



A Rare Case of Uracho-Vesical Diverticulum with Intra Urachal and Vesical Calculus

KEYWORDS

URACHAL, DIVERTICULUM, CALCULUS, VESICAL

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ABSTRACT Computed tomography (CT) and ultrasonography (US) are ideally suited for demonstrating urachal remnant diseases. A patent urachus is

demonstrated at longitudinal US and occasionally at CT as a tubular connection between the anterosuperior aspect of the bladder and the umbilicus. An umbilical-urachal sinus manifests at US as a thickened tubular structure along the midline below the umbilicus. A vesicourachal diverticulum is usually covered incidentally at US& CT. At US, it manifests as an extraluminally protruding, fluid-filled sac that does not communicate with the umbilicus. At axial CT, appearing as a midline cystic lesion just above the anterosuperior aspect of the bladder. CT and US can help identify most disease entities originating from the urachal remnant in the anterior abdominal wall.

CASE HISTORY: 55y old male patient presented with chief complaints of increased frequency & difficulty in urination, fever since 2weeks, ultrasound, CT kub was performed

urachal diverticulum.

DISCUSSION:

The urachus is an embryonic remnant resulting from involution of the allantois and the ventral cloaca. Joining the bladder dome to the umbilicus, the duct is progressively obliterated during fetal life to become a fibrous channel. Urachal anomalies are rarely observed clinically. They present a variety of clinical problems with complications that include infection, calculi, or even malignant degeneration. Congenital urachal anomalies are twice as common in men as in women (1).

There are four types of congenital urachal anomalies: patent urachus, umbilical-urachal sinus, vesicourachal diverticulum, and urachal cyst. A patent urachus is purely congenital and accounts for about 50% of all cases of congenital anomalies (2). An umbilical-urachal sinus (representing about 15% of cases), vesicourachal diverticulum (about 3%-5%), or urachal cyst (about 30%) may close normally after birth but then reopen in association with pathologic conditions that are often categorized as acquired diseases.

The majority of patients with urachal abnormalities (except those with a patent urachus) are asymptomatic. However, they may become symptomatic if these abnormalities are associated with infection and calculus.

In vesicourachal diverticulum, the urachus communicates only with the bladder dome. This condition results when the vesical end of the urachus fails to close. Vesicourachal diverticulum is asymptomatic in most cases and is usually discovered incidentally at axial CT performed for unrelated reasons, appearing as a midline cystic lesion just above the

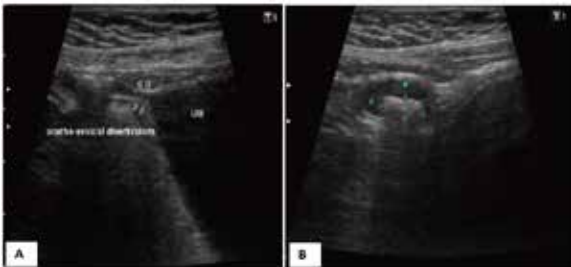


Fig: A&B shows ultrasound images of patent uracho-vesical diverticulum on right, on left showing calculus in urachal diverticulum

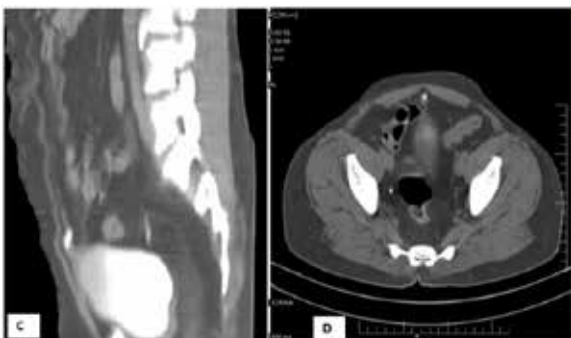
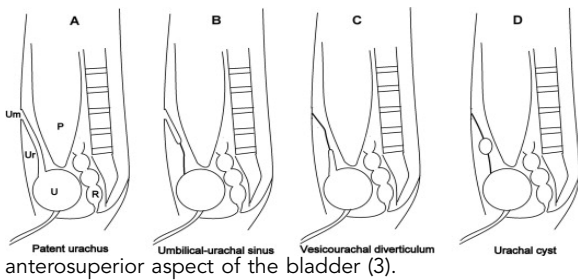


Fig C&D showing sagittal reconstructed CECT image of bladder and urachal diverticulum with a hyperdense calculus in it. On left showing axial CT image of calculus in



US readily demonstrates an extraluminally protruding, fluid-filled sac that does not communicate with the umbilicus. This lesion tends to be found in patients with chronic bladder outlet obstruction and may be complicated by urinary tract infection, intraurachal stone formation, and an increased prevalence of carcinoma after puberty (4). In infants, vesicourachal diverticulum is commonly accompanied by prune-belly syndrome. because ultrasound and ct display cross sectional images and the urachus in the abdominal wall is located away from interfering intestinal structures, these modalities are ideally suitable for demonstrating urachal abnormalities.

In our case, the presence of an intracavitary urinary calculus suggested the possibility of a communication between the urachal remnant and the bladder which allowed urine to flow into the urachal lesion, and resultant formation of the calculi (5). The patient had never had any urological symptoms, which is possibly due to the absence of a functional connection between the urachal remnant and the skin orifice at the umbilicus (6). Infection is the most common complication of urachal anomalies. Vesicourachal diverticula are less often

complicated by infection, as long as the neck of the diverticulum is wide open. Other major complications include perforation and abscess formation in the Retzius space, and malignant tumor development. The tumors can mimic an adenocarcinoma of the bladder apex (7).

Understanding the anatomy and embryology of urachal cysts and remnants is critical in making the correct diagnosis and choosing an effective management strategy, which can avoid the complications of intraperitoneal rupture, or subsequent malignancy MDCT urography exposes patients to approximately 1.5 times as much radiation as would a combination of IVU and conventional singlephase CT.

DIFFERENTIAL DIAGNOSIS:

1. Patent urachus
2. Urachal sinus/umbilical cyst
3. Vesico urachal diverticulum
4. Urachal cyst
5. Urachal abscess
6. Mucinous adenocarcinoma arising from urachal remnant.

CONCLUSION: urachal remnant disease is a relatively rare urological condition, calculus in patent urachus forms secondary to stasis and infection. Many of the features of urachal remnant diseases, including congenital lesions with or without superimposed infection and tumors, are well displayed at sagittal US. CT helps confirm the US

findings and discloses the nature and local extension of the disease as well as any systemic metastases. Nevertheless, the CT and US findings in infected urachal cysts mim-

ic those in urachal carcinoma.

Because of the lack of specificity of CT and US in the differential diagnosis of solid urachal masses, a definitive pathologic diagnosis is required to optimize the surgical approach and preclude unnecessary radical surgery. Understanding the anatomy and the imaging features of urachal remnant diseases, along with the typical

locations and distributions of these diseases, is essential for correct diagnosis and proper management.

Treatment is complete excision of the urachal tract along with a cuff of bladder, which can be done either by open surgery or lapro-endoscopic approach.

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