International Surgery Journal
Moreira PM et al. Int Surg J. 2024 Feb;11(2):261-263
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20240179

Case Report

Patent urachus in primary care: a case report

Patrícia M. Moreira[1]*, Rafael S. Sequeira[1], Joana Leite[1], Pedro Apolinário[1], Delfim Teixeira[2]

[1]Aces Douro I Marão e Douro Norte, USF Fénix, Vila Real, Portugal
[2]Aces Baixo Vouga, USF João Semana, Ovar, Portugal

Received: 30 November 2023
Revised: 03 January 2024
Accepted: 11 January 2024

***Correspondence:**
Dr. Patrícia M. Moreira,
E-mail: pdmartinsmoreira@gmail.com

ABSTRACT

Urachus, a fibrous tube extending from the umbilicus to the bladder dome, usually closes by the 12th week of gestation, transforming into the median umbilical ligament. However, urachal anomalies, more prevalent than previously believed, are increasingly detected incidentally due to expanded cross-sectional imaging. While persistent embryonic connections between the bladder and the umbilicus are commonly managed in childhood, they can persist into adulthood, leading to heightened morbidity. This case details a 19-year-old who remained asymptomatic until presenting with non-specific complaints, later diagnosed with a urachal remnant through ultrasound. Patients with persistent urachal remnants might remain asymptomatic or display lower abdominal or urinary tract symptoms, potentially causing complications. Imaging reveals distinct appearances for various urachal anomalies, with a patent urachus characterized by an elongated open connection between the bladder and umbilicus. Timely identification of potential complications such as infection and tumors is crucial for optimal management.

Keywords: Patent urachus, Urachal remnants, Urachal anomalies, Case report

INTRODUCTION

Urachal remnants result from maldevelopment of the allantois and cloaca during embryonic development. The allantois originates from the posteroinferior yolk sac in the second week of embryogenesis.[1,2] Initially, the urinary bladder extends to the umbilicus, descending into the pelvis by the fifth month of gestation. The top part of the descending bladder, derived from the cloaca, degenerates into an extraperitoneal fibrous cord within Retzius space, eventually becoming the median umbilical ligament.[1-3]

Urachal pathology arises from incomplete obliteration of this channel during fetal development. Urachal anomalies are classified into four types based on the persistence level of embryonic urachal remnants: patent urachus, umbilical-urachal sinus, urachal cyst, and vesico-urachal diverticulum.[2,3]

The increased use of cross-sectional imaging has led to frequent incidental detection of urachal anomalies.[2,4]

The incidence of a persistent urachus in the adult population is 1 in 5000, more common in males. Infection is the most common benign complication in urachal remnant pathology in both children and adults.[4-6]

This clinical case aims to underscore the family physician's role in diagnosing and guiding seemingly nonspecific complaints, revealing unlikely and less frequent pathologies. Integrating multiple complaints with a holistic patient view is often key to these diagnoses.

CASE REPORT

A 19-year-old healthy male student with no personal or surgical history presented with lower abdominal pain at the initiation of urination, improving during urination but worsening upon abdominal palpation for three months. No associated complaints such as hematuria, dysuria, or urethral discharge were reported. Treatment with nonsteroidal anti-inflammatory drugs provided no relief. Denies the onset of sexual activity.

On examination, the patient was hemodynamically stable without fever. Exhibited slight discomfort on palpation of the lower abdomen.

Small nodules were noticed subcutaneously in the infraumbilical region. An ultrasound was ordered based on these findings. A month later, during a follow-up visit, the examination results revealed "apparent thickening in the tissues posterior to the rectus abdominis muscles in the area reported by the patient as more symptomatic. This area seems to correspond to a remnant of the urachus, with a fibrotic appearance and no fluid content."

The patient was referred to the general surgery department at the referral hospital and underwent surgery for complete removal of the urachus, involving a multidisciplinary team comprising urology and surgery. "The patient remains under clinical observation/surveillance.

