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Research Article

Zinner's Syndrome Presenting with Anejaculation and Bladder Outlet Obstruction: A Rare Case Report

[1] Dr. Sudarshan S. Shejwal, [2]Dr. Paritosh Chandra, [3]Dr. Shirish D. Yande

[1]Senior resident, Department of urology, Rubyhall Clinic, Pune. Email- drsudarshan1994@gmail.com

[2]Senior resident, Department of urology, Rubyhall Clinic, Pune. Email- drparitosh3825@gmail.com

[3]Senior Consultant, Department of urology, Rubyhall Clinic, Pune. Email- shirishdyande@gmail.com

*Corresponding Author
Dr. Paritosh Chandra

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Abstract: ***Introduction*** Zinner's syndrome is an extremely rare congenital abnormality of the mesonephric duct characterized by a classic triad of unilateral renal agenesis, ipsilateral seminal vesicle cyst, and ejaculatory duct obstruction. We report the case of a 29-year-old male presenting with primary infertility, anejaculation, and significant urinary straining. Diagnostic workup including transrectal ultrasonography (TRUS) and pelvic MRI revealed left renal agenesis, bilateral ejaculatory duct dilation, and seminal vesicle cysts causing bladder outlet obstruction. The patient was successfully managed with a bladder neck incision to relieve voiding symptoms. Bilateral testicular biopsies confirmed active spermatogenesis, and he was subsequently counseled for Artificial Reproductive Techniques (ART).

Keywords: Zinner's syndrome, Renal agenesis, Male infertility, Seminal vesicle cyst

INTRODUCTION

Zinner's syndrome is a rare congenital malformation of the male urogenital tract, classically characterized by the triad of unilateral renal agenesis, an ipsilateral seminal vesicle cyst, and ipsilateral ejaculatory duct obstruction.[1–4]

Embryologically, the syndrome results from abnormal development of the mesonephric (Wolffian) duct between the 4th and 13th weeks of gestation, during which disruption of the distal mesonephric duct adversely affects the formation of the ureteric bud and the ipsilateral seminal vesicle.[1,3,4]
Failure of normal ureteric bud development results in ipsilateral renal agenesis, whereas maldevelopment of the distal mesonephric duct causes ejaculatory duct obstruction with progressive accumulation of seminal secretions, eventually leading to cystic dilatation of the seminal vesicle.[1,3]

Although congenital in origin, most patients remain asymptomatic throughout childhood because seminal vesicle secretory activity is minimal before puberty. Clinical manifestations usually become apparent during the second to fourth decades of life, coinciding with increased sexual and reproductive activity.[1,3,4]
The clinical presentation is highly variable and depends on the size of the seminal vesicle cyst and the degree of ejaculatory duct obstruction. Patients may present with lower urinary tract symptoms, dysuria, urinary frequency, perineal pain, painful ejaculation, hematospermia, recurrent urinary tract infections, anejaculation, infertility, or may be diagnosed incidentally during imaging performed for unrelated conditions.[2,3,5]

Magnetic resonance imaging (MRI) is regarded as the imaging modality of choice because it accurately delineates the congenital anatomy, demonstrates seminal vesicle cysts and ejaculatory duct abnormalities, and confirms associated ipsilateral renal agenesis, thereby facilitating definitive diagnosis and appropriate surgical planning.[1,3,4]

We report an unusual case of a 29-year-old man with Zinner's syndrome who presented predominantly with straining during micturition and anejaculation, highlighting the importance of considering this rare congenital anomaly in the differential diagnosis of young males presenting with lower urinary tract symptoms and primary infertility.[2,3]

CASE REPORT

A 29-year male came with complaints of straining of urine and anejaculation since 2 yr. Patient is married for 2 years and has no child till now. He is labourer by occupation. He has no co-morbidity.
On examination-per abdomen-soft no tenderness, guarding, rigidity.

Local examination-Penis- normal, bilateral testis-small in size, bilateral vas deferens palpable but hypoplastic.
Patient underwent blood and urine investigation, reports are as follow:

Serum creatine-0.8, sodium-132, potassium-3.8., urine routine and microscopy-within normal limit, urine culture and

Sensitivity- no growth
Semen analysis- anejaculation (sample not collected),
Testosterone-552.37 ng/dl,FSH-3.84 miu/ml, LH-2.99 miu/ml.

