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Zinner's Syndrome with Atypical MRI Features: Emphasizing the Diagnostic Role of T1 Hyperintensity in Seminal Vesicle Cysts: A Case Report

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Abstract **Case Report**

Zinner's syndrome is a rare congenital malformation of the male genitourinary tract, classically defined by the triad of ipsilateral renal agenesis, seminal vesicle cyst, and ejaculatory duct obstruction. It typically presents with non-specific pelvic symptoms or infertility in early adulthood, and imaging plays a central role in its diagnosis. We report the case of a 23-year-old male presenting with chronic pelvic heaviness in the absence of urinary or systemic symptoms. Ultrasound revealed right renal agenesis and a right pelvic cystic mass. Contrast-enhanced CT confirmed renal agenesis and identified a seminal vesicle cyst. Pelvic MRI demonstrated an atypical signal pattern : T1 hyperintensity and T2 hypointensity, suggesting proteinaceous or hemorrhagic content, without diffusion restriction or enhancement. Based on embryological correlation and MRI findings, Zinner's syndrome was diagnosed. A fertility evaluation was initiated. This case highlights the diagnostic value of MRI in detecting atypical signal characteristics of seminal vesicle cysts in Zinner's syndrome. Awareness of such variations is essential to avoid misdiagnosis, guide appropriate clinical management, and assess reproductive implications. This case supports the role of MRI as a decisive tool in identifying complex cystic lesions and preventing unnecessary interventions.

Keywords: Zinner syndrome, seminal vesicle cyst, renal agenesis, pelvic MRI, atypical signal, congenital genitourinary anomaly, infertility, case report.

INTRODUCTION

Zinner's syndrome is an uncommon congenital anomaly resulting from aberrant development of the mesonephric (Wolffian) duct during embryogenesis. First described by Zinner in 1914 [1], it comprises the triad of unilateral renal agenesis or dysgenesis, ipsilateral seminal vesicle cyst, and ejaculatory duct obstruction. This condition is considered the male counterpart of Mayer-Rokitansky-Küster-Hauser syndrome in females.

Although frequently asymptomatic, Zinner's syndrome may manifest in early adulthood with nonspecific pelvic pain, dysuria, painful ejaculation, or infertility [2]. Imaging plays a central role in diagnosis due to the deep pelvic location and non-palpable nature of seminal vesicle cysts. MRI is the gold standard for precise anatomical and tissue characterization [3]. Although the MRI appearance of seminal vesicle cysts is usually characterized by T2 hyperintensity and T1 hypointensity, atypical signal features may occur in cases of proteinaceous or hemorrhagic content [4,5]. We present a case with such atypical findings, emphasizing the importance of MRI in characterizing lesion content and guiding clinical decisions.

PATIENT AND OBSERVATION

Patient Information

A 23-year-old male presented to our radiology department with a six-month history of chronic pelvic heaviness, without urinary tract symptoms or systemic complaints. He denied any previous genitourinary infection, trauma, or surgery. His medical history was unremarkable, and physical examination including digital rectal examination was within normal limits.

Clinical Findings

Physical examination did not reveal any palpable pelvic mass or other abnormalities. Digital rectal examination was normal.

Timeline of Current Episode

- 6 months prior: Onset of chronic pelvic heaviness
- Initial consultation: Clinical evaluation and imaging initiated
- Following weeks: Additional MRI, diagnosis established
- Ongoing: Referral for fertility evaluation and urology follow-up

Diagnostic Assessment

Ultrasound Findings

Transabdominal ultrasonography revealed an absent right kidney and a well-circumscribed, anechoic para-vesical cystic mass located posterior to the bladder.

