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Case Report: We report a case of a 35-year-old female presenting with umbilical sepsis with abdominal (suprapubic) pain. Investigations and laparotomy lead us to a confirmative diagnosis of infected urachal cyst.

Conclusion: Urachal anomalies are rare in adults. Presentation is atypical therefore a high index of suspicion is required in order to achieve a diagnosis. Complete surgical excision is the treatment of choice due to the risk of malignant transformation.



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CASE REPORT

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INTRODUCTION

Urachal is a rare congenital abnormality of abdominal wall defect which results from incomplete regression of the fetal urachus. The urachus is a fibromuscular tubular extension of the allantois that develops with the descent of the bladder to its pelvic position. They are more common in children than in adults, due to urachal obliteration in early infancy [1]. Remnants of the tract may present as a patent urachus, vesicourachal diverticulum, urachal sinus or urachal cyst [2]. The incidence of urachal cyst in adults is rare and it is more common in men than women. In adults, urachal cyst is the commonest variety, with infection being the usual mode of presentation [3]. An infected urachal cyst usually presents with lower abdominal pain, a tender mass, fever, dysuria, voiding difficulty or even with umbilical drainage [4]. Ultrasonography, computed tomography (CT) and magnetic resonance imaging (MRI) scans will all assist in making this unusual diagnosis. Treatment is by complete excision, however, techniques have been debated. We present a unique case of an infected urachal cyst in an adult patient with abdominal pain and umbilical sepsis.

CASE REPORT

A 35-year-old female was presented in outpatient department with history of pain in lower abdomen (suprapubic region) for last 15 days and umbilical sepsis

with periumbilical erythema for eight days. She gave no history of nausea, vomiting or change in bowel or bladder habits. Systemic examination revealed periumbilical erythema and tenderness in suprapubic region with soft abdomen. Erythema subsided with intravenous antibiotic therapy for one week.

Ultrasonography and contrast-enhanced computed tomography (CECT) scan of abdomen and pelvis showed heterogeneous mass of size ~6.4x2.8 cm in midline extending from anterior wall of urinary bladder to umbilicus involving both recti (Figure 1 and Figure 2). The laparotomy was performed, infraumbilical transverse incision was given (Figure 3) which revealed urachal cyst surrounded by an inflammatory mass extending into

the dome of the urinary bladder. The infected urachal cyst and urinary bladder dome were excised and sent for histopathological analysis to rule out any evidence of malignancy (Figure 4). Postoperative period was uneventful and patient was discharged in satisfactory condition. Histopathological analysis of the resected specimen showed chronic granulomatous inflammation with no evidence of malignancy. On follow-up, patient is doing well with no episode of pain abdomen or bowel and bladder disturbances.

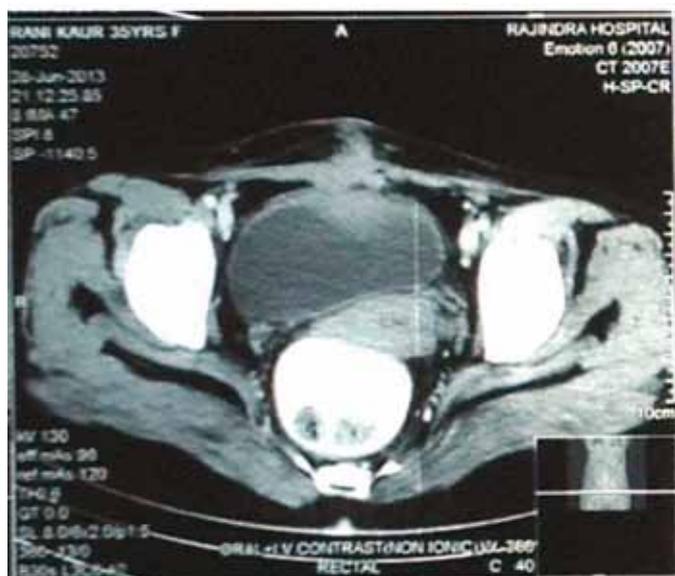


Figure 1: Computed tomography scan of abdomen pelvis showing a large inflammatory mass in midline extending from anterior wall of urinary bladder to umbilicus involving both recti.