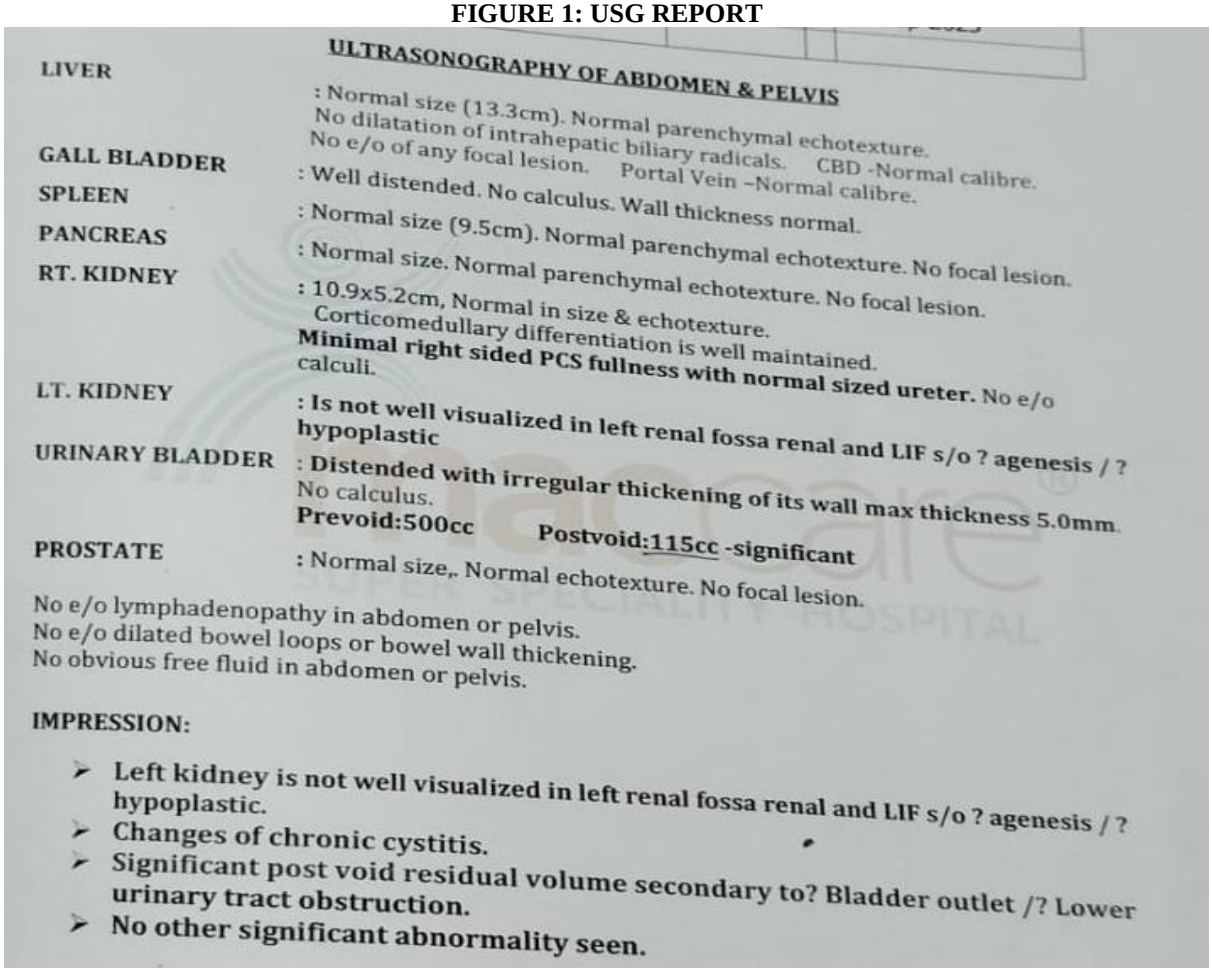
Ultrasonography and RGU (retrograde urethrogram) were done, reports attached herein in figure 1 and figure 2. Uroflowmetry showed straining pattern. Based on the reports, TRUS (Trans- Rectal Ultrasonography) was done, which showed bilateral small, irregular seminal vesicle with ejaculatory duct dilatation up to veru-seminal vasculitis.
Based on TRUS report, MRI pelvis with contrast was done, attached as figure 3 and report attached in figure 4.
Patient underwent Cystoscopy + Bladder Neck Incision+ Bilateral Testicular Biopsy.