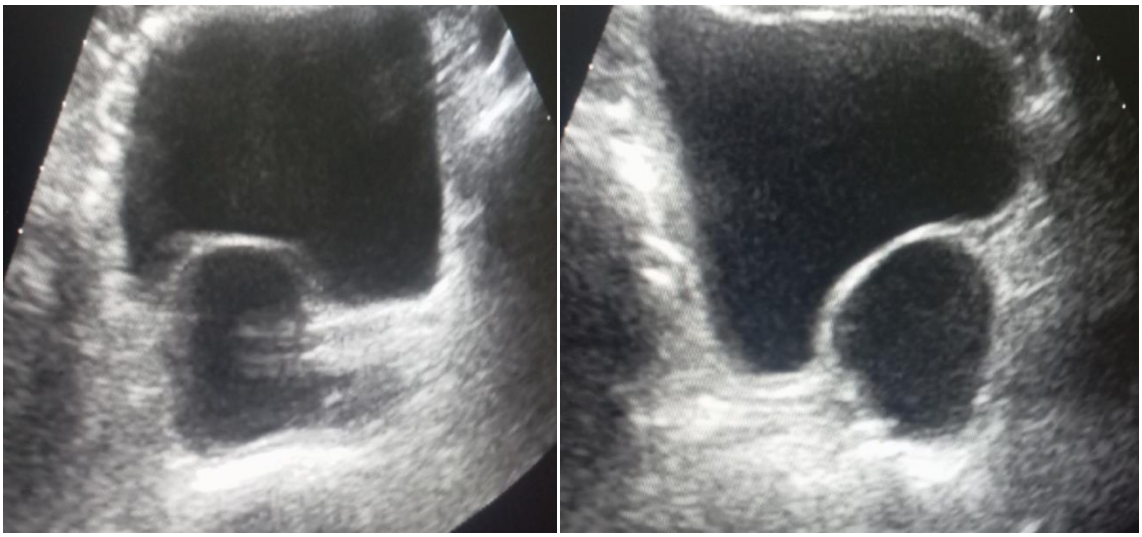

Figure 1: Transabdominal ultrasound image showing a well-defined anechoic cystic structure in the right pelvis, adjacent to the bladder

CT Findings

Contrast-enhanced abdominopelvic CT scan confirmed right renal agenesis. A 36 x 36.8 x 37 mm thin-walled, non-enhancing cystic lesion was identified in the right seminal vesicle region. The cyst exhibited intimate contact with the posterior wall of the bladder and anterior rectum.

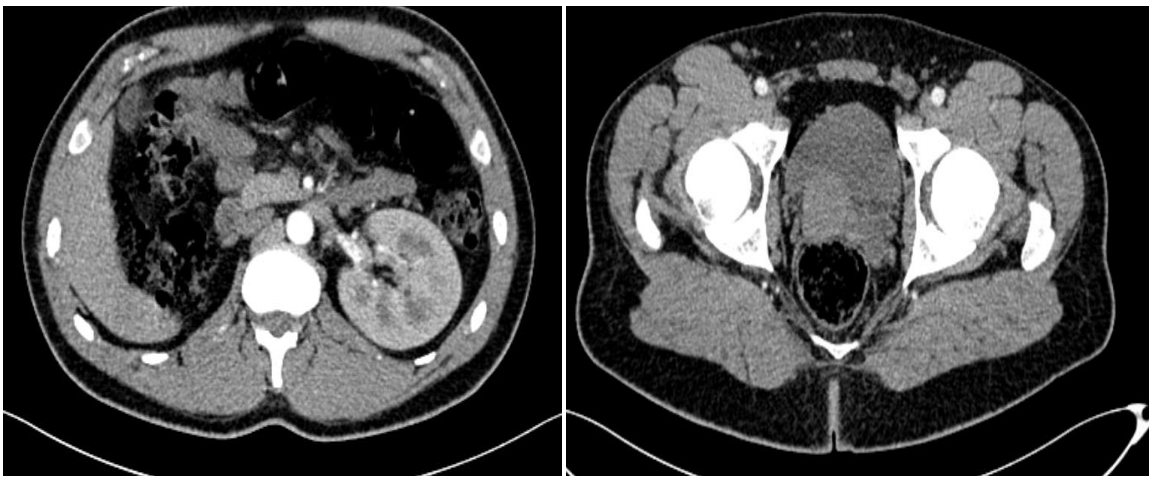

Figure 2: **Contrast-enhanced CT scan (axial view) showing absent right kidney and a right seminal vesicle cyst adjacent to the bladder and rectum**

MRI Findings

Pelvic MRI demonstrated a cystic lesion hyperintense on T1-weighted and hypointense on T2-weighted sequences, suggesting proteinaceous or hemorrhagic content. No post-contrast enhancement or diffusion restriction was observed. Serpiginous structures were noted toward the contralateral seminal vesicle, suggesting ejaculatory duct obstruction.

