

## Colo-urachal fistula with infected urachus; a rare fate of urachus in adults

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### Abstract

Colourachal abnormalities are conditions that occur due to defective obliteration of urachus into the median umbilical ligament during the developmental period. The case of a middle-aged male who presented multiple times with recurrent abdominal pain, vomiting, and intermittent bloody loose stools is presented. On final admission, he developed signs of acute abdomen. Despite multiple visits, his workup remained inconclusive. Explorative laparotomy was performed which showed Colo-urachal fistula with infected urachus from which air was released upon incision and pus drained. The patient underwent a loop ileostomy, left hemicolectomy, and colocolic anastomosis. This case signifies the complexities of diagnosing and managing colo-urachal fistulas in adults.

**Keywords:** Urachal Disorders, Laparotomy, Abdominal pain, Colectomy, Peritoneal Diseases, Fistula, Anastomosis, Ligaments, Suppuration.

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### Introduction

The urachus is derived from the allantois during embryological development, which connects foetal bladder with the umbilical cord. It normally obliterates during the 12th week of gestational period into median umbilical ligament. If it fails to obliterate properly, various urachal abnormalities can arise—usually encountered abnormalities are Urachal cyst, Urachal fistula, Urachal diverticulum, and Urachal sinus. Urachal abnormalities are most commonly reported in the paediatric population<sup>1</sup>; however, in adults, colo-urachal cutaneous fistulas with umbilical discharge have been reported.<sup>2</sup> These fistulas are often associated with conditions such as inflammatory bowel disease, diverticular disease, and prior abdominal surgeries. Such abnormalities can lead to significant complications, including recurrent infections and bowel obstruction. Due to their rarity in adults and the non-specific clinical presentation, diagnosis is often

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delayed or missed. Therefore, this case of a colo-urachal fistula with infected urachus in an adult to highlight the diagnostic challenges and emphasise the importance of considering urachal pathology in atypical presentations of acute abdomen is reported.

### Case Report

A 52-year-old male, garments factory worker and a known hypertensive since four years, presented in the outpatient department of Abbasi Shaheed Hospital, Karachi in September 2024, with a history of worsening abdominal pain associated with vomiting and loose motions, occasionally stained with blood, since the last two years. The patient was haemodynamically stable but appeared ill. Abdominal examination revealed tenderness over the whole abdomen. Laboratory tests showed elevated white blood cell count, while the rest of the investigations were within normal limits. Ultrasound scan of the abdomen showed a well circumscribed lesion along the dome of the urinary bladder in midline with focal superior beak-like projection showing peripheral thick walls and central necrotic component and mild vascularity, of about 4.5x3.5 cm, suggestive of complicated urachal remnant with differentials of infected urachal cyst or urachal adenocarcinoma. The patient was admitted with the diagnosis of acute abdomen and managed conservatively. Surgical intervention was deferred at that time as the patient was stable, and investigations including histopathology and imaging were still in process. A contrast-enhanced CT scan of the abdomen and pelvis with IV and oral contrast was performed to evaluate for possible malignancy or complicated diverticulitis. It revealed a significantly thickened sigmoid colon, highly suggestive of a neoplastic process with proximal faecalization and infiltration of fat and possible infiltration of urinary bladder; multiple omental and mesenteric deposits were noted with the thickening of collapsed urinary bladder raising suspicion of concomitant urinary bladder neoplastic lesion. Colonoscopy showed polypoid mass 20 cm away from the anal verge, obstructing the lumen; biopsy was taken. Colonoscopy was repeated due to continued symptoms and to reassess the colonic mucosa after the initial scope was inconclusive. It showed two polypoidal lesions seen at 25 cm and 28 cm and a large diverticuli. Histopathology stated colonic mucosa exhibiting focal crypt disarray with

moderate chronic active colitis and inflamed granulation tissue, ruling out malignancy. He was admitted to the urology department of the Abbasi Shaheed Hospital, where cystoscopy was planned. Cystoscopy was done and the tissue was sent for histopathology which favoured follicular cystitis. Serum CEA were 0.85.

The patient presented again to the hospital with acute abdominal symptoms in October 2024, an exploratory laparotomy was performed which showed a sigmoid mass of about 20 x 10 cm adhered to the ileum, Colourachal fistula with infected urachus was seen; about 50ml pus was drained and air was released from the urachus upon incision. Loop ileostomy, along with left hemicolectomy and colocolic anastomosis, was done. Sigmoid mass, on histopathology, revealed features consistent with diverticulosis and a fistulous tract. Multiple benign reactive lymph nodes, negative for granuloma formation, dysplasia or malignancy were encountered. The patient had an uneventful recovery, and was discharged home with instructions for ileostomy care, increased hydration, and high protein diet. At the one-month follow-up visit, he reported no urinary or gastrointestinal symptoms.

## Discussion

Urachal abnormalities usually present in young individuals but in this case the patient was a 52-year-old male. Clinically, these abnormalities often present diagnostic challenges due to atypical clinical manifestations. Urachal cyst can also present as an acute abdomen<sup>3</sup>; however, in this case, the diagnosis was delayed due to the chronic and intermittent nature of the symptoms. Early imaging did not clearly reveal the urachal connection, and the non-specific presentation lead to a lower suspicion for urachal pathology.

Imaging studies, particularly ultrasound and CT scans, were pivotal in guiding the diagnosis. Ultrasound helps to identify urachal anomalies in case of their presence<sup>4</sup>, just like in the current case, ultrasound revealed a well-defined lesion at the dome of the bladder, suggestive of complicated urachal remnant with differentials of infected urachal cyst or urachal adenocarcinoma. Histopathology ruled out malignancy and inflammatory conditions like Crohn's disease, which can sometimes present as a caeco-urachal fistula.<sup>5</sup>

Surgical management is often necessary for resolving colo-urachal fistulas and associated infections.<sup>6</sup> Similarly, in the current case, exploratory laparotomy, left

hemicolectomy, and colocolic anastomosis were performed. Literature supports that complete excision of the urachal remnant and any associated pathology is critical to prevent recurrence.<sup>7</sup> Effective post-operative management, including antibiotics and monitoring for complications, significantly contributes to recovery. The current patient also had uneventful post-operative period with steady recovery. This case underscores the importance of recognising atypical presentations of urachal abnormalities in adults among healthcare providers.

## Conclusion

This case presents a rare instance of a colo-urachal fistula complicated by an infected urachus in an adult. Atypical symptoms, such as abdominal pain and haematochezia, highlight the importance of considering urachal abnormalities in differential diagnoses. Effective imaging and timely surgical intervention led to a successful outcome, underscoring the importance of a multi-disciplinary approach in managing such complex conditions. Enhanced diagnostic protocols can further improve patient care in similar cases.

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## AUTHORS' CONTRIBUTIONS:

**SG:** Composing, writing and assisted the case.

**MJ:** Critical review and final approval.

**RK:** Data collection and reference review.