Figure 2: Computed tomography of abdomen pelvis showing a large inflammatory mass in midline at anterosuperior to anterior wall of urinary bladder.



Figure 3: Intra-operative picture showing urachal tract extending up to inflammatory mass at anterior wall of urinary bladder.



Figure 4: The urachal cyst with tract containing inflammatory mass.

DISCUSSION

Urachus, developmentally is the upper part of the bladder, both of which arise from the ventral part of the cloaca and allantois. Descent of the bladder from the fifth month of development into the fetal pelvis pulls the urachus with it resulting in the formation of the urachal canal. The lumen of this canal progressively obliterates during fetal life, with eventual formation of a fibrous tract in early adult life [5]. Histologically, it is composed of three layers; an innermost layer of modified transitional epithelium similar to the urothelium, the middle layer of fibroconnective tissue and outermost layer of smooth muscle continuous with the detrusor [1, 5]. Incomplete regression of the urachal lumen results in the following abnormalities:

- i. patent urachus ~ 50%; in which the entire tubular structure fails to close
- ii. urachal cyst ~30% ; in which both ends of the canal close leaving an open central portion
- iii. urachal sinus ~15%; which drains proximally into the umbilicus
- iv. vesicourachal diverticulum ~5%; where the distal communication to the bladder persists [2].

The incidence of urachal cyst in adults is rare and it is more common in men than women [3, 6]. In adults, the most common variety is urachal cyst, with infection being usual mode of presentation, otherwise the condition usually remains asymptomatic [3]. Infected urachal cyst usually presents with lower abdominal pain, a tender mass, fever, dysuria, voiding difficulty or even with umbilical drainage [4]. The route of infection is hematogenous, lymphatic, direct or ascending from the bladder. The commonly cultured microorganisms from the cystic fluid include *Escherichia coli*, *Enterococcus faecium*, *Klebsiella pneumonia*, *Proteus*, *Streptococcus viridians* and *Fusobacterium* [4, 6].

Our case highlights the potential complications related to congenital urachal anomalies in patient presenting with complaints of umbilical sepsis with suprapubic abdominal pain. Diagnosis of an infected urachus cyst was made after radiological investigations.

The risk of urachal malignancy in adults is high and the prognosis is poor. Histologically, the innermost layer of the urachus is mainly transitional cell. Adenocarcinoma is the predominant histological type and most are mucinous. This is probably due to metaplasia arising from chronic inflammation. The prognosis for urachal adenocarcinoma does not differ significantly from non-urachal adenocarcinoma and is relatively poor, with a five year survival of 37% and a 10 year survival of 17% [7]. CT scan or MRI scan is essential for confirming diagnosis because of the nature of the condition radiographic evaluation of urachal cyst by ultrasonography. Ultrasound scan can help to make diagnosis in 77% of patients [4]. As in our case, ultrasound finding raised the differential diagnosis of urachal cyst showing collection/mass anterior to urinary bladder

and involving abdominal wall. Diagnosis is often made following exploratory laparotomy for an unexplained acute abdomen. The treatment of choice for urachal cyst is by complete primary excision. However, Yoo et al. [4] in their study suggested a two-stage procedure involving initial incision and drainage followed by later excision of the urachal remnant. Complete excision is important because malignant transformation of the remnant is possible [8]. Traditionally, open excision has been the approach of choice. However, a laparoscopic approach is also an attractive alternative in recent years [9]. The advantage of this approach is good view and the minimal risk of incomplete excision of the urachal remnant [10].

CONCLUSION

Urachal anomalies are rare in adults. Presentation is atypical, therefore, a high index of suspicion is required in order to achieve a diagnosis. A triad of lower midline mass, umbilical discharge and sepsis is suggestive. However, radiological investigations such as ultrasonography, magnetic resonance imaging and computed tomography scans confirm the diagnosis and defines the surrounding anatomical relationship. Complete surgical excision is the treatment of choice due to the risk of malignant transformation.

Author Contributions

Anand Munghate – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Ashwani Kumar – Substantial contributions to conception and design, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Harnam Singh – Substantial contributions to conception and design, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Mahak Chauhan – Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Gurpreet Singh – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Manish Yadav – Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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