VOLUME - 11, ISSUE - 09, SEPTEMBER - 2022 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Review Article

General Surgery

ACUTE ABDOMEN WITH LUMP DUE TO URACHAL CYST IN ADULT

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ABSTRACT Urachus is an embryonic organ related to the bladder that degenerates after birth. Defective obliteration of the urachus leads to urachal malformations, the most common of which is a urachal cyst. A urachal cyst is often misdiagnosed due to its myriad presentations. Delay in diagnosis can lead to complications such as sepsis, fistula formation, and rupture of the cyst mimicking peritonitis. Hence, a high index of suspicion is required for the timely diagnosis and management of urachal cysts presenting in the emergency room. We report the case of a 35-year-old woman who presented with clinical features suggestive of an acute abdomen. The judicious use of imaging confirmed the diagnosis of an infected urachal cyst, which was surgically managed.

KEYWORDS : acute abdomen, sepsis, urachal cyst, urachus

INTRODUCTION

Urachal cyst is an uncommon congenital anomaly that typically presents in older children. It very rarely presents in adults and the incidence is largely unknown in this age group. It arises from the incomplete obliteration of urachus, which is a primitive structure that connects the umbilical cord to the fetal bladder [1]. The incidence of urachal cyst is one in 5,000 live births [2]. It is mostly asymptomatic and around 35% of the patients present with lower abdominal pain, features of urinary tract infection, painful abdominal lump, and hematuria.

In adults, the goal of imaging is to distinguish between benign and malignant diseases of urachus; treatment, prognosis and long-term survival vary considerably. Though most of the cases are malignant, benign diseases like urachal abscess do occur. Due to overlapping clinical and radiological features, accurate diagnosis is not possible in few cases. We report the case of an acute presentation of a urachal cyst in an adult female patient that was diagnosed and managed successfully.

Case Presentation:

A 35-year-old farmer woman from remote area presented to the emergency department with acute onset of suprapubic pain of one day duration and low-grade fever of 100 degree F. The pain was neither radiating nor migrating to other regions of the abdomen. She denied any history of trauma or comorbid illness. She had delivered two children as full-term normal delivery and had not undergone any other surgery. On examination, her vital signs were stable. Her abdomen was soft with a 7-cm sized tender swelling over the suprapubic region up to infraumbilical region (figure 1). An abdominal wall abscess was suspected based on the initial clinical findings.

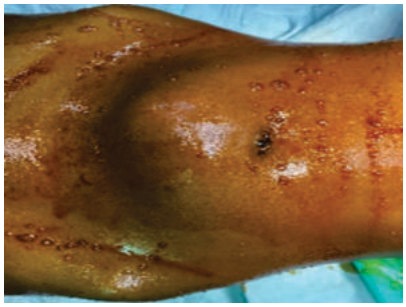

Figure 1. Preoperative picture of abdominal lump

The laboratory results including renal parameters, electrolytes, and urine analysis were normal except for leucocytosis of 15,000 cells per ml (normal range: 4,000-11,000 cells per ml). with 82% neutrophil count. Ultrasonography revealed a 7 X 7 X 7-cm sized hypoechoic lesion in the suprapubic region closely related to the dome of the bladder with internal echoes. CT of the abdomen and pelvis showed a 7 X6 X 6-cm sized hypodense homogenous collection in the anterior abdominal wall close to the bladder entering through intermuscular and anterior rectus sheath into subcutaneous area (Figure 2). The imaging findings aided in narrowing down the preoperative diagnosis of a urachal cyst.

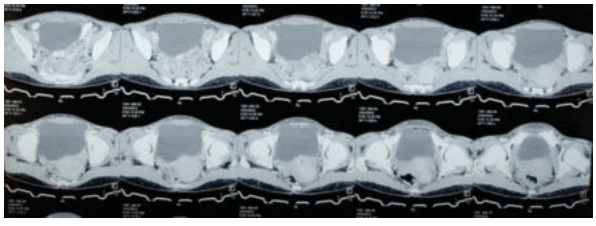

Figure 2. CT scan Showing Cystic lesion from bladder dome till umbilical area with subcutaneous extension. Given the above findings and the acute presentation, the patient underwent emergency exploration after informed consent. A vertical elliptical skin incision was made over the swelling after entering subcutaneous plane 15 ml pus drained and exploration was done, which revealed a 6-cm sized pus-filled cavity connected to the bladder dome by a fibrotic band.(Figure 3) The abscess with its wall and the entire tract extending to skin and bladder were excised, and the skin was closed primarily after leaving a drain.

