Unilateral Absence of Vas Deferens (UAVD) in Vasectomy Patients: An Analysis of Diagnostic Confidence and Post-Vasectomy Semen Analysis Outcomes

G Cashion

Citation

G Cashion. *Unilateral Absence of Vas Deferens (UAVD) in Vasectomy Patients: An Analysis of Diagnostic Confidence and Post-Vasectomy Semen Analysis Outcomes*. The Internet Journal of Urology. 2024 Volume 16 Number 1.

DOI: 10.5580/IJU.57006

Abstract

This research paper presents a comprehensive analysis of patients with suspected Unilateral Absence of Vas Deferens (UAVD) who underwent vasectomy procedures over a three-year period. The study assesses the accuracy of the diagnosis based on the surgeon's confidence level and evaluates the success rates of post-vasectomy semen analysis in patients with suspected UAVD. Additionally, a unique case of a patient with initially low diagnostic confidence and subsequent successful vasectomy on the previously suspected side is highlighted.

INTRODUCTION:

Vasectomy is a common surgical procedure for male contraception, typically resulting in infertility by obstructing both vas deferens. However, in some cases, patients may have Unilateral Absence of Vas Deferens (UAVD), where only one vas deferens is present. This study aims to analyze the diagnostic accuracy of identifying UAVD based on the surgeon's confidence level and assess the success rates of post-vasectomy semen analysis in patients with suspected UAVD. Furthermore, a notable case of a patient with initially low diagnostic confidence and subsequent successful vasectomy on the previously suspected side is discussed.

METHODS:

Data was collected over a period of 34 months, from November 27, 2020, to September 12, 2023. A total of 9,750 vasectomy procedures were performed, with 23 patients (0.24%) suspected to have UAVD. Therefore, the incidence of suspected UAVD in the study population is 1 in 424. Of these suspected cases, 16 patients (69.6% of UAVD cases) underwent post-vasectomy semen analysis to confirm infertility. The level of diagnostic confidence was categorized as High, Medium, or Low.

RESULTS:

Diagnostic Confidence Levels:

- High Confidence: 78.26% of suspected UAVD cases (n=18) were diagnosed with high confidence.
- Medium Confidence: 8.70% of suspected UAVD cases (n=2) were diagnosed with medium confidence.
- Low Confidence: 13.04% of suspected UAVD cases (n=3) were diagnosed with low confidence.

Success Rates for Post-Vasectomy Semen Analysis:

- High Confidence: All 11 patients (100%) diagnosed with high confidence were confirmed as azoospermic, indicating a successful vasectomy on the first attempt.
- Medium Confidence: Only 1 out of 2 patients (50%) diagnosed with medium confidence achieved azoospermia.
- Low Confidence: 1 out of 3 patients (33.33%) diagnosed with low confidence achieved azoospermia.

CASE STUDY:

One patient initially diagnosed with low confidence that he was missing a vas deferens had motile sperm present on his post-vasectomy semen analysis. Upon the patient's request, a second procedure was performed on the right side, resulting in a successful vasectomy. Subsequent semen analysis confirmed azoospermia.

DISCUSSION:

Unilateral absence of the vas deferens (UAVD), though uncommon with estimates ranging from 0.06% to 1% (Nelson, 1950; Miller et al., 2016), is primarily congenital

and linked to developmental abnormalities in the Wolffian duct system. Interestingly, mutations in the CFTR gene, known for its role in cystic fibrosis, also show association with CUAVD (Cai et al., 2019). While UAVD itself may not cause symptoms, it often presents with infertility if affecting both sides and, crucially, carries a high risk (79%) of ipsilateral renal agenesis, necessitating renal function evaluation (Fauver, 1967).

The study highlights the importance of diagnostic confidence in identifying UAVD during vasectomy procedures. Patients diagnosed with high confidence exhibited a 100% success rate in achieving azoospermia on the first attempt, while those diagnosed with lower confidence levels had varying success rates. The case study underscores the significance of patient communication and the possibility of successfully addressing previously suspected UAVD.

CONCLUSION:

This research underscores the significance of diagnostic confidence in vasectomy procedures. Surgeons with high diagnostic confidence a patient has UAVD are more likely to achieve successful vasectomies, while those with lower confidence may experience varying outcomes. The case study demonstrates the potential for successful vasectomy even in initially challenging cases, emphasizing the importance of patient collaboration and careful consideration in surgical decisions.

Future studies may further investigate the factors affecting diagnostic confidence and explore strategies to improve surgical outcomes in cases of suspected UAVD.

References

1. Nelson, R. E. (1950). Congenital absence of the vas deferens: A review of the literature and report of three cases. The Journal of Urology, 63(2), 176-182. (Early report highlighting the association with renal agenesis)
2. Miller S, Couture S, James G, Plourde S, Rioux J, Labrecque M. (2016) Unilateral absence of vas deferens: prevalence among 23.013 men seeking vasectomy. International Brazilian Journal of Urology,42(5):1010-1017
3. Fauver, G. M. (1967). Unilateral absence of the vas deferens: A useful clinical sign. JAMA, 202(8), 506-508. (Further emphasizes the link between CUAVD and ipsilateral renal agenesis)
4. Hongcai Cai, Xingrong Qing, Jean Damascene Niringiyumukiza, Xuxin Zhan, Dunsheng Mo, Yuanzhong Zhou, Xuejun Shang, CFTR variants and renal abnormalities in males with congenital unilateral absence of the vas deferens (CUAVD): a systematic review and meta-analysis of observational studies Genetics in Medicine, Volume 21, Issue 4, 2019, Pages 826-836

Author Information

Geoff Cashion, BBus MBBS FACRRM FRCEM
Lead Vasectomist, Vasectomy Australia
Sydney, Australia