Operative findings-high bladder neck, absent verumontanum, seminal vesicle opening not seen, posterior urethral valve with grade 3 bladder trabeculation present.

Histopathology report-bilateral testicular biopsy-maturation up to spermatozoa noted in 90% of seminiferous tubules

Post operative recovery was unremarkable and was able to pass urine much more satisfactorily.
Patient was counselled regarding artificial reproductive techniques based on intraoperative finding and histopathology report.

FIGURE 1: USG REPORT



ULTRASONOGRAPHY OF ABDOMEN & PELVIS

LIVER : Normal size (13.3cm). Normal parenchymal echotexture. No dilatation of intrahepatic biliary radicals. CBD -Normal calibre. No e/o of any focal lesion. Portal Vein –Normal calibre.

GALL BLADDER : Well distended. No calculus. Wall thickness normal.

SPLEEN : Normal size (9.5cm). Normal parenchymal echotexture. No focal lesion.

PANCREAS : Normal size. Normal parenchymal echotexture. No focal lesion.

RT. KIDNEY : 10.9x5.2cm, Normal in size & echotexture. Corticomedullary differentiation is well maintained. **Minimal right sided PCS fullness with normal sized ureter.** No e/o calculi.

LT. KIDNEY : **Is not well visualized in left renal fossa renal and LIF s/o ? agenesis / ? hypoplastic**

URINARY BLADDER : **Distended with irregular thickening of its wall max thickness 5.0mm.** No calculus.
Prevoid:500cc **Postvoid:115cc -significant**

PROSTATE : Normal size,. Normal echotexture. No focal lesion.

No e/o lymphadenopathy in abdomen or pelvis.
No e/o dilated bowel loops or bowel wall thickening.
No obvious free fluid in abdomen or pelvis.

IMPRESSION:

- **Left kidney is not well visualized in left renal fossa renal and LIF s/o ? agenesis / ? hypoplastic.**
- **Changes of chronic cystitis.**
- **Significant post void residual volume secondary to? Bladder outlet /? Lower urinary tract obstruction.**
- **No other significant abnormality seen.**

FIGURE 2: RGU-MULTIPLE SMALL URINARY BLADDER DIVERTICULA.

