International Surgery Journal
Bastawala LF et al. Int Surg J. 2025 Dec;12(12):2234-2238
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20253865

Case Report

Adult patent urachus presenting with umbilical discharge: a rare case report

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Received: 10 October 2025
Accepted: 12 November 2025

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ABSTRACT

The urachus is a vestigial remnant of the allantoic duct, which normally regresses before birth to form the median umbilical ligament. Incomplete obliteration results in urachal anomalies, among which patent urachus is the most severe and rarest form. Though typically diagnosed in infancy, occasional adult presentations pose significant diagnostic challenges due to nonspecific symptoms and rarity. We report the case of a 26-year-old male who presented with dull periumbilical pain and foul-smelling yellow umbilical discharge. Clinical examination and ultrasonography revealed a tubular tract extending from the umbilicus to the bladder, consistent with a patent urachus. The patient underwent open surgical excision of the urachal tract along with omphalectomy via a lower midline infraumbilical laparotomy. Histopathology confirmed a benign urachal remnant lined by columnar and urothelial epithelium with chronic inflammatory changes. Postoperative recovery was uneventful, and the patient remained symptom-free on follow-up. Although extremely rare, patent urachus must be considered in adult patients presenting with chronic umbilical discharge. A high index of suspicion, prompt radiological workup, and complete surgical excision are essential to prevent infection and malignant transformation.

Keywords: Patent urachus, Adult urachal anomaly, Umbilical discharge, Omphalectomy, Urachal remnant, Infraumbilical laparotomy, Urachal sinus, Embryologic remnant

INTRODUCTION

The urachus is an embryonic tubular structure that arises from the allantois and extends between the anterior wall of the foetal bladder and the umbilicus, serving as a conduit for the elimination of foetal urine into the amniotic fluid during early development.[1] It typically involutes during the second trimester, forming a fibrous cord known as the median umbilical ligament.[2] However, incomplete regression can lead to urachal anomalies, a spectrum that includes four primary types: Patent urachus-complete failure of obliteration; communication between bladder and umbilicus persists. Urachal sinus-proximal end remains open. Urachal cyst-both ends closed, central portion patent. Vesicourethral diverticulum-distal end closed, communication with bladder remains.[3]

Patent urachus is the most uncommon and clinically dramatic anomaly in this spectrum, accounting for only 1.5% of all urachal anomalies.[4] Although these anomalies are more commonly seen in paediatric populations, adult presentation is extremely rare, with an estimated incidence of 0.063%.[5] This rarity leads to frequent misdiagnosis or delayed intervention, especially when symptoms mimic common conditions such as omphalitis, infected dermoid cysts, or urachal sinus.[6]

In adults, umbilical discharge remains the most common presenting complaint. The discharge may be serous, purulent, or even urine-like, especially when bladder communication is intact. Patients may also present with lower abdominal pain, recurrent urinary tract infections, or palpable midline masses.[7]

Diagnosis is established using a combination of ultrasonography, CT/MRI, and cystoscopy. Management involves complete surgical excision of the tract, often with partial cystectomy to prevent recurrence or malignant transformation.[8]

This report aims to highlight the importance of considering patent urachus as a differential in adults with chronic umbilical discharge, and to emphasize the significance of prompt diagnosis and definitive surgical management.

CASE REPORT

A 26-year-old male presented to the general surgery outpatient department with complaints of dull, non-radiating abdominal pain localized to the periumbilical region, persisting for one month, accompanied by foul-smelling umbilical discharge for the past two weeks. The pain was persistent and not associated with any specific aggravating or relieving factors. The patient reported that the umbilical discharge was thick, yellow, and purulent, most prominently noticed in the morning. There were no associated fever, urinary disturbances, nausea, vomiting, or bowel habit alterations. He denied any history of previous abdominal surgeries, trauma, or similar episodes in childhood.

On general examination, the patient was conscious, oriented, and afebrile, with stable vital parameters. No pallor, icterus, cyanosis, clubbing, oedema, or palpable lymphadenopathy was observed. Local examination of the umbilicus revealed visible purulent discharge without surrounding erythema, induration, or sinus opening. The discharge was foul-smelling and yellow in colour. There was no tenderness or local rise in temperature, but gentle pressure over the periumbilical area led to the expression of more discharge. No umbilical hernia, sinus tract, or external opening was evident (Figure 1).