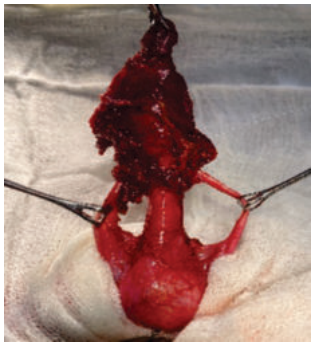

Figure 3. Urachal cyst from umbilicus to bladder, Foleys's balloon well visualised.

Culture of the pus revealed *Escherichia coli* and appropriate antibiotics were started. Histological examination showed the cyst wall lined by stratified columnar epithelium, suggestive of a urachal cyst. (figure 4) The postoperative course was uneventful and the patient was discharged on the tenth postoperative day.

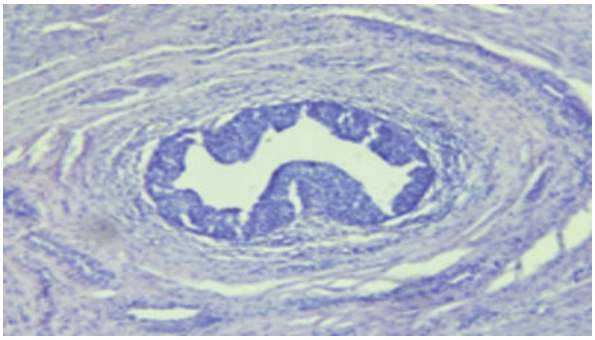

Figure 4. Histopathology picture of Urachal cyst (Courtesy:Dr. Saranya Singaravel MD Pathology Department, Rajawadi Hospital Mumbai.)

DISCUSSION

There are four types of congenital urachal anomalies, in the decreasing order of occurrence: patent urachus (50%), urachal cyst (30%), umbilical-urachal sinus (15%) and vesico-urachal diverticulum (5%). Other than patent urachus, which presents with urinary discharge from umbilicus in neonatal period, most of the anomalies are asymptomatic, unless complicated by infection. Routes of infection may be hematogenous, direct spread from bladder or lymphatic [3].

Urachal cyst develops when urachus remains patent in between the closed umbilical and vesical endpoints. It usually occurs in the lower third, close to the urinary bladder. It remains usually asymptomatic and diagnosed incidentally. As with other urachal remnants, most common complication is infection [4].

Low prevalence of the urachal mass in adults prevents formulation of definitive guidelines for the evaluation and management of an urachal mass. Presenting complaints and clinical examination are helpful sometimes to formulate a clinical suspicion. Any suprapubic lump mimicking as a feature of abscess should be radiologically investigated for Urachal cyst. Hematuria and age more than 55 years are strong predictors of malignancy whereas benign and infective conditions present with palpable abdominal mass and dysuria [5-7].

In view of the diverse clinical presentation, the diagnosis of urachal cyst is often confused with obstructed hernia, appendicitis, Meckel diverticulitis, urinary tract infection, pelvic inflammatory disease, and bladder carcinoma [8].

Imaging techniques provide information regarding the presence of urachal sinuses, the size of the cyst, and its relationship with the surrounding tissue [9]. The urachal cyst appears hyperintense on T2 weighted MRI sequence, which also delineates the anatomical relation of the cyst to the bladder [9]. Endoscopic evaluation by cystoscopy is rarely indicated when the imaging findings are ambiguous and cannot rule out communication with the bladder [10]. In the present case, CT have been used to confirm the diagnosis of the urachal cyst.

The delay in diagnosis and treatment of the urachal cyst gives rise to various complications such as peritonitis, urachocolonic fistula, stone formation, and neoplastic transformations [10-11].

Microbiological study and culture of the abscess fluid are often done to rule out infection with *Escherichia coli*, *Enterococcus faecium*, and *Klebsiella pneumonia* being the common organisms isolated (12) Laparoscopy represents a useful alternative for the management of persistent or infected urachus, in particular when there's the suspect despite the lack of radiological evidence. The morbidity associated with this approach is very low as the risk or recurrence. Laparoscopy in the management of urachal cyst is safe effective and ensures good cosmesis with all the advantages of minimally invasive approach.(13)

CONCLUSIONS

Urachal anomalies are rare in adults and are often misdiagnosed due to the heterogeneous clinical presentation. Acute presentation of urachal cyst in adults is seldom encountered in clinical practice and could be diagnosed clinically as parietal wall abscess. Therefore proper radiological intervention like basic abdominal USG followed by CT or MRI is needed . Early diagnosis can help in planning appropriate surgical interventions, thereby reducing the morbidity. A high index of suspicion is of paramount importance for the timely diagnosis of this uncommon congenital anomaly presenting late in adult life.

No Conflict Of Interest
No Funding Source

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