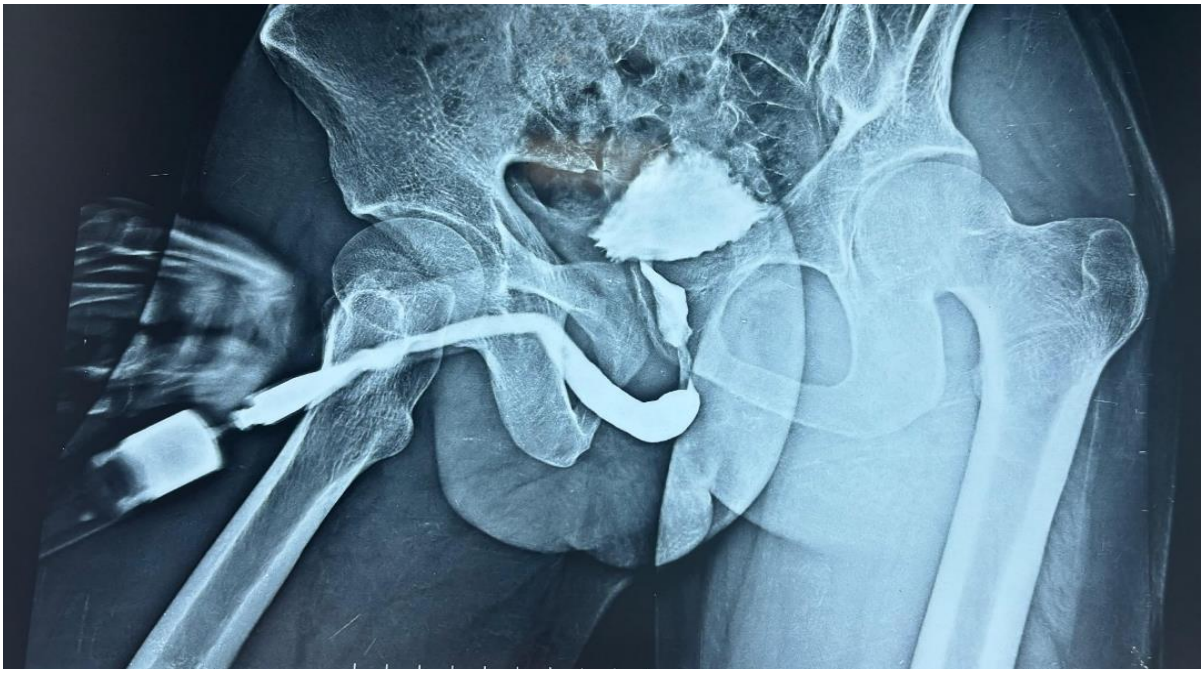


FIGURE 3: MRI FILM

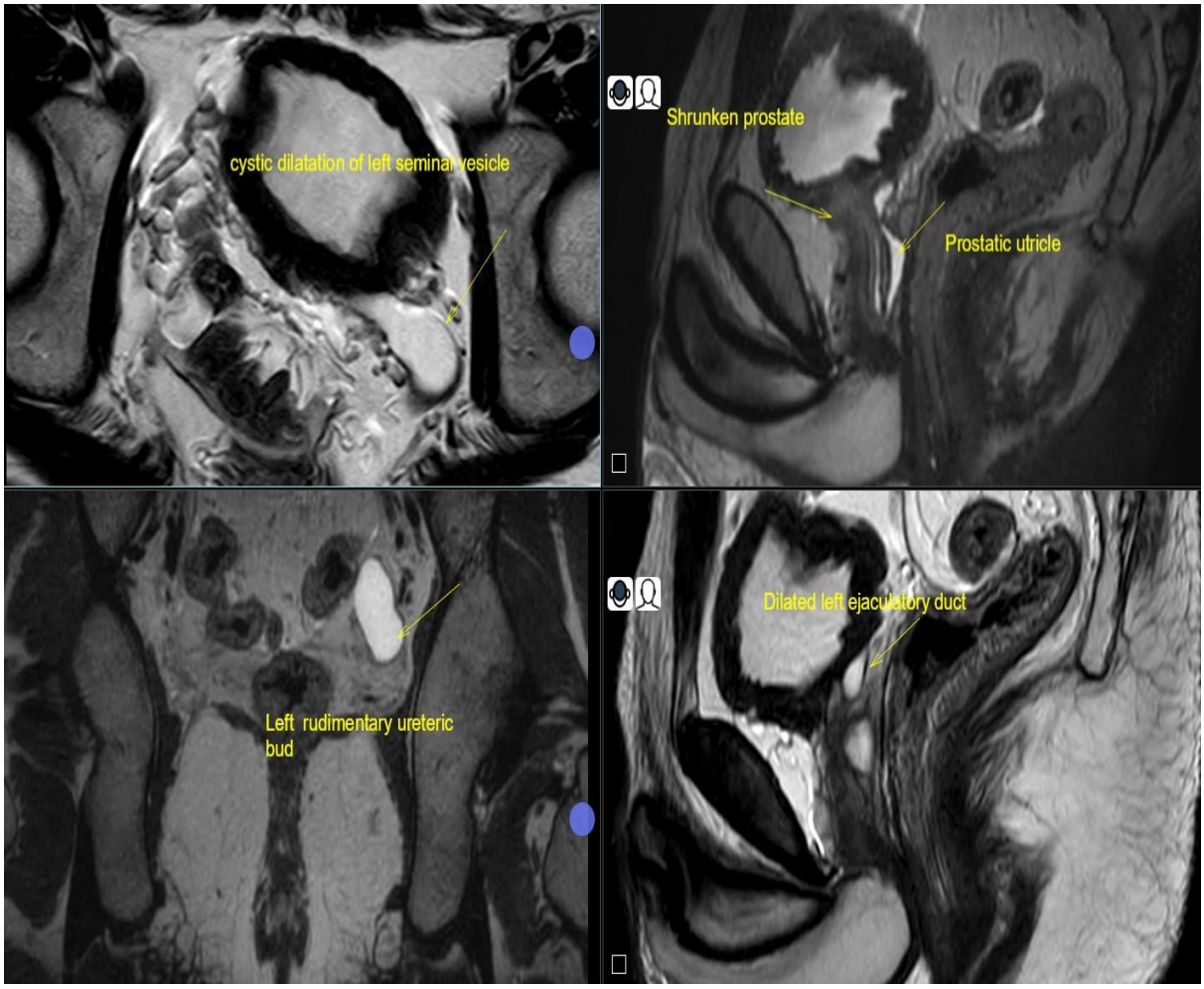