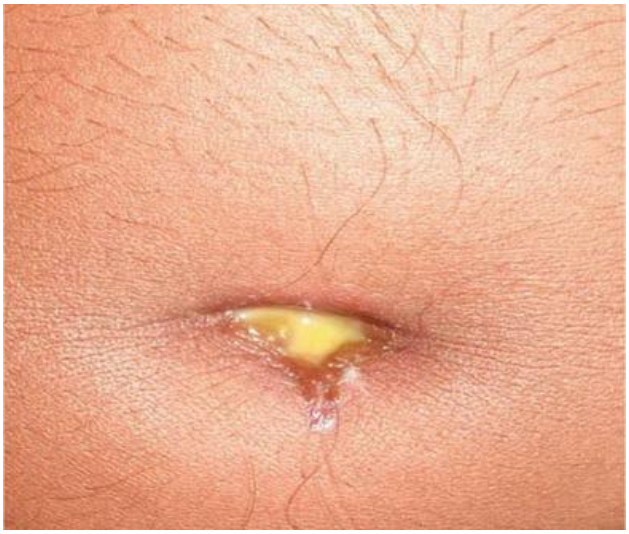

Figure 1: Umbilical discharge on presentation prior to antibiotic therapy.

Per abdominal examination showed a flat abdomen with a centrally placed, inverted umbilicus. There were no visible scars, sinuses, dilated veins, or peristaltic movements. On palpation, the abdomen was soft and non-tender, with no guarding, rigidity, or organomegaly. No palpable mass or cord-like midline structure was identified. Percussion elicited a tympanic note, and auscultation revealed normal bowel sounds. Systemic examination, including cardiovascular, respiratory, and neurological systems, did not reveal any abnormalities.

Baseline haematological and biochemical investigations were within normal limits. Urine analysis showed no abnormality. A sample of umbilical discharge was sent for culture and sensitivity prior to initiating empirical antibiotics, which later guided definitive antibiotic therapy. Chest and abdominal X-ray was unremarkable. Ultrasonography of the abdomen revealed an anechoic, tubular tract measuring approximately 72×12×18 mm, extending from the umbilicus to the dome of the bladder, situated posterior to the rectus sheath, suggestive of a patent urachus (Figure 2).

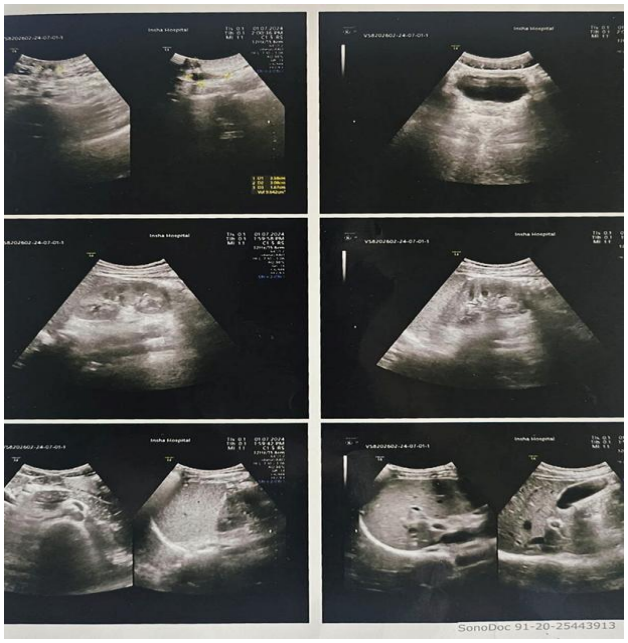

Figure 2: Ultrasonography showing a tubular anechoic tract extending from the umbilicus to the dome of the bladder, suggestive of a patent urachus.

Based on the clinical picture and imaging findings, a diagnosis of urachal anomaly, possibly patent urachus, was considered. Differential diagnoses included vitelline duct remnants and umbilical granuloma. However, the imaging findings and presence of persistent umbilical discharge with bladder communication favoured a urachal anomaly.

After initial infection control with intravenous antibiotics (Figure 3) and symptomatic management, the patient was taken up for elective surgical excision. Informed written

consent was obtained. Under spinal anaesthesia, a lower midline infraumbilical laparotomy incision was made. Intraoperatively, a fibrous tubular tract measuring approximately 7 cm in length and 1.5 cm in diameter was identified extending from the umbilicus toward the dome of the bladder. The tract was completely excised up to its attachment to the bladder wall. A formal omphalectomy was performed as part of the en-bloc resection (Figure 4a–c). Haemostasis was achieved, and the abdominal wall was closed in layers. A 16 French Foley catheter was placed intraoperatively.

