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Urachus Pathology: Infected Urachal Cyst

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Abstract **Case Report**

The urachus is a fibrous residue of the allantois that disappears after birth. In some cases, it may persist, which is called urachus abnormalities. This persistence of the urachus is manifested by abdominal pain and can be signalled by complications, of which infection is the most common complication. Infection can be misunderstood and confused with other pathologies, especially when associated with abdominal pain. In our case, we report an observation of an infected urachal cyst, revealed by febrile abdominal pain and swelling.

Keywords: urachus abnormalities, pain, swelling, fibrous residue.

INTRODUCTION

The urachus is a fibrous remnant of the allantois that connects the bladder dome to the anterior abdominal wall. After birth it usually obliterates. In some cases it might persist as a cyst, fistula, sinus or diverticulum. This persistence of the urachus is often signalled by complications of which infection is the most frequent and degeneration the most dreadful. Such an infection may be overlooked and confused with other pathologies of the umbilicus. The following case reports an infected cyst of the urachus.

CASE REPORT

We report the case of a 38-year-old man with no particular pathological history; He was admitted for pelvic pain, dysuria and fever. Physical examination identified a hypogastric painful bulging, with inflammatory signs and pus issue through the umbilicus. Laboratory data revealed a white blood cell count of 22.567/mL and a C-reactive protein level of 167 mg/dL. Ultrasound showed a hypoechoic, heterogeneous mass in the abdominal wall at the level of the umbilical region, not vascularized by colour Doppler.

The diagnosis of an abdominal wall abscess was retained and the patient was treated with antibiotic therapy and ultrasound guided drainage.

An abdominopelvic CT scan with PDC injection (Fig 1) was ordered in view of the persistence of the abscess despite medical treatment and drainage, and it showed an extraperitoneal collection of the anterior abdominal wall, extending from the umbilicus to the bladder dome, which was thickened, with a fistulous cutaneous pathway, hypodense, heterogeneous on spontaneous contrast, which contains an air bubble; with thick, irregular peripheral contrast, measuring 5×2,8 cm. This collection infiltrates the rectus muscles at their medial and paramedian parts, with no abnormality of the underlying bowel and no deep lymphadenopathies. The appearance is compatible with a pathology of the urachus (superinfected urachus cyst or tumor of the urachus).

Abdominal MRI (Fig 2) showed an extraperitoneal collection of the anterior abdominal wall infiltrating the rectus muscles, extending from the umbilicus to the bladder dome, with a cutaneous fistulous pathway, in T1 heterogeneous hypo signal, T2 heterogeneous hyper signal, enhanced in the periphery by gadolinium

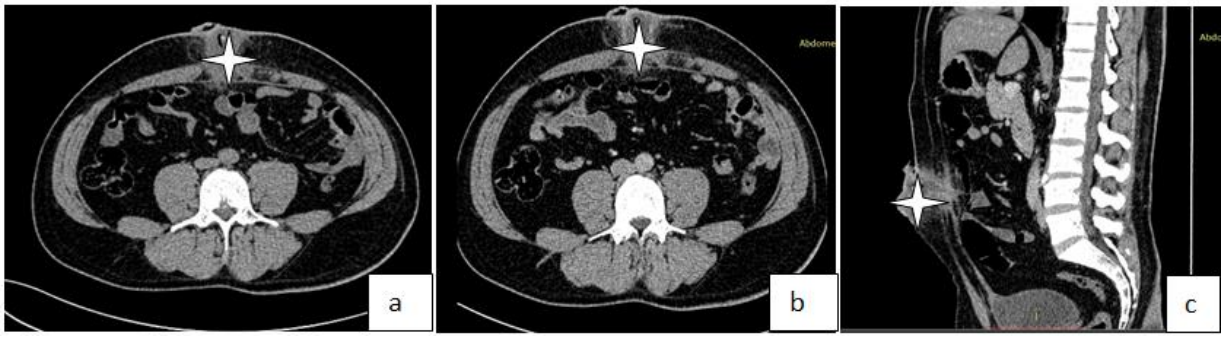

Fig-1: Abdominal CT: Axial c- (a), axial c + (b), sagittal c+ (c) and 3D (d) sections, showing an extraperitoneal collection of the anterior abdominal wall, extending from the umbilicus to the bladder dome

