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<http://www.pediatricurologycasereports.com>**Infected Urachal Sinus Presenting with Persistent Umbilical Discharge and Lower Abdominal Tenderness in a Late Infancy Case****Thomas Granger****Department of Pediatric Urology, Lakeside Institute of Child Health Sciences, Dublin, Ireland*✉ **Thomas Granger***Department of Pediatric Urology,
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Description

A fourteen-month-old female infant was brought to a pediatric surgical outpatient unit with a history of intermittent purulent discharge from the umbilicus, low-grade fever, irritability during diaper changes, and reduced feeding over a period of nearly three weeks. The caregivers initially observed a small amount of clear fluid from the umbilical region, which gradually became cloudy and malodorous. Local primary care treatment with topical antiseptics provided no meaningful improvement, and symptoms progressed to include redness around the umbilical base and discomfort when the abdomen was touched. There was no history of trauma, no prior abdominal surgery, and no known congenital abnormalities documented during prenatal scans, although detailed fetal imaging records were limited due to incomplete follow-up in the third trimester.

Initial laboratory studies demonstrated mild leukocytosis with neutrophil predominance and elevated inflammatory markers. Serum electrolytes

and renal function remained within normal pediatric range. Urinalysis showed no pyuria or hematuria, and urine culture remained sterile, reducing suspicion of concurrent urinary tract infection. Blood culture results were negative after incubation. Ultrasonography of the abdomen and pelvis identified a tubular hypoechoic tract extending from the umbilical region toward the dome of the urinary bladder. The distal portion appeared thickened with internal echogenic debris suggestive of infection. The bladder itself was of normal capacity but showed focal wall thickening at the apex region where the tract appeared to terminate. No hydronephrosis or ureteral dilatation was identified. These findings suggested a patent urachal remnant, likely a sinus type with secondary infection.

To further delineate anatomy, contrast-enhanced magnetic resonance imaging of the pelvis was performed. Imaging confirmed a fibrous tubular structure connecting the umbilicus to the bladder dome without communication to bowel loops. The tract showed surrounding inflammatory changes and fluid collection within its lumen. No evidence of urachal cyst rupture or intraabdominal abscess formation was seen. The diagnosis of infected urachal sinus was established based on imaging correlation and clinical presentation. The patient was admitted for intravenous antimicrobial therapy targeting common skin and enteric organisms. Despite initial improvement in fever and systemic symptoms over forty-eight hours, persistent umbilical discharge continued, suggesting ongoing localized

infection within the urachal remnant. Because of persistent drainage and risk of recurrence, surgical management was planned after stabilization of acute inflammatory signs.

Histopathology demonstrated chronically inflamed fibrous tissue lined by urothelial epithelium with areas of acute inflammatory infiltrate and focal abscess formation. No evidence of malignant transformation or atypical cellular proliferation was identified. Microbiological culture from intraoperative specimens grew *Staphylococcus aureus* sensitive to standard beta-lactam antibiotics, guiding postoperative antimicrobial adjustment. Postoperative recovery was uneventful. The infant remained afebrile and showed rapid reduction in abdominal discomfort. Umbilical region healing progressed well with cessation of discharge by the third postoperative day. The urinary catheter was removed on the seventh day after confirming adequate bladder integrity and spontaneous voiding.

At six-week follow-up, the surgical site had healed completely with no residual umbilical drainage or redness. Ultrasonography demonstrated normal bladder contour without residual tract or fluid collection. The child exhibited improved feeding behavior and weight gain appropriate for age. At six-month review, there was no recurrence of symptoms, and renal and bladder imaging remained normal. Urachal remnants represent vestigial structures arising from incomplete obliteration of the allantoic duct during fetal development. The spectrum includes patent urachus, urachal sinus, urachal cyst, and vesicourachal diverticulum. Among these, urachal sinus may remain asymptomatic for long periods until infection develops, often presenting with umbilical discharge and localized inflammation.

Infected urachal sinus in infancy can be mistaken for

common umbilical infections or granuloma, leading to delayed diagnosis. Persistence of discharge despite topical therapy or recurrence after initial improvement should prompt imaging evaluation to exclude deeper congenital anomalies. Ultrasonography serves as an effective initial modality, while magnetic resonance imaging or computed tomography provides more detailed anatomical delineation when surgical planning is required. Infection typically arises due to communication between the sinus tract and external environment at the umbilicus, allowing bacterial colonization. Staphylococcal and enteric organisms are commonly isolated. Progressive inflammation may lead to abscess formation or extension toward the bladder dome if untreated. Early intervention is therefore important to prevent complications such as peritonitis or recurrent sepsis.

Conclusion

Definitive management involves complete excision of the urachal remnant, including its bladder attachment, to prevent recurrence. Partial treatment or drainage alone carries a higher risk of persistent infection. In pediatric patients, careful surgical dissection is required due to proximity to the peritoneum and developing bladder structures. Postoperative outcomes are generally favorable when complete excision is achieved. This case describes an infected urachal sinus presenting with persistent umbilical discharge in late infancy. Recognition of the underlying congenital tract was essential to avoid repeated ineffective topical therapy. Surgical excision combined with appropriate antimicrobial therapy resulted in complete resolution of symptoms and prevention of recurrence, with preservation of normal bladder function during follow-up observation.