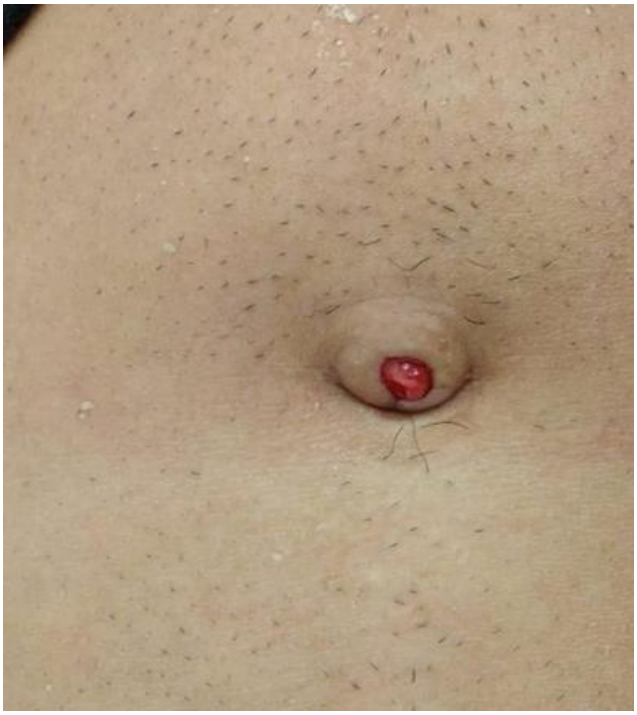

Figure 3: Umbilicus on day 3 after antibiotic coverage.

Postoperatively, the patient was managed with antibiotics, analgesics, and routine wound care. Oral feeds were resumed on the second postoperative day. The urinary catheter was removed on the seventh postoperative day after confirming the absence of leakage or haematuria. As non-absorbable interrupted sutures were used for skin closure, suture removal was carried out on postoperative day ten, by which time the wound was dry, healthy, and well-healed (Figure 5).

Histopathological examination of the excised specimen showed a fibrous tract lined by columnar and urothelial epithelium with chronic inflammatory infiltrate, confirming the diagnosis of a benign patent urachus. No dysplasia or malignancy was identified.

On follow-up visits at one month and three months, the patient remained asymptomatic with complete wound healing. There was no recurrence of discharge or urinary complaints, indicating successful surgical management and recovery.

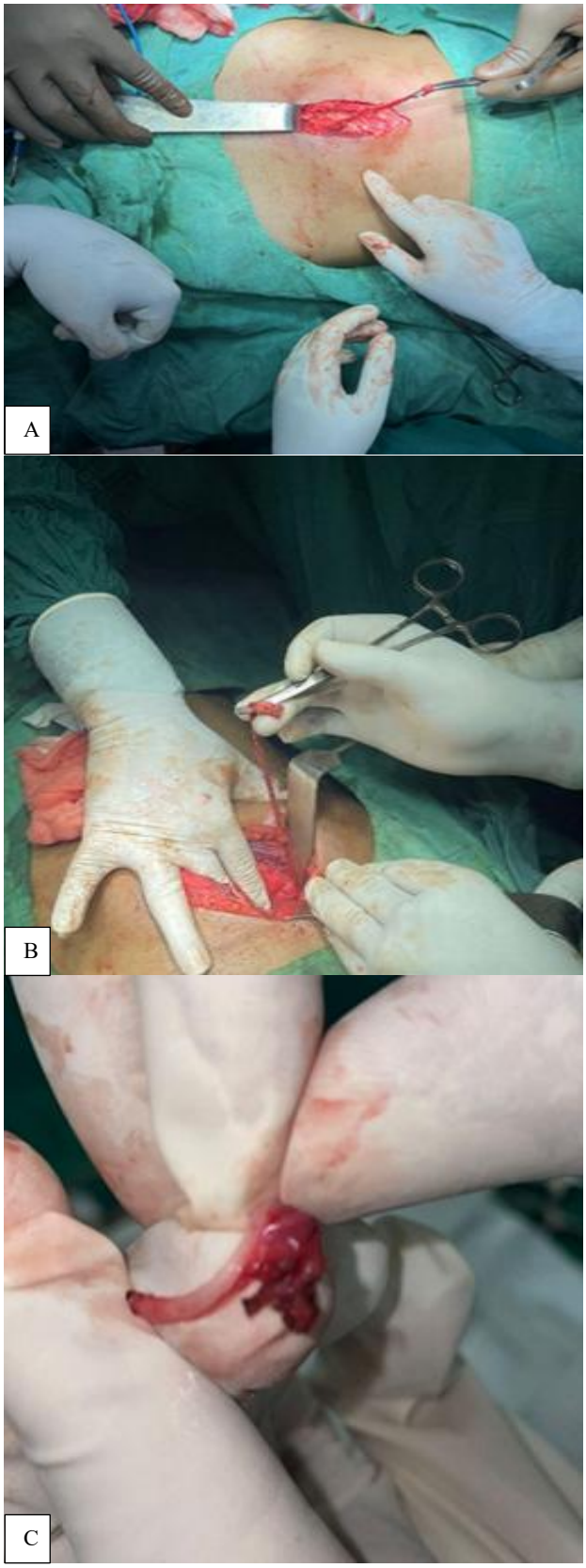

Figure 4 (A-C): Intraoperative images showing complete excision of the urachal tract. A: Initial identification of the tract. B: Mobilization and dissection and C: Excision of the tract with umbilical end.