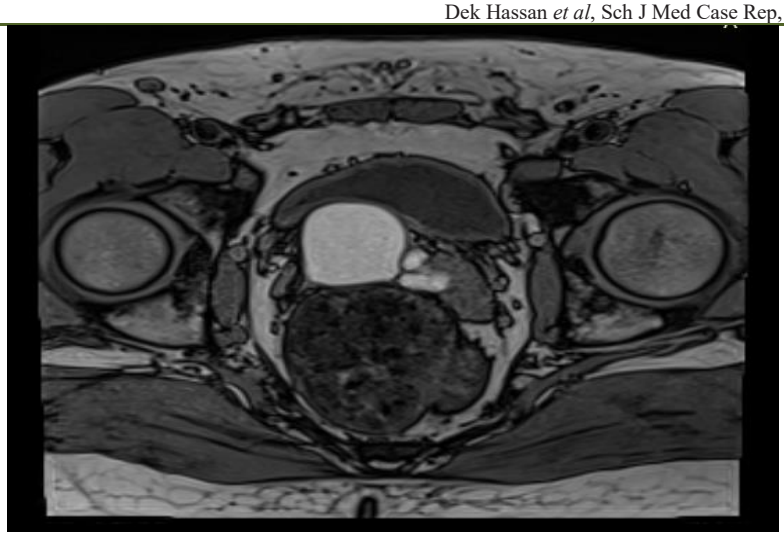

Figure 3: Pelvic MRI: axial T1-weighted sequence showing hyperintense signal of the right seminal vesicle cyst

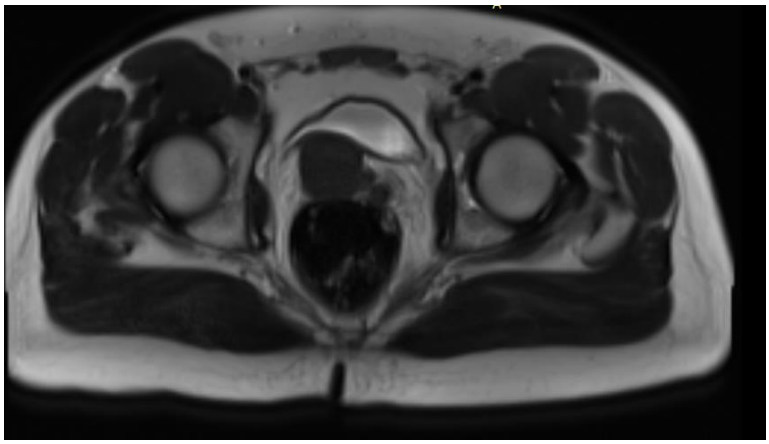

Figure 4: Axial T2-weighted image showing hypointense signal of the same cyst

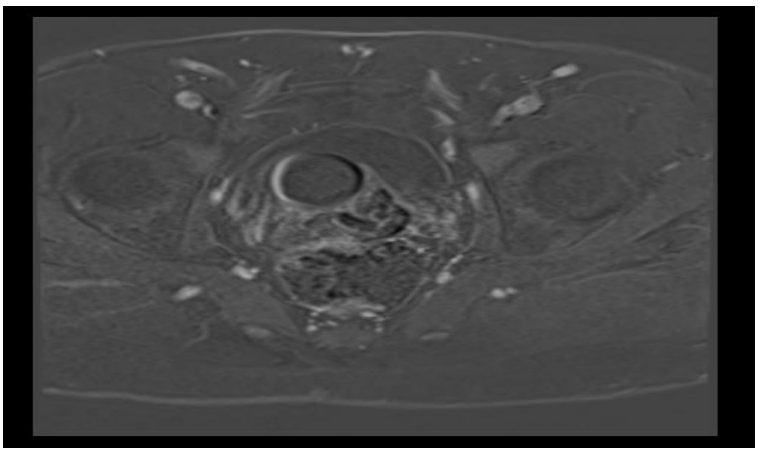

Figure 5: Post-contrast T1-weighted sequence showing absence of enhancement

The left kidney was hypertrophic (13.5 x 6.7 cm), with preserved corticomedullary differentiation and no excretory tract dilation. Bladder and prostate appeared normal.

Diagnosis

Final diagnosis: Zinner's syndrome

Prognosis: Good; conservative management with fertility assessment

Therapeutic Interventions

No surgical or pharmacologic treatment was undertaken. A fertility assessment was initiated. Semen analysis was pending at the time of report. In symptomatic or complicated cases, laparoscopic cyst excision may be considered [6].

Follow-up and Outcome of Interventions

The patient was referred to urology for semen analysis and reproductive counseling. At the time of publication, he remained asymptomatic and under conservative follow-up.

Patient Perspective

The patient was satisfied with his care. He expressed appreciation for the clarity of the diagnosis and the explanations provided during consultations.

Informed Consent

The patient provided written informed consent for publication of this case report and accompanying images.

DISCUSSION

Zinner's syndrome arises from failed induction of the ureteric bud from the mesonephric duct during embryogenesis, leading to renal agenesis and maldevelopment of the ipsilateral seminal vesicle and ejaculatory duct [1,2]. The syndrome is typically diagnosed in the second or third decade of life, either incidentally or during investigation of infertility or pelvic symptoms [4].