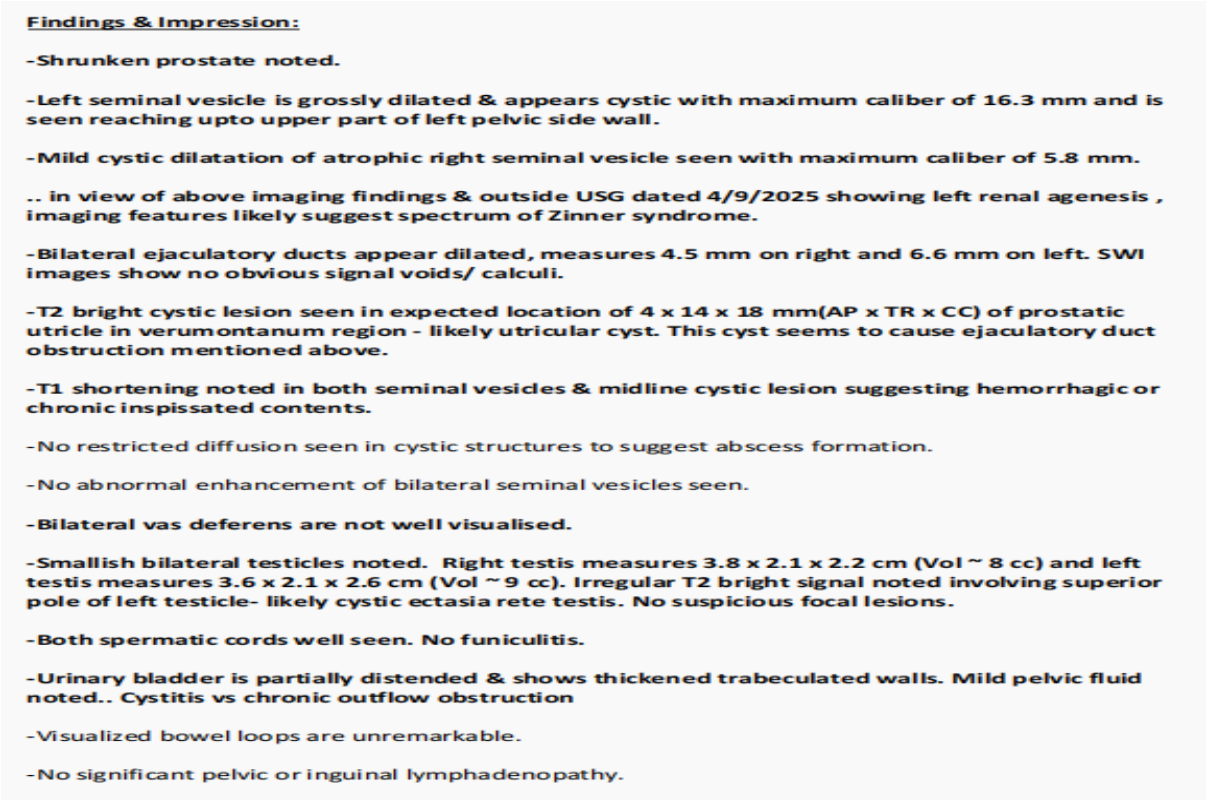


FIGURE 4: MRI REPORT



Findings & Impression:

-Shrunken prostate noted.

