

A Rare Case of Urachal Cyst

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Abstract: The urachus is an embryologic remnant which extends from the apex of the bladder to the umbilicus. Their presentation is nonspecific and a high index of suspicion is required to make a diagnosis. Clinical findings may be confused with those of Acute Appendicitis, Meckel's Diverticulitis, or Peritonitis which can follow rupture of the urachal cyst into the peritoneal cavity. In this article we present a case of 30 years old lady presenting with abdominal pain for 3 months duration. Per abdominal examination revealed tenderness on palpation over the left iliac fossa region. CT Abdomen showed cyst superior to the bladder with no communication to either the bladder or the midline. Exploratory laparotomy was undertaken and intraoperative findings revealed cystic lesion over the superior aspect of the bladder adherent by a fibrous band to the bladder wall. The cyst was excised along with the cuff of the anterior aspect of the bladder and histopathological examination confirmed the specimen as a urachal cyst.

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I. Background

The urachus is an embryologic remnant which is formed by the obliteration of the allantois. This fibrous tubular structure is located in the midline and extends from the apex of the bladder to the umbilicus. The urachus degenerates after birth and is known as the median umbilical ligament. Urachal abnormalities are caused by defective obliteration of the urachus. Urachal abnormalities are rare in adults. They are more common in children due to obliteration of the urachus in early infancy.

There are five types of urachal abnormalities : (i) patent urachus, (ii) urachal cysts, (iii) urachal sinuses, (iv) vesico-urachal diverticulum and (v) alternating sinuses. Clinical symptoms & signs are nonspecific and include tender infra-umbilical mass, fever, malaise, dysuria, leucocytosis and signs of sepsis characterized by purulent umbilical discharge. Diagnosis is usually confirmed by Ultrasonography, Computed Tomography and Magnetic Resonance Imaging, which give information about the size of the cyst and its relationship with peripheral tissues. Treatment may be a two-stage procedure involving primary incision and drainage followed by urachal remnant and bladder cuff excision or a single stage operation.

II. Case Presentation

A 30-year-old lady was admitted with abdominal pain of 03 months duration. She had been treated with antispasmodics on & off. Pain was insidious in onset, progressive, colicky nature and localised to the left lower quadrant. There was no relation to food and there were no aggravating or relieving factors. Menstrual history was normal. There were no co-morbidities reported.

General examination revealed a middle-aged lady, afebrile with stable vitals. Per abdominal examination findings were tenderness on palpation over the left iliac fossa region. Investigations showed Hb-10.8; TLC-6000c/mm; DLC: - P-44, L-47, E-03, M-06 and Platelets-1,72,000. Liver Function Tests, Blood Urea & Serum Creatinine values were within normal limits. USG Abdomen showed inflamed urachal cyst. NCCT Abdomen showed cyst in the midline & slightly to the left and superior to the bladder with no communication to either the bladder or the midline. Exploratory laparotomy was undertaken under G.A with Epidural. Intraoperative findings revealed 2x1cm cystic lesion over the superior aspect of the bladder adherent by a fibrous band to the bladder wall. The cyst was excised along with the cuff of the anterior aspect of the bladder. Postoperative period was uneventful and the patient was discharged. Histopathological examination confirmed the specimen as a urachal cyst.

III. Discussion

The urachus is an embryologic remnant which is formed by the obliteration of the allantois. It is an embryologic connection between the bladder dome and the umbilicus which elongates as the bladder descends [1]. The urachus is obliterated by the fifth to seventh month of gestation and forms the median umbilical ligament as a fibrous cord which lies between the transversalis fascia and parietal peritoneum [1]. Urachal

abnormalities are caused by defective obliteration of the urachus [2]. Urachal abnormalities are common in children and its incidence is rare, if not unknown in adults due to urachal obliteration in early infancy [2].

There are five types of urachal abnormalities; (i) patent urachus-in which the entire tubular structure fails to close; (ii) urachal cysts-in which both ends of the canal close leaving an open centred portion; (iii) urachal sinus-in which the sinus drains proximally into the umbilicus; (iv) vesico-urachal diverticulum in which the distal communication to the bladder persists & (v) alternating sinus which can drain into either the bladder or umbilicus [2]. Modes of presentation of urachal anomalies in adults differ from those seen in children. In adults, the commonest variety is the urachal cyst with infection being the usual mode of presentation and the route being either haematogenous, lymphatic, direct or ascending from the bladder [2].

The signs and symptoms of urachal cysts are usually non-specific with findings suggestive of systemic signs of infection, including fever, malaise, abdominal pain, tenderness, lower abdominal mass, nausea, vomiting, dysuria and umbilical discharge [2,3]. Laboratory data may reveal leucocytosis [3,4]. Imaging techniques such as ultrasonography and computed tomography are ideally suited for demonstrating urachal remnant diseases [5]. Urachal cyst manifests at both ultrasonography and computed tomography as a non-communicating fluid filled cavity in the midline of the lower abdominal wall located just beneath the umbilicus or above the bladder displaying increased echogenicity [5,6]. Notwithstanding, computed tomography and ultrasonography can help identify most disease entities originating from the urachal remnant in the anterior abdominal wall [5].

Histologically the urachus is composed of 3 layers; innermost layer of modified transitional epithelium, middle layer of fibroconnective tissue and an outermost layer of smooth muscle continuous with the detrusor. Histology of the urachal cyst revealed a polypoid lesion with extensive ulceration and focal squamous epithelialisation. The underlying stroma shows oedema with active chronic inflammation [6]. Secondary infection of the urachal cyst can occur due to accumulation of materials within the cyst which could be disseminated by haematogenous or lymphatic spread or through direct invasion of the bladder and umbilicus [7].

Staphylococcus aureus was the most common bacteria cultured in the cystic fluid, although other bacteria such as *Escherichia coli*, *Enterococcus faecium* & *Klebsiella pneumoniae* are also isolated [7]. The treatment of choice for a urachal cyst is by complete primary excision [8]. The optimal treatment for infected urachal cyst is debateable. If a urachal cyst appears with signs of infection, initially administration of antibiotics with resolution of inflammation, followed by surgical removal is recommended [8]. The two-stage procedure initially involves incision & drainage followed later by excision of the urachal remnant and bladder cuff [7]. However, in cases of small and localized infections, a single stage procedure involving primary excision of the infected urachal cyst and bladder cuff is performed [7,8]. Complete excision is important because malignant degeneration of the remnant is possible [9].

Consent

Written informed consent was obtained from patient for using case findings and publishing this report.

Conflict of Interests

No conflict of interests was declared by the author.

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FIG-1



FIG-2

Coronal & Axial sections show a well-defined fluid containing lesion present anterior to the urinary bladder with the posterior margin clearly abutting the anterior bladder wall; features s/o urachal cyst

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