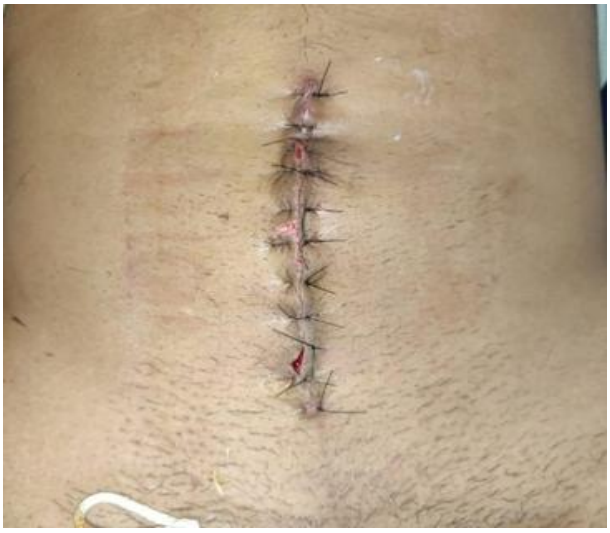

Figure 5: Postoperative umbilicus after omphalectomy, showing complete wound healing.

DISCUSSION

The urachus is an embryologic remnant of the allantois, forming a fibrous cord that connects the apex of the urinary bladder to the umbilicus. Normally, this tract obliterates and forms the median umbilical ligament during foetal development. Failure of this process can result in a spectrum of urachal anomalies, including patent urachus, urachal cyst, urachal sinus, and vesicourachal diverticulum. Of these, a patent urachus, persistent communication between the bladder and the umbilicus, is the rarest, especially in adults.[12]

While most urachal anomalies are diagnosed in infancy, their presentation in adulthood is rare, with an incidence of less than 0.1%.[14] Yu et al reported that patent urachus comprises only 1.6% of adult urachal anomalies.[3] In adults, the clinical presentation is often vague, commonly manifesting as umbilical discharge or abdominal pain.[5] In our case, the presence of thick, purulent, foul-smelling umbilical discharge with mild periumbilical pain raised clinical suspicion.

Delayed symptomatic onset in adults may result from infection, incomplete epithelialization, or increased intravesical pressure.[6,9] Local trauma and chronic inflammation may reactivate a previously asymptomatic remnant.[4] Histologically, chronic inflammation of the urachal epithelium may also predispose to urachal adenocarcinoma, which has been reported in less than 1% of all bladder cancers.[7,10]

Ultrasound remains the initial imaging modality of choice due to its accessibility and non-invasive nature.[13] However, in complicated cases or where malignancy is suspected, contrast-enhanced CT or MRI offers better delineation of the urachal tract and surrounding tissues.[4,9] In our case, high-resolution ultrasonography was sufficient to establish the diagnosis preoperatively.

Surgical excision remains the definitive treatment.[8] Both laparoscopic and open approaches have been described, with complete tract excision required to avoid recurrence, While some authors advocate partial cystectomy with a bladder cuff resection to prevent malignancy, this was not necessary in our case as the tract ended externally on the bladder wall.[7,9,15] Complete omphalectomy ensures removal of the umbilical end and reduces infection risk.[11]

Histopathological examination is vital to confirm the diagnosis and rule out malignancy.[17] Our case demonstrated a fibrous tract lined by columnar and urothelial epithelium with chronic inflammation but no neoplastic changes. The patient had a smooth recovery, with no signs of recurrence at three-month follow-up.

This case highlights the need for a high index of suspicion for urachal anomalies in adults presenting with persistent umbilical discharge. Accurate imaging and complete surgical resection lead to excellent outcomes.[18]

CONCLUSION

Patent urachus is a rare diagnosis in adulthood and can be easily overlooked due to its nonspecific presentation. Adult patients with umbilical discharge should be evaluated for urachal anomalies, particularly when symptoms persist despite standard treatment. Imaging studies, especially ultrasonography and CT, play a key role in diagnosis and preoperative planning.

Surgical management remains the cornerstone of treatment. Omphalectomy and complete excision of the urachal tract are curative in most cases and help prevent recurrence and malignant transformation. Routine histopathological evaluation is recommended to exclude atypical cellular changes or malignancy.

This case underscores the clinical importance of maintaining a broad differential diagnosis for umbilical pathologies in adults. Timely identification and complete surgical excision of patent urachus result in favourable outcomes with minimal morbidity.

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

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Cite this article as: Bastawala LF, Chand SU, Patel VA. Adult patent urachus presenting with umbilical discharge: a rare case report. Int Surg J 2025;12:2234-8.