-9]. There has been less distinction between these two terms in the literature in the 21st century than formerly. The differential diagnosis should include ejaculatory duct, seminal vesicle, and prostatic retention cysts [6]. However, an accurate diagnosis of midline prostatic cysts is diffi-



**Fig. 2.** Transrectal ultrasonography reveals a round, central anechoic lesion with well-defined margins in the prostate on an axial transverse scan (A). An oval cyst is demonstrated on a longitudinal sagittal scan. It occupies the central prostatic urethral lumen (depicted by the dotted line), causing obstructive lower urinary tract symptoms (B).

cult because most surveys include only computed tomography, magnetic resonance imaging or transrectal ultrasonography [9], which are not as precise as a pathological diagnosis. Our patient had a retention cyst of the prostate according to the pathological report, which is totally different than a Mullerian duct cyst and prostatic utricle cyst which are always lined with cuboidal or columnar epithelial cells.

In 2009, Galosi proposed a new 6 category classification system after transrectal ultrasonography and pathology surveys of prostatic cysts, as follows: (1) isolated medial cysts, (2) cysts of the ejaculatory duct, (3) simple or multiple cysts of the parenchyma, (4) complicated infectious or hemorrhagic cysts, (5) cystic tumors, and (6) cysts secondary to parasitic disease. This classification system is useful in clinical practice and in medical research on prostatic cysts [10]. Furuya et al. proposed a precise classification of midline prostatic cysts using a concomitant imaging and endoscopic dye approach, which included the presence or absence of sperm in the fluid content [9]. Sperm in the fluid content indicates communication with the seminal tract. They further classified midline prostatic cysts into 4 categories. Type 1 midline

prostatic cysts do not communicate with the urethra or seminal tract. The utricle orifice and ejaculatory duct orifice are in the normal positions and there are no spermatozoa in the fluid content. Type 2 cysts communicate with the urethra via the orifice of the prostatic utricle, and are subdivided into 2a cysts which have communication between the cysts and the seminal tract and 2b which do not. Type 3 cysts are cystic dilatations of the distal portion of the ejaculatory duct deviated centrally. The authors stated that only type 1 midline prostatic cysts are compatible with traditional Mullerian duct and prostatic utricle cysts [9].

Most midline prostatic cysts are found incidentally during screening for other causes. Coppens et al reported that symptoms included hemospermia (40%), pain (33%), lower urinary tract symptoms (25%), ejaculatory disturbance (20%), lower urinary tract infection (18.5%), incidental (18.5%) and male infertility (12%) [11]. Our patient presented with obstructive lower urinary tract symptoms mixed with low volume ejaculate, concomitant azospermia and infertility.

The first step in the treatment of midline prostatic cysts is therapeutic puncture or aspiration, which will relieve the irritative more than the obstructive symptoms. However a relapse of symptoms is possible. The encouraging efficacy of endoscopic procedures such as transurethral incision (urethrotomy), and unroofing or marsupialization of midline prostatic cysts provides relief of symptoms as well as avoids side effects and complications. Lower urinary tract symptoms, pain, hemospermia and male infertility can thus be cured [11]. In our patient, transurethral marsupialization of the cyst improved his lower urinary tract symptoms and amount of ejaculate. In addition, he did not have retrograde ejaculation because of preservation of the urinary bladder neck. However, invasive procedures should only be performed in symptomatic patients, not in those with a diagnosis based on imaging alone, as conservative treatment will lead to optimal preservation of the integrity of the ejaculatory duct [11]. Large cysts need complete surgical resection, and suprapubic, perineal and midline transvesical and laparoscopic approaches have been reported [12]. The treatment of choice for these patients should be individualized according to the disease entity, a do no harm policy and greater preservation due to the benign nature of this disease.

## REFERENCES

1. Moore RA: Pathology of the prostatic utricle. *Arch Path* 1937; **23**: 517-524.
2. Hamper UM, Epstein JI, Sheth S, Walsh PC, Sanders RC: Cystic lesions of the prostate gland. A sonographic-pathologic correlation. *J Ultrasound Med* 1990; **9**:395-402.
3. Dik P, Lock TM, Schrier BP, Zeilemaker BYW, Boon TA: Transurethral marsupialization of a medial prostatic cyst in patients with prostatitis-like symptoms. *J Urol* 1996; **155**:1301-1304.
4. Semelka RC: *Abdominal-Pelvic MRI*, New York: Wiley-Liss Inc, 2002, pp 983-984.
5. Ishikawa IM, Okabe H, Oya T, Hirano M, Tanaka M, Ono M, Kawamura K, Fujimoto N, Sakurada K: Midline prostatic cysts in healthy men: Incidence and transabdominal sonographic findings. *AJR* 2003; **181**:1669-1672.
6. Kato H, Komiya I, Maejima T, Nishizawa O: Histopathological study of the Mullerian duct remnant: Clarification of disease categories and terminology. *J Urol* 2002; **167**:133-136.
7. Schuhrke TD, Kaplan GW: Prostatic utricle cyst (Mullerian duct cyst). *J Urol* 1978; **119**:765-769.

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8. Ritchey ML, Benson RC, Kramer SA, Kelalis PP: Management of Mullerian duct remnants in the male patient. *J Urol* 1988; **140**:795-799.
9. Furuya R, Furuya S, Kato H, Saitoh N, Takahash S, Tsukamoto T: New classification of midline cysts of the prostate in adults via a transrectal ultrasonography-guided opacification and dye-injection study. *BJU intl* 2008; **102**:475-478.
10. Galosi AB, Montironi R, Fabiani A, Lacetera V, Galle G, Muzzonigro G: Cystic lesions of the prostate gland: An ultrasound classification with pathological correlation. *J Urol* 2009; **181**:647-657.
11. Coppens L, Bonnet P, Andrienne R, De Leval J: Adult Mullerian duct cyst or utricle cyst: Clinical significance and therapeutic management of 65 cases. *J Urol* 2002; **167**:1740-1744.
12. Paudel K, Kumar A: Unusually large prostatic utricle cyst. *KUMJ* 2009; **7**:73-75.