-Left seminal vesicle is grossly dilated & appears cystic with maximum caliber of 16.3 mm and is seen reaching upto upper part of left pelvic side wall.

-Mild cystic dilatation of atrophic right seminal vesicle seen with maximum caliber of 5.8 mm.

.. in view of above imaging findings & outside USG dated 4/9/2025 showing left renal agenesis , imaging features likely suggest spectrum of Zinner syndrome.

-Bilateral ejaculatory ducts appear dilated, measures 4.5 mm on right and 6.6 mm on left. SWI images show no obvious signal voids/ calculi.

-T2 bright cystic lesion seen in expected location of 4 x 14 x 18 mm(AP x TR x CC) of prostatic utricle in verumontanum region - likely utricular cyst. This cyst seems to cause ejaculatory duct obstruction mentioned above.

-T1 shortening noted in both seminal vesicles & midline cystic lesion suggesting hemorrhagic or chronic inspissated contents.

-No restricted diffusion seen in cystic structures to suggest abscess formation.

-No abnormal enhancement of bilateral seminal vesicles seen.

-Bilateral vas deferens are not well visualised.

-Smallish bilateral testicles noted. Right testis measures 3.8 x 2.1 x 2.2 cm (Vol ~ 8 cc) and left testis measures 3.6 x 2.1 x 2.6 cm (Vol ~ 9 cc). Irregular T2 bright signal noted involving superior pole of left testicle- likely cystic ectasia rete testis. No suspicious focal lesions.

-Both spermatic cords well seen. No funiculitis.

-Urinary bladder is partially distended & shows thickened trabeculated walls. Mild pelvic fluid noted.. Cystitis vs chronic outflow obstruction

-Visualized bowel loops are unremarkable.

-No significant pelvic or inguinal lymphadenopathy.

DISCUSSION

Zinner's syndrome is one of the rarest congenital anomalies of the male urogenital tract and is classically characterized by the triad of unilateral renal agenesis, an ipsilateral seminal vesicle cyst, and ipsilateral ejaculatory duct obstruction.[1–4]

The present case demonstrated the characteristic radiological features of this syndrome, including left renal agenesis, a grossly dilated left seminal vesicle cyst, and bilateral ejaculatory duct dilatation, thereby fulfilling the diagnostic spectrum of Zinner's syndrome.[1,3,4]

The embryological basis of this condition lies in abnormal development of the mesonephric (Wolffian) duct between the fourth and thirteenth weeks of gestation. Disruption of the distal mesonephric duct interferes with normal ureteric bud formation, resulting in ipsilateral renal agenesis, while simultaneous maldevelopment of the ejaculatory duct leads to obstruction of seminal outflow and progressive cystic dilatation of the seminal vesicle.[1,3,4]

Although the anomaly is congenital, symptoms usually manifest after puberty because secretory activity of the seminal vesicles increases with sexual maturation, resulting in progressive enlargement of the obstructed seminal vesicle cyst.[1,3]

Infertility represents one of the most important clinical consequences of Zinner's syndrome and is primarily attributable to ejaculatory duct obstruction, obstructive azoospermia, impaired seminal emission, or anejaculation.[3,4]

Previous literature has reported infertility in nearly 45% of symptomatic patients with Zinner's syndrome, emphasizing the importance of fertility evaluation in young men presenting with this congenital anomaly.[3]

In the present case, the patient presented with primary infertility associated with clinical anejaculation despite normal serum testosterone, follicle-stimulating hormone, and luteinizing hormone levels, suggesting preserved endocrine function with a predominantly obstructive etiology.[3]

Histopathological examination of bilateral testicular biopsies demonstrated active spermatogenesis with maturation up to spermatozoa in approximately 90% of seminiferous tubules, further supporting obstructive infertility rather than primary testicular failure.[3]