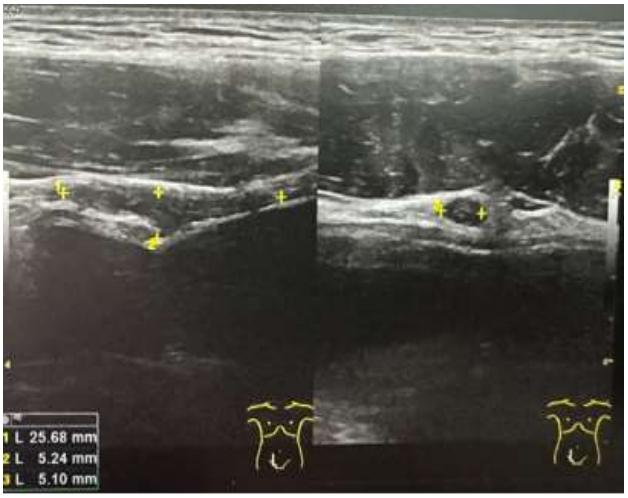

Figure 1: Ultrasound showing a patent urachus (between yellow crosses).

DISCUSSION

The patent urachus manifests as a fistulous connection between the urinary bladder and the umbilicus, often resulting in umbilical urine leakage. Ultrasound imaging might reveal a tube-shaped anechoic structure that connects the antero-superior bladder and the umbilicus.[1-3]

Diagnosis confirmation can be achieved via voiding cystourethrography or fluoroscopic sinogram employing contrast media to delineate the umbilical-vesical tract. CT and MRI scans offer enhanced visualization, allowing for the detection of air, fluid, or calculi within the patent urachus and assessment of potential infectious complications through post-contrast imaging.[2]

Infection is the most common benign complication in patients with a persistent urachus, often due to Staphylococcus aureus. Patients with infected urachal cysts may be asymptomatic with leukocytosis or exhibit recurrent urinary tract infections, abdominal pain, or fever.[6,7]

Recent years have seen increased controversy over the optimal treatment of urachal remnants, especially differing between adults and pediatric patients. While surgery is typically required for symptomatic patients, spontaneous regression of urachal anomalies has been reported.[1,5,6]

Previously, surgical intervention was favored for most pediatric patients with a urachal remnant due to the risk of recurrent infection and urachal cancer later in life. Recent reports suggest that between 50 and 80% resolve non-operatively. Additionally, nearly 15% of pediatric patients develop post-operative complications, including iatrogenic bladder injury necessitating reoperation.[6-7]

CONCLUSION

Urachal pathology, though rare, can lead to significant morbidity and mortality. Nonspecific pelvic symptoms associated with urachal disease may result in delayed diagnosis and treatment. Multimodal imaging, including ultrasound, CT, PET/CT, and MRI, can identify and characterize potential complications related to urachal remnants. The objective of this case is to emphasize the importance of the family physician in integrating signs and symptoms, often nonspecific in nature.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. McCoy AM, Lopp CT, Kooy S, Migliorisi AC, Austin SM, Wilkins PA. Normal regression of the internal umbilical remnant structures in Standardbred foals. Equine Vet J. 2020;52(6):876-83.
2. Villavicencio C, Adam SZ, Nikolaidis P, Yaghmai V, Miller FH. Imaging of the Urachus: Anomalies, Complications, and Mimics. Radiographics. 2016;36(7):2049-63.
3. Elumalai GAB. Congenital Anomalies of Urachus"-Embryological basis and its clinical significance. Res Gate. 2017;45676-67
4. Fahmy M. Urachal Anomalies. In: Fahmy M, eds. Umbilicus and Umbilical Cord. Springer International Publishing; 229-252.
5. Buddha S, Menias CO, Katabathina VS. Imaging of urachal anomalies. Abdom Radiol (NY). 2019;44(12):3978-3989.
6. Ashley RA, Inman BA, Routh JC, Rohlinger AL, Husmann DA, Kramer SA. Urachal anomalies: a longitudinal study of urachal remnants in children and adults. J Urol. 2007;178(4 Pt 2):1615-8.
7. Briggs KB, Rentea RM. Patent Urachus. 2023 Apr 10. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2023.

8. Iwaniak K, Kotwica-Strzałek E, Mosakowska M, Niemczyk S. Complications associated with patent urachus in starting of peritoneal dialysis. Pol Merkur Lekarski. 2022;50(298):246-8.

Cite this article as: Moreira PM, Sequeira RS, Leite J, Apolinário P, Teixeira D. Patent urachus in primary care: a case report. Int Surg J 2024;11:261-3.