

## Sigmoid Adenocarcinoma Revealed by an Inflamed Urachal Cyst. A rare Clinical Manifestation

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### Abstract

Urachal abscess is a rare clinical condition caused by an inflamed urachal cyst that presents with non-specific symptoms usually in childhood. An 83 year old man, having escaped diagnosis all these years, presented with vague abdominal pain for 10 days while on antibiotics for a urinary tract infection. Ultrasonography revealed an inflamed urachal cyst attached to the bladder. CT scan and colonoscopy uncovered a sigmoid colon multilobular mass. Open surgery was performed, the urachal cyst and the pathologic part of the sigmoid colon were both excised and a Hartmann's colostomy was formed. Pathology findings revealed an adenocarcinoma of the sigmoid colon and an inflamed urachal cyst with no proliferation. Thanks to this rare condition, the patient was diagnosed in time with colon cancer.

### Keywords

urachal abscess; sigmoid adenocarcinoma; urachal adenocarcinoma; urachal cyst

### Introduction

The urachus, also known as median umbilical ligament, is a fibrous cord that connects the umbilicus with the anterior wall of the bladder. It is formed during the 5<sup>th</sup> month of fetus development as the open urachal tract normally closes [1, 2]. The urachal cyst is a congenital anomaly of the urachus, in which the canal fails to close [6]. Fluid concentration is formed within the cyst, with a chance to become infected usually during childhood. We present a case of a patient with sigmoid colon cancer, manifesting as an urachal abscess. We will also discuss the management, diagnosis and possible treatment options of an urachal abscess.

### Case Report

An 83 year old male attended the emergencies department of our hospital suffering from abdominal pain in the suprapubic region during the last 10 days. The pain was described as numb, while periodically waxed and waned. The patient had fever and he denied any nausea, vomiting, diarrhea, hematemesis or melena. Past medical history included chronic obstructive pulmonary disease (COPD), hypertension, atrial fibrillation (AF) and aortic valve stenosis. He attended an urologist 7 days ago for the same reason and was given oral antibiotics regarding a urine tract infection, according to the results of general urine exams. On physical examination, blood pressure was 126/89 mmHg, body temperature

was 37.4 C, heart rate was 86 beats/min and respiratory rate was 20 breaths/min. The abdomen was soft but tender and a palpable, non-mobile mass was found in the suprapubic region.

Laboratory data revealed a white blood cell count of  $14.8 \times 10^3 / \mu\text{L}$  and hemoglobin was 9.6 g/dL, sodium 142 mEq/L, potassium 4.4 mEq/L, creatinine 1.4 mg/dL, urea 122 mg/dL and glucose 84mg/dL. Liver function studies disclosed AST 6 U/L, ALT 10 U/L, alkaline phosphatase 74 U/L and Albumin 4.1 g/dL. Urine exams showed increased hemoglobin and a specific gravity of 1012.

Ultrasound of the lower abdomen revealed an approximately 12 x 6 cm cystic formation immediately above and attached to the bladder. It had thickened wall with fluid collection suspicious for an abscess (Figures 1A, 1B).

The patient was admitted and started on IV antibiotics. A CT scan of the abdomen and pelvis was performed which revealed a 4.9 x 3.6 cm thickened wall cystic mass in close proximity to the anterior wall of the bladder (Figure 2). The cystic mass appeared to be embraced by part of the sigmoid colon, the wall of which seemed to be thickened and inflammatory. Further examination with colonoscopy showed a multilobular mass at the sigmoid colon at 35 cm from the anus, which caused the lumen to narrow. Colonoscopy biopsies revealed an adenocarcinoma of the sigmoid colon.

An open surgical approach was decided, in which the urachal tube was opened up to the bladder, drained and excised en bloc with the embraced pathologic part of the sigmoid colon and a Hartmann's colostomy was formed (Figures 3A, 3B). Pathology findings considering the specimen revealed an adenocarcinoma of the sigmoid colon and an inflammatory urachal cyst. No adenocarcinoma of the urachus was found and no proliferation, however, thanks to this rare anatomical abnormality, the patient was diagnosed with sigmoid colon cancer.

The patient was admitted to the ICU after surgery because of the COPD and aortic valve stenosis. In the 2<sup>nd</sup> postoperative day he was extubated and admitted to the ward. He died on the 3<sup>rd</sup> postoperative day after going into cardiac arrest, by reason of the aortic valve stenosis.

## Discussion

The urachus is a fibrous cord which connects the bladder and the umbilicus. It is formed during the 5<sup>th</sup> month of fetus development, during which the open urachal canal normally closes to form the median umbilical ligament [1, 2]. Failure of this closure can lead to a number of anatomical malformations [6].

1. Urachal cyst: The urachus did not seal off but there is a connection between the bladder and the umbilicus. They can become infected and cause abdominal pain or bloody fluid leakage at the umbilicus.

2. Urachal fistula: There is a patent duct between the bladder and the umbilicus. It can cause leakage of urine from the umbilicus.

3. Urachal diverticulum: The urachus did not seal close to the bladder, leading to a blind end tract. It can present with a urinary tract infection.