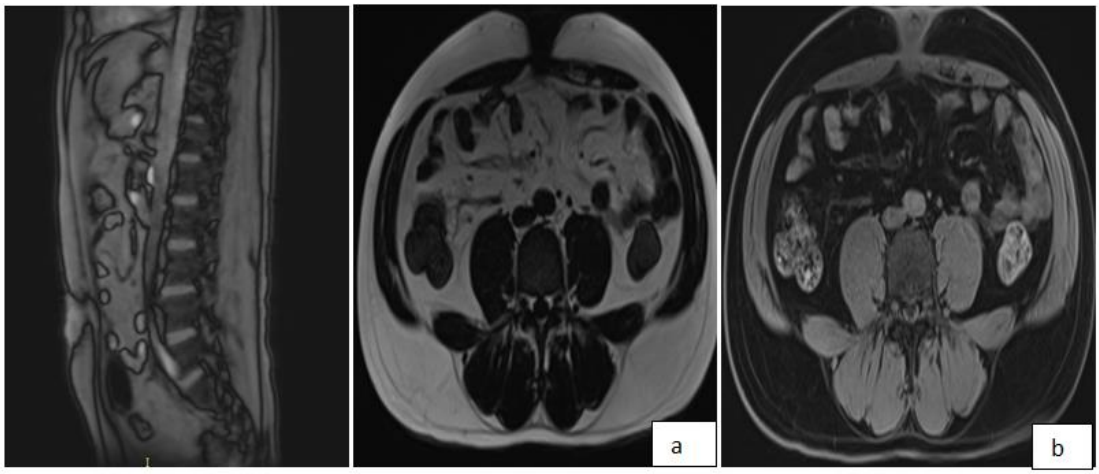

Fig-2: Abdominal MRI: Axial T1 vibe dixon (a), Axial T1 vibe Dixon with gadolinium(c); showing an extraperitoneal collection of the anterior abdominal wall infiltrating the rectus muscles, extending from the umbilicus to the bladder dome, with a cutaneous fistulous pathway

DISCUSSION

By definition, the urachus is a tubular embryonic remnant of allantoic interposed between the peritoneum and the transversalis fascia, laterally limited by the fibrous cords of the umbilical arteries [1]. During fetal life, the bladder is in continuity with the allantoic tube, which closes in the third trimester of pregnancy; only an extraperitoneal tubular fibrous remnant of 8 mm thickness, implanted from the bladder dome to the umbilicus and measuring 5 to 10 cm in length, remains.

The urachus usually involutes at birth, but may persist as a fistula (45% of cases), cyst (30%), blind fistula (15%) or urachal diverticulum (7%) [2]. The incidence of incomplete closure is 1/5000 and persists exceptionally in adults [3].The fistula and the blind fistula of the urachus are discovered at an early stage of life in the presence of urine oozing or periumbilical inflammation. Infection of an urachal cyst is the most common complication in adulthood with hematuria and abdominal pain [4], although many differential diagnoses can occur including appendicitis, Meckel's diverticulitis, urinary tract infection or bladder cancer [5]. Imaging is essential to show the extraperitoneal and anterior topography of the urachus, but also to exclude a differential diagnosis. Infectious complications of the urachus are seen as a medial mass along the lineAlba behind the rectus and supravesical.

On ultrasound, the mass is echogenic, heterogeneous, with attenuation of the ultrasound beam, accompanied by peri-lesional vascular corbelling that may erroneously suggest a primary tumor of the urachus. On CT, it is an oval mass extending from the umbilicus to the bladder dome, best seen on sagittal view, as illustrated in our case. The contribution of magnetic resonance imaging has only been briefly described in the literature [2], finding a similar aspect to the CT scan, globally heterogeneous, with a central, liquid or necrotic suppurated component and a peripheral solid portion that may be enhanced. This non-specific aspect does not allow distinguishing a tumoral or infectious origin [2]. In addition, the few cases reported in the literature have not clarified the value of MRI diffusion sequences for lesion characterization. Fistulography allows the diagnosis of a fistula of the urachus but is no longer performed in current practice. The re-commended treatment of the urachal abscess is intravenous antibiotic therapy and total surgical excision. The resection of the cyst wall entirely is especially recommended. Because of the high recurrence rate and the risk of malignancy, drainage of the abscess is not re-commended.

CONCLUSION

Urachal abnormalities are rare in adults. Clinical presentation is non-specific; therefore, a high index of suspicion is required in order to make the diagnosis. When diagnosed, surgical excision is advised be-cause of the risk of malignant transformation.

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