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KARNATAKA RADIOLOGY EDUCATION PROGRAM

IMAGING IN INFECTED URACHAL SINUS IN ADULT PATIENT

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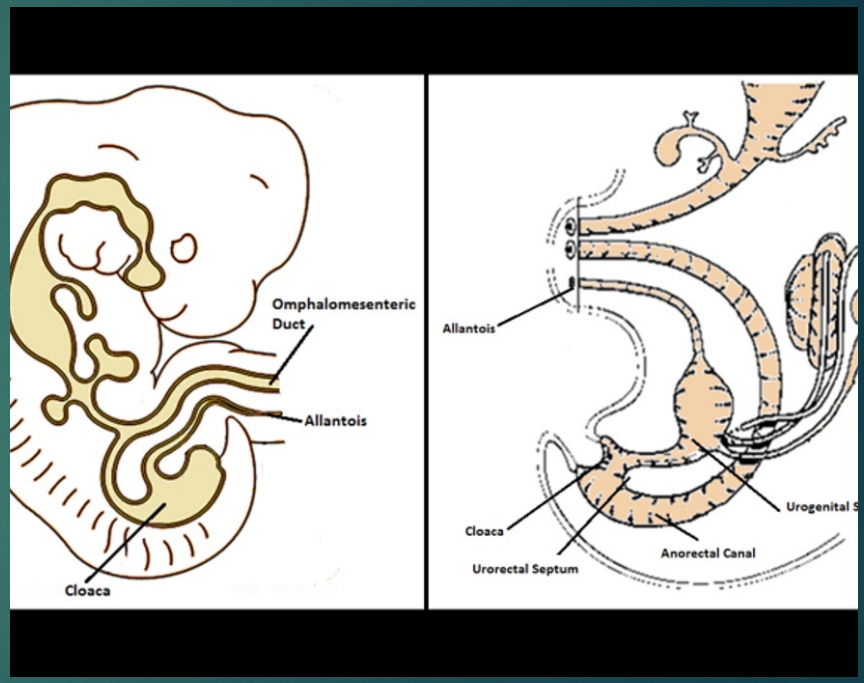
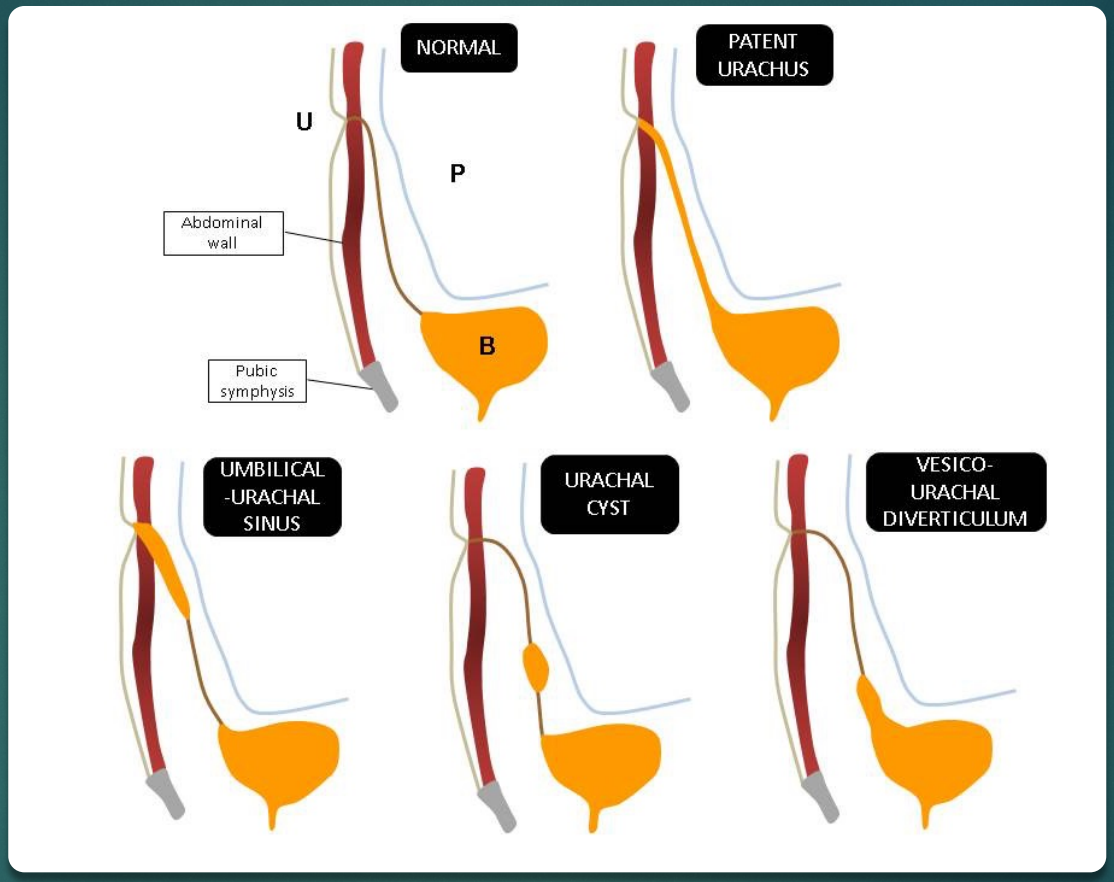
INTRODUCTION