4. Urachal sinus: The urachus did not seal close to the umbilicus, leading to a blind end tract. It can present with abdominal pain or fluid drainage from the umbilicus.

Diagnosis is often made with physical examination and an ultrasound which detects urachal anomalies up to 77% of cases [3]. Because of the nature of the condition, confirmation of the diagnosis usually requires a CT or MRI scan of the abdomen and pelvis [2, 3]. Urachal anomalies are rare conditions with approximately two cases per 100,000 adult admissions in hospital [4, 14]. Clinical signs and symptoms are usually non-specific and include: Abdominal pain, fluid drainage from the umbilicus, nausea, vomiting and urinary tract infection. They can present as acute abdomen and a mass may be found during palpation [5]. An urachal cyst can also be infected from a bowel adenocarcinoma as was seen in our patient. Differential diagnosis of the urachal abscess should include omphalitis, hematoma, an umbilical or ventral hernia, sarcoma of the abdominal wall and urachal adenocarcinoma [5, 7, 14].

Treatment of choice is the complete surgical excision of the inflamed cyst since it is subject to neoplasia [8]. Partially removed cysts or percutaneous drainage only are subject to recurrence up to 31% [9]. Open surgery is usually preferred, but there are cases treated with laparoscopic surgery [10-12, 14]. A staged treatment approach with IV antibiotics and percutaneous drainage before the surgery is also viable [13, 14].

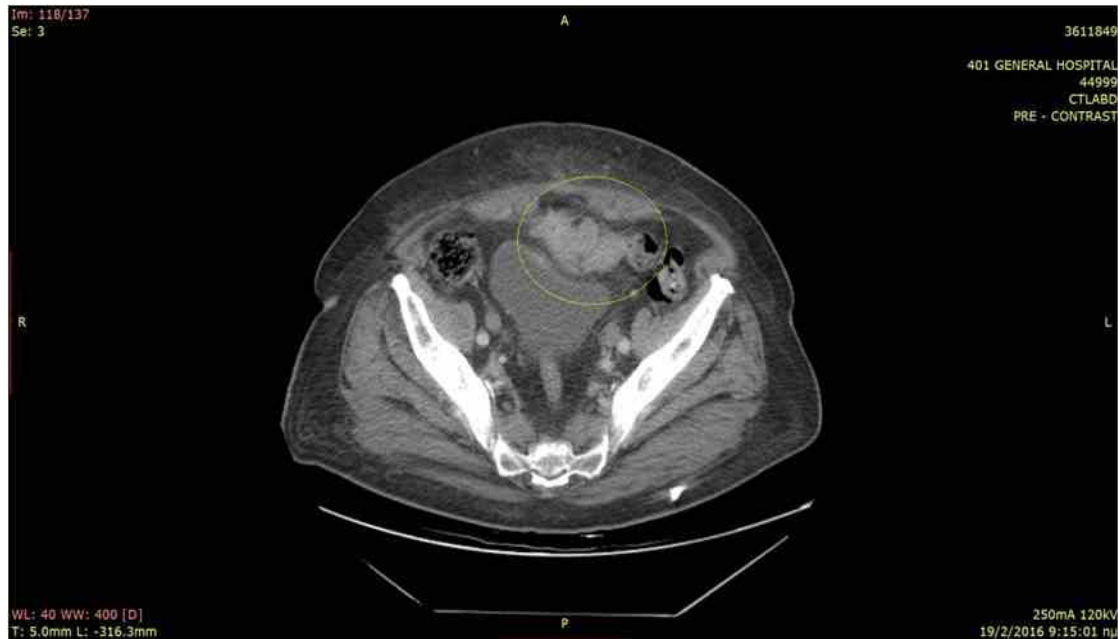
Our patient was categorized as high risk for open or laparoscopic surgery because of COPD and aortic valve stenosis. In the presence of an urachal abscess only, a staged approach with IV antibiotics and percutaneous drainage would be the choice of treatment. The uncovered colon cancer, however, justified a surgical approach since it caused narrowing of the lumen with the danger of obstruction.

According to the pathology report, the wall of the urachal abscess contained granulation and fibrous tissue, indicating chronic inflammation of the cyst. Our speculation is that the patient had a history of recurrent urinary tract infections treated with antibiotics only and no further examination. He had no history of previous abdominal surgery that would justify a radiological examination. When he presented himself to us, he was already on antibiotics for a possible urinary tract infection. However, the palpative mass during physical examination pointed us towards an ultrasound and ultimately the uncovering and identification of the inflamed urachal cyst.

## Figures



**Figure 1A,1B:** U/S scan showing the urachal abscess in contact with the anterior wall of the bladder and close to the umbilicus



**Figure 2:** CT scan showing an urachal abscess close to the anterior wall of the bladder and embraced by an inflammatory sigmoid colon.



**Figure 3A,3B:** Opened urachal cyst excised en bloc with the embraced sigmoid colon.

## Conclusion

Although rare, urachal anomalies should be included in the differential diagnosis of patients with an atypical history of abdominal pain or urinary tract infections. Confirmation of the diagnosis with a CT scan or MRI is mandatory since an urachal malformation can be the tip of the iceberg of other hidden pathologies.

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