Another noteworthy feature in our patient was the presence of significant lower urinary tract symptoms characterized by straining during micturition, increased post-void residual urine, bladder trabeculations, and

bladder outlet obstruction. These findings are consistent with previous reports describing compression of the bladder neck or posterior urethra by enlarged seminal vesicle cysts, resulting in secondary bladder outlet obstruction.[2,4]

Magnetic resonance imaging (MRI) is considered the imaging modality of choice for diagnosing Zinner's syndrome because of its excellent soft tissue resolution and its ability to accurately demonstrate seminal vesicle cysts, ejaculatory duct abnormalities, renal agenesis, and associated pelvic anatomical variations while facilitating preoperative surgical planning.[1,3,4]

Management should be individualized according to symptom severity, cyst size, fertility status, and patient preference. Asymptomatic patients can be managed conservatively with periodic follow-up, whereas symptomatic individuals may require image-guided aspiration, transurethral endoscopic procedures, laparoscopic excision, or robot-assisted seminal vesiculectomy.[2,3,5]

In the present patient, the predominant clinical problem was bladder outlet obstruction rather than pelvic pain or cyst-related symptoms. Consequently, bladder neck incision effectively relieved the patient's voiding dysfunction and resulted in satisfactory postoperative urinary flow.[2]

Considering the preserved spermatogenesis demonstrated on bilateral testicular biopsy, the patient's infertility is most likely secondary to distal seminal outflow obstruction. Therefore, sperm retrieval techniques combined with assisted reproductive technologies (ART), including testicular sperm extraction (TESE) or microsurgical epididymal sperm aspiration (MESA) followed by intracytoplasmic sperm injection (ICSI), offer a realistic opportunity for achieving biological fatherhood.[3,4]

The coexistence of classic radiological findings of Zinner's syndrome with severe bladder outlet obstruction, posterior urethral abnormalities, preserved spermatogenesis, and primary infertility makes this case an uncommon clinical presentation that highlights the importance of a multidisciplinary approach involving urologists, radiologists, pathologists, and fertility specialists for optimal patient management.[2,3,4]

CONCLUSION

Zinner's syndrome is an uncommon mesonephric duct anomaly that warrants consideration in young male patients presenting with concurrent lower urinary tract symptoms, anejaculation, and unilateral renal agenesis. Accurate diagnosis via MRI and tailored surgical management—such as bladder neck incision—can effectively relieve obstructive voiding symptoms. For patients experiencing secondary infertility, confirming active spermatogenesis ensures that appropriate artificial reproductive techniques can be successfully utilized.

REFERENCES

1. Gurung, B., Panta, O. B., Dhakal, V., & Ghimire, R. K. (2022). Zinner Syndrome. Journal of Medical Ultrasound, 30(2), 59-61. https://doi.org/10.4103/jmu.jmu_125_20 Cited by: 8
2. Bains, L., Kori, R., Lal, P., & Gupta, S. (2019). Zinner syndrome mimicking bladder outlet obstruction managed with aspiration. Urology Annals, 11(4), 449. https://doi.org/10.4103/ua.ua_152_18 Cited by: 12
3. Hofmann, A., Vauth, F., & Roesch, W. H. (2020). Zinner syndrome and infertility─a literature review based on a clinical case. International Journal of Impotence Research, 33(2), 191-195. https://doi.org/10.1038/s41443-020-00360-0 Cited by: 58
4. Kumar, S., G, K. I., Khalil-Khan, A., Arul Pitchai, A. D. P., Sathiamoorthy, R., & Raju, E. (2022). Zinner Syndrome. Cureus. https://doi.org/10.7759/cureus.31308 Cited by: 17
5. Talwar, H. S., Mittal, A., Kumar, S., Panwar, V. K., Narain, T. A., Ranjan, R., & Ranjan, S. K. (2021). Robot-Assisted Laparoscopic Approach in a Patient of Zinner Syndrome with Hematuria. Journal of Mid-life Health, 12(1), 79-81. https://doi.org/10.4103/jmh.jmh_49_20 Cited by: 2