- The urachus is the remnant of the cloaca and allantois, and attaches the umbilicus to the bladder dome. Urachal anomalies are symptomatically identified during childhood. It rarely occurs in adults, making diagnosis difficult. We present and discuss the cases of infected patent urachus in adult patients.



AIMS AND OBJECTIVES

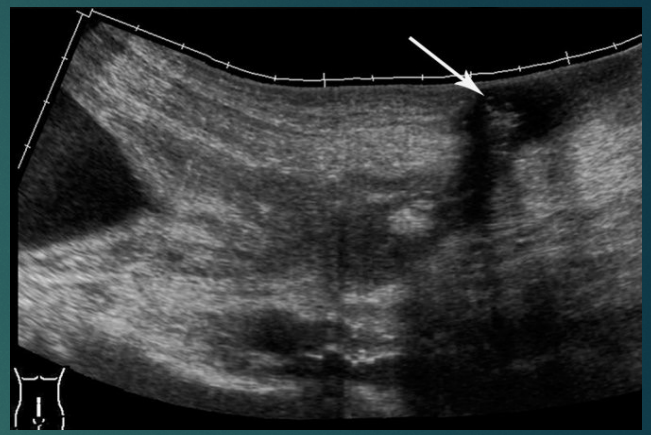
- Urachal abnormalities are rare, with an incidence of 2 cases per 300,000 hospital admissions.
- The urachus, or median umbilical ligament, is a midline tubular structure that extends from the apex of the bladder up to the umbilicus. It is a vestigial remnant of at least two embryonic structures: cloaca and allantois. Its obliteration happens around the 32nd week of the intrauterine development.
- The persistence of any part of the urachus will result in the urachal congenital anomalies derived from it, which are anatomically divided into four types: persistence of the urachus, umbilical-urachal sinus, vesicourachal diverticulum, and urachal cyst.



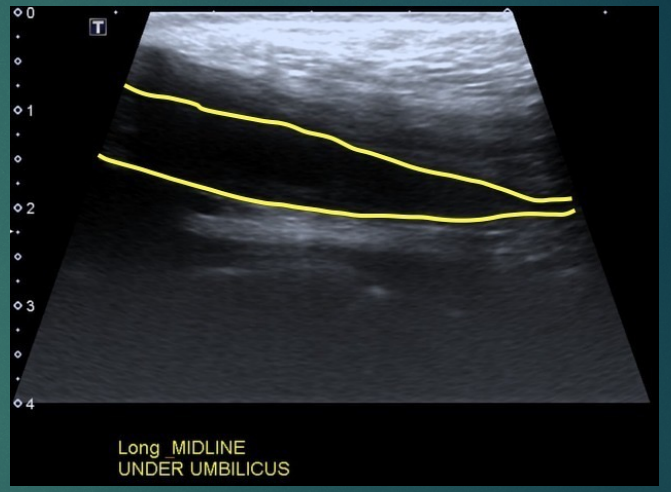
Normal urachal remnant and the four types of urachal anomalies (U: Umbilicus; P: Peritoneum; B: Bladder)

METHOD

- Patent urachus:
- It is a complete communication between the bladder and the umbilicus, due to the total absence of urachal obliteration.
- Most frequent anomaly
- It is practically always diagnosed in the neonatal stage by urine outflow through the umbilicus, although it can remain asymptomatic and be evidenced by a later obstruction of the lower urinary tract.
- Confirmatory diagnosis can be made with fistulography or cystography.