Imaging Modalities and Diagnostic Value

Ultrasound can suggest renal agenesis and pelvic cystic lesions but lacks specificity. CT enables precise anatomical definition, while MRI offers superior soft-tissue contrast and can identify atypical content, such as hemorrhagic or proteinaceous material [3,5]. In our case, the unusual MRI presentation (T1 hyperintensity and T2 hypointensity) is indicative of such complex internal content and has been reported in only a few cases [7].

Differential Diagnosi

A comparison with other male pelvic cystic lesions is essential for accurate diagnosis. The table below summarizes the main imaging features and distinctions.

Table 1: Differential Diagnosis of Male Pelvic Cystic Lesions

Entity	Location	Communication	MRI Signal Characteristics	Associated Anomalies	Notes
Zinner's syndrome	Lateral (seminal vesicle)	Possible with ejaculatory duct	T1 ↑ / T2 ↓ (if proteinaceous/ hemorrhagic)	Ipsilateral renal agenesis/ dysgenesis	Typically in young males, rare congenital malformation
Müllerian duct cyst	Midline	No	T1 variable / T2 ↑	None	May compress ejaculatory ducts; seen in infertile males
Prostatic utricle cyst	Midline	Communicates with urethra	T2 ↑ / T1 ↓	Hypospadias, cryptorchidism possible	Often asymptomatic and small
Ejaculatory duct cyst	Paramedian	Communicates with ejaculatory duct	T2 ↑ / T1 ↓	None	May cause painful ejaculation or infertility
Ureterocele	Intramural bladder wall	Communicates with ureter	T2 ↑ / T1 ↓	Duplicated collecting system	Thin-walled cyst at ureterovesical junction
Seminal vesicle abscess	Seminal vesicle (lateral)	May communicate with prostate	T1 ↑ / T2 ↓ with restricted diffusion	None	Infectious signs, diffusion restriction, enhancement
Cystic prostatic carcinoma	Prostate	No	T1 variable, T2 ↓, enhancement	None	Irregular walls, nodular enhancement, PSA elevation

CONCLUSION

Zinner's syndrome should be suspected in young males presenting with chronic pelvic discomfort, particularly in the setting of unilateral renal agenesis. MRI is crucial in confirming the diagnosis and identifying atypical presentations, such as T1 hyperintense and T2 hypointense cysts [3,5,7]. Early use of MRI in unclear pelvic masses can prevent unnecessary interventions and facilitate appropriate management. MRI should be considered early in the workup of pelvic cystic lesions in young males, particularly when ultrasound or CT findings are inconclusive.

Competing Interests

The authors declare no competing interests.

Authors' Contributions

Patient management: Dek Hassan and Abdellatif Outrah. Data collection: Dek Hassan and Abdellatif Outrah. Manuscript drafting: Dek Hassan. Manuscript revision: Badr Slioui, Redouane Roukhsi, Salah Bellasri, Salah Ben Elhend, Nabil Hammoune, Abdelilah Mouhsine. All authors have read and agreed to the final manuscript.

REFERENCES

1. Van den Ouden D, Blom JH, Bangma C, *et al.,* Diagnosis and management of seminal vesicle cysts associated with ipsilateral renal agenesis: Zinner syndrome. *Urology*. 1998;52(6):1206–1210.
2. Arora SS, Sharma R, Sharma A, *et al.,* MRI of Zinner syndrome: A rare developmental anomaly of the mesonephric duct. *Radiology Case Reports*. 2015;10(1):1–5.
3. Kim B, Kawashima A, Ryu JA. Cystic lesions of the male pelvis: imaging findings and differential diagnoses. *Radiographics*. 2020;40(5):1369–1392.
4. Xie Y, Yang G, Zeng Q, *et al.,* Zinner syndrome: Clinical features and imaging findings in 14 cases. *Asian J Androl*. 2018;20(5):460–465.
5. El-Khodary M, Ghoneim M, Abdel-Baky T. Zinner's syndrome: Unusual presentation and comprehensive review. *Radiology Case Reports*. 2023;18(5):1449–1453.
6. Li W, Han Q, Zhu Z. Laparoscopic management of Zinner syndrome in a 14-year-old: A case report. *Asian J Surg*. 2024;47(3):212–215.
7. Singh R, Karakus S, Schaeffer EM, *et al.,* A case of Zinner syndrome in a patient with normal fertility. *Urology Case Reports*. 2021;38:101697.