



CASE REPORT

Patent Urachus Presenting as Acute Abdomen



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KEYWORDS

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Abstract The urachus is an epithelial tubular structure located in the midline that spreads from the anterosuperior part of the bladder to the navel, connecting the apex of the urinary bladder with the allantois in the fetus, and is involved in forming the umbilical structures. When the urachal tract is not completely obliterated during embryonic development, bladder diverticulum, urachal cyst, umbilical polyp, or patent urachus may result. Therefore, making a differential diagnosis prior to surgery is not easy. A 30-year-old woman presented to the outpatient clinic with severe abdominal pain in the suprapubic and infraumbilical regions of 12 hours of evolution. There were no urinary symptoms, and she was afebrile. Physical examination revealed periumbilical tenderness and intense pain on abdominal palpation in the suprapubic and abdominal regions. An ultrasound scan revealed a patent urachus. The striated structure was present between the bladder and the umbilicus. After undergoing preoperative examinations, the patient was submitted to surgical treatment, and the final pathology of the resected segment confirmed the ultrasound diagnosis. Urachal pathology in adulthood is rare. Often its presentation as acute abdominal pain is nonspecific and, as such, may cause many diagnostic problems. Differential diagnosis should include acute appendicitis and other inflammatory disorders. The patient's history and physical examination are crucial for the correct diagnosis. It is important to have a thorough understanding of the embryology, anatomy, presentation, and relevant investigations for these anomalies. Ultrasound can be helpful for diagnosing the pathology of urachal remnants.

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Introduction

The urachus or median umbilical ligament is an epithelial tubular structure located in the middle line that spreads from the anterosuperior part of the bladder to the navel, connecting the apex of the urinary bladder with the allantois in the fetus, and is involved in forming the umbilical structures. It is the embryological remnant of the cloaca and the allantois. The lumen of the urachus usually becomes obliterated during embryonic development. Descent of the bladder toward the pelvis stretches the urachus, eventually leading to obliteration of its lumen. The median umbilical ligament is the resultant fibrous cord that runs from the umbilicus to the dome of the bladder. Congenital defects, however, may occur. Occasionally, this oblitative process is incomplete, leading to a persistent urachal remnant (UR). UR diseases are rare and typically present in early childhood with unspecific symptoms such as abdominal pain or urinary problems. When the urachal tract is not completely obliterated during embryonic development, bladder diverticulum, urachal cyst, umbilical polyp, or patent urachus may result. Therefore, making a differential diagnosis prior to surgery is not easy.

Case report

A 30-year-old woman presented to the outpatient clinic with severe abdominal pain in the suprapubic and infraumbilical regions of 12 hours of evolution. There were no urinary symptoms, and she was afebrile. There were no signs of general infection. Physical examination revealed periumbilical tenderness, and the patient showed intense pain on abdominal palpation in the suprapubic and abdominal regions. An ultrasound scan revealed a patent

urachus. The striated structure was present between the bladder and the umbilicus. After undergoing preoperative examinations, the patient was submitted to surgical treatment and the final pathology of the resected segment confirmed the ultrasound diagnosis (Figure 1).

Discussion

The urachus is a fibrous remnant of the cloaca and the allantois, which in adults, connects the dome (anterosuperior part) of the bladder with the anterior abdominal wall (navel). The allantois is a fingerlike projection from the yolk sac, which is contiguous with the ventral cloaca at one end and the umbilicus at the other. The cloaca, in the fetal life, is the cephalic extension of the urogenital sinus (a precursor of the fetal bladder) and the allantois. The ventral portion of the cloaca develops into the bladder after cloacal division by the urogenital septum. Between the 4th and the 5th months of gestational age, the bladder drops toward the pelvis, and the urachus prolongs and narrows until it turns into an epithelialized fibromuscular cord. It lies in the space of Retzius, extending between behind the transversalis fascia and anterior to the parietal peritoneum, and is bordered laterally by the obliterated umbilical arteries (medial umbilical ligaments) [1]. The size of the urachus can range between 3 cm and 10 cm in length and 8 mm and 10 mm in diameter. After birth it obliterates, forming the median umbilical ligament. However, a vestigial small lumen lined by a transitional epithelium is seen commonly in the fully developed infant. The transitional epithelium is surrounded by a submucosal connective tissue layer and a thick outer smooth muscle coat [2]. Occasionally, the urachus may merge with one or both of the obliterated umbilical arteries, and there may be a slight deviation to the right or left of the midline [3].

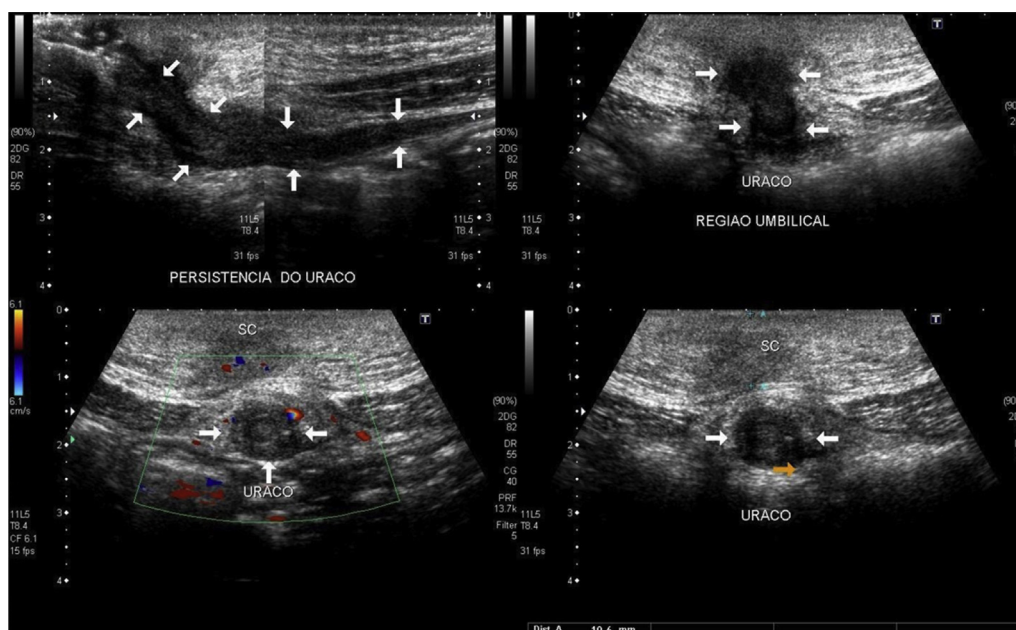


Figure 1 Ultrasonography of the lower abdomen showing a midline hypoechoic tubular structure posterior to the rectus abdominis muscle and ventral to the apex of the bladder, extending from the periumbilical region to the dome of the bladder, identified as the urachal remnant.

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