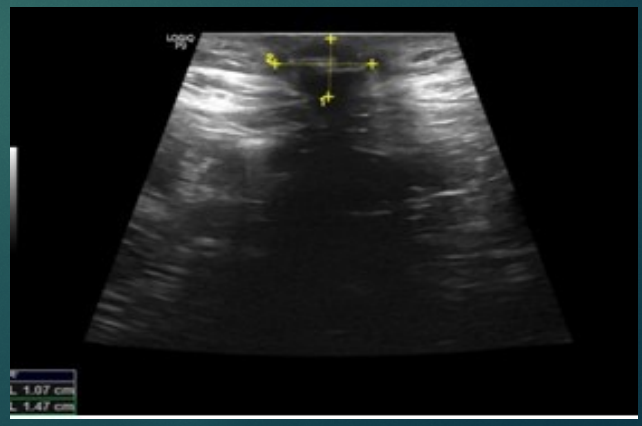


- Sinus:
- It is an absence of obliteration of the umbilical end of the urachus, leaving a blind dilatation of the umbilical end.
- Frequently associated with the accumulation of detritus and ends up infecting and causing clinical symptoms, with pain, inflammation and swelling of the area.

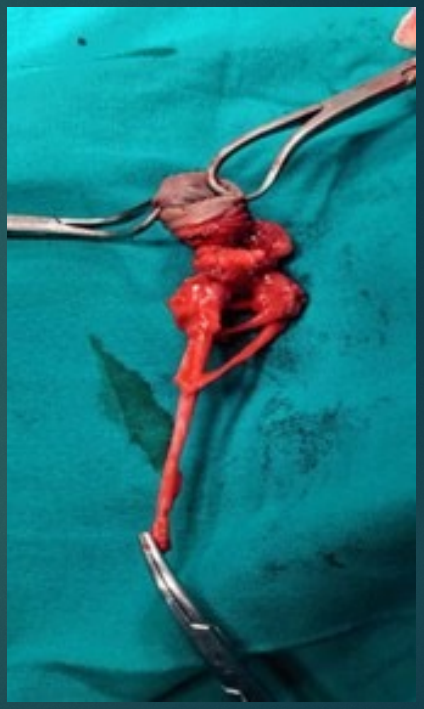


OBSERVATION AND RESULTS

- A 30-year-old male presented with H/o lower abdominal pain and periumbilical erythema, persisting for months, with fever and umbilical discharge for the past 8 days. Physical examination: Temp 38.7°C.
- Abdomen was soft with umbilical discharge and erythema ,tender umbilical mass.
- Laboratory tests : leucocytosis of 22,000mm–3.
- Urinalysis: within normal ranges.
- Ultrasonography :heterogeneously hyper echoic contents in the umbilical region with surrounding subcutaneous fat stranding to suggest inflammation. An tubular structure seen below the umbilicus having an blind end in the peritoneal cavity.



- Contrast enhanced CT : thickened umbilicus and as on ultrasound correlation reveals tubular structure tracking from umbilicus to urinary bladder dome. This structure is dilated in the proximal umbilical portion with distal obliteration. On delayed sections no evidence of communication with the urinary bladder with the tubular structure.
- The patient received antibiotic therapy for a week and the mass was removed by surgical excision.
- Histopathological :umbilical–urachal sinus with fibrocollagenous tissue, interspersed with mixed inflammatory infiltrate. The patient presented satisfactory resolution of his symptoms.



- Another case where 40 yr old female presented with lower abdominal pain with local erythema and tenderness around umbilicus gradually extending to involve lower anterior abdominal wall.
- USG: diffuse subcutaneous edema with inflammatory changes noted around umbilicus.

- CECT: Ill-defined heterogeneously enhancing lesion measuring 38 x 58 x 59mm (AP x TR x CC) extending from the antero-superior aspect of the urinary bladder to umbilicus with multiple non-enhancing liquefactive areas within the lesion. Few air foci noted within the umbilical collection. Severe perilesional fat stranding and enlarged reactive lymphnodes noted.
- Reactive wall thickening (serosal) of antero-superior aspect of the urinary bladder and adjacent small bowel loops (Ileal) noted.

CONCLUSION

- Urachal anomalies are a rare entity that can be observed as an incidental finding. Therefore, knowledge of the radiological features of urachal anomalies and their possible complications is crucial for prompt diagnosis and proper treatment.
- CT and ultrasound are the imaging methods of choice for the diagnosis of patent urachus & urachal sinus, which is shown in both tests, as a fluid-filled cavity located in the midline lower abdominal wall, below the umbilicus or above the bladder.
- Infection is the most common complication, with almost half of the cases examined showing it at the time of diagnosis.

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