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A Case Report of Urachal Abscess: A Rare Differential in Adult Abdominal Pain

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Abstract **Case Report**

The urachus is a vestigial embryological remnant that typically obliterates after birth. Persistence of this structure can lead to urachal anomalies, which are uncommon in adults and often present diagnostic challenges. We report a case of a 62-year-old male presenting with an infected urachal cyst complicated by abscess formation. Contrast-enhanced computed tomography (CT) imaging revealed a large, complex fluid collection in the space of Retzius, consistent with an infected urachal cyst. This case highlights the importance of considering urachal anomalies in the differential diagnosis of midline infraumbilical masses in adults and discusses the diagnostic and therapeutic approach.

Keywords: Urachal cyst, Urachal abscess, Space of Retzius, Adult urachal anomaly, Computed tomography.

INTRODUCTION

The urachus is a fibrous remnant of the allantois, extending from the bladder dome to the umbilicus. Normally, it obliterates during fetal development, forming the median umbilical ligament. Failure of complete obliteration results in urachal anomalies, including cysts, sinuses, or fistulas. While these anomalies are more commonly diagnosed in children, they may remain asymptomatic until adulthood, when infection is the most frequent complication [1]. Adult presentations are rare and can mimic other abdominal pathologies, making diagnosis challenging.

CASE PRESENTATION

A 60-year-old male presented with a 1-week history of progressive periumbilical pain, swelling, and erythema. He reported low-grade fever and discomfort during urination but denied urinary frequency or hematuria. Physical examination revealed a tender, firm, non-reducible mass located in the midline infraumbilical region, just above the symphysis pubis.

Laboratory investigations showed leukocytosis with neutrophilic predominance and elevated inflammatory markers. Urinalysis was unremarkable.

Contrast-enhanced CT of the abdomen and pelvis was performed using a portal venous phase protocol with 3 mm slice thickness.

Figure 1: Axial CT demonstrated a thick-walled, heterogeneous fluid collection anterior to the bladder and deep to the rectus muscles

Figure 2: Sagittal CT section revealed an elongated, irregularly shaped abscess extending from the bladder dome toward the umbilicus, occupying the space of Retzius

Figure 3: Coronal CT section confirmed the midline location and mass effect on adjacent bowel loops

No suspicious solid components or calcifications were identified to suggest malignancy.

Percutaneous drainage was performed, and cultures grew *Escherichia coli*. The patient was treated with broad-spectrum intravenous antibiotics. After resolution of the acute infection, elective surgical excision of the urachal remnant was planned to prevent recurrence and mitigate malignancy risk.

DISCUSSION

Urachal cysts arise from incomplete obliteration of the urachal lumen, leading to a potential space prone to fluid accumulation and infection. Bacterial colonization commonly involves *Staphylococcus aureus*, *Escherichia coli*, and *Proteus* species. In adults, infected urachal cysts may present with nonspecific symptoms such as abdominal pain, palpable mass, fever, and urinary complaints, often leading to misdiagnosis [1].

Differential diagnoses include ventral hernias, infected sebaceous cysts, bladder diverticula, and urachal carcinoma. CT imaging remains the gold standard for diagnosis, providing detailed anatomical delineation of the cyst, its relationship to the bladder and umbilicus, and the extent of infection [2]. Imaging features suggestive of malignancy include irregular wall thickening, nodularity, solid enhancing components, and calcifications, none of which were present in this case.

Ultrasound is often the initial imaging modality but may be limited by body habitus and operator dependency. Magnetic resonance imaging (MRI) can be useful for superior soft tissue characterization and

surgical planning, especially in complex or recurrent cases [2].

Management typically involves initial broad-spectrum antibiotics and drainage of the abscess, either percutaneously or surgically. Definitive treatment requires complete surgical excision of the urachal remnant to prevent recurrence and mitigate the risk of malignant transformation, particularly urachal adenocarcinoma, which is more prevalent in adults [3].

Follow-up imaging post-treatment is recommended to confirm resolution and exclude residual or recurrent disease.

The rarity of urachal anomalies in adults often leads to delayed diagnosis, which can increase morbidity. Awareness of this entity and its imaging characteristics is essential for timely intervention. Additionally, the risk of malignant transformation, although low, necessitates complete excision of the urachal remnant after infection control. Recent literature suggests that minimally invasive surgical approaches, such as laparoscopic or robotic-assisted excision, offer favorable outcomes with reduced morbidity compared to open surgery. However, the choice of surgical technique should be individualized based on the extent of infection and patient factors.

This case underscores the importance of a multidisciplinary approach involving radiologists, urologists, and surgeons to optimize patient outcomes. Early recognition and appropriate management can prevent complications such as fistula formation, sepsis, and malignancy.

CONCLUSION

Although rare, infected urachal cysts should be considered in adults presenting with midline infraumbilical masses and signs of infection. Early recognition and imaging with contrast-enhanced CT are essential for accurate diagnosis and appropriate management. A staged approach involving infection control followed by surgical excision offers the best outcomes and reduces the risk of complications, including malignancy.

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