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Case Report

Radiology Section

# Uncommon Location of an Urachal Cyst-A Case Report

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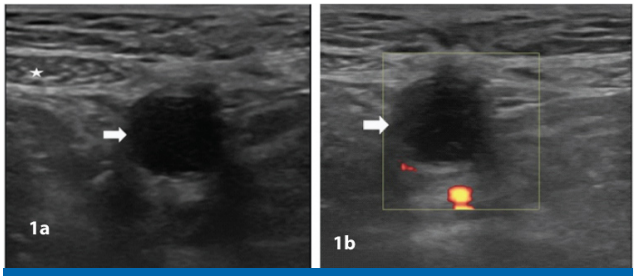
## ABSTRACT

Umbilicus is gateway of physiologically and anatomically different body structure in intrauterine period, urachus is one of them. Urachal cysts are extremely rare and even more uncommon in adults, as it is usually diagnosed in children. Diagnosis remain herculean in adults because of nonspecific symptoms, rarity of lesion and a wide umbilical pathologies as a differential diagnosis. We presenting a case of an adult 20 years old girl with on and off abdomen pain for few years, presenting to us with chief complaint of burning micturition. Radiological and laboratory investigations and surgical finding lead us to diagnosis of urachal cyst. Patient had no history of any umbilical discharge, considering her age and cyst location, urachal anomalies were kept as rare differential diagnosis. In this case location of cyst was atypical, therefore high index of suspicion and knowledge of umbilical anatomy and related pathologies is needed to achieve a diagnosis. Complete surgical excision is the treatment of choice.

**Keywords:** Adult, Allantois, Umbilicus

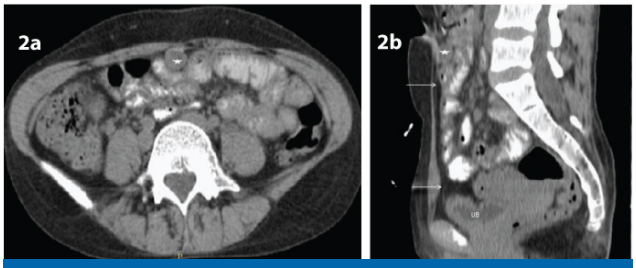
## CASE REPORT

A 20-year-old girl was referred to Radiology Department from Surgery OPD for vague, on and off abdominal pain for few years and chief complaint of burning micturition at present. Physical examination was not substantial, and no abdominal lump or tenderness was present. No history of umbilical discharge was reported by the patient. Urine microscopy finding indicate pus cell of 12/hpf. However, Laboratory findings were showing normal WBC count. USG shows a well defined, rounded, anechoic lesion of size 1.3 x 1.7 x 1.5 cm at infraumbilical region, below muscle plane is seen, showing no internal vascularity on color Doppler imaging, no obvious connection to bowel/bladder was seen [Table/Fig-1]. Findings suggestive of cystitis was also noted on USG. Differential diagnosis of umbilical cystic lesion including vitelline cyst, mesenteric cyst, urachal cyst was given on the basis of USG findings. CECT was performed for further evaluation which shows an cystic lesion of density slightly more than that of water, approximately same size as mentioned on USG was seen in extraperitoneal location, that is between transversalis fascia and peritoneum (space of rietz) and tract arising from its lower part and connecting it to bladder dome was seen

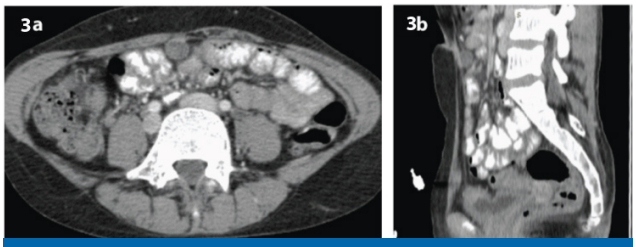



**[Table/Fig-1a]:** Ultrasound image showing well defined, rounded cystic lesion below muscle plane.
(Solid arrow indicating cystic lesion, asterisk showing hypoechoic muscle plane).
**[Table/Fig-1b]:** Color Doppler Ultrasound image showing no color flow in cystic lesion.
(Solid arrow showing cystic lesion showing no vascularity on CDI).

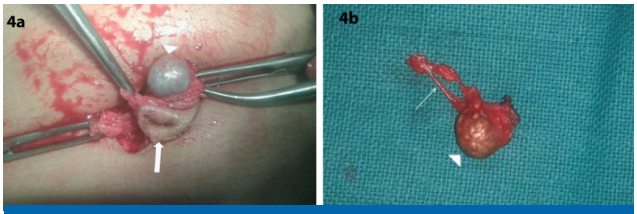
[Table/Fig-2]. There is no contrast enhancement [Table/Fig-3] and a provisional diagnosis of urachal cyst was given. Complete surgical excision of cyst and tract was carried out [Table/Fig-4] and histopathological findings were conclusive of uroepithelium with no malignant transformation and a confirm diagnosis of urachal cyst was established. Patient was discharged after 3 days of hospital stay and on follow-up after one month, no significant complaints was reported by the patient.




**[Table/Fig-2a]:** NCCT axial image showing fluid attenuating cystic lesion in extraperitoneal region , between transversalis fascia and peritoneum.(Asterisk showing the lesion).
**[Table/Fig-2b]:** NCCT sagittal section showing cystic lesion in extraperitoneal region and tract arising from its lower part and connecting it to bladder dome.
( UB = Urinary bladder, Asterisk indicate cystic lesion, arrow showing fibrous connection between cyst and bladder).




**[Table/Fig-3a]:** CECT axial image showing fluid attenuating cystic lesion with no contrast enhancment in extraperitoneal region, between transversalis fascia and peritoneum.
**[Table/Fig-3b]:** CECT sagittal section showing cystic lesion with no contrast enhancement in extraperitoneal region and tract arising from its lower part and connecting it to bladder dome.

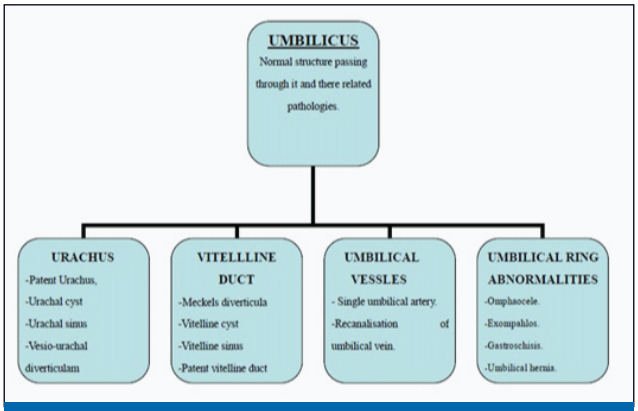



**[Table/Fig-4a]:** Intraoperative image showing cystic lesion below umbilical level. (Arrow head showing cystic lesion, solid arrow indicate Umbilicus).
**[Table/Fig-4b]:** Post-operative Urachal cyst with its fibrous tract. (Arrow head showing cystic lesion, Arrow indicate fibrous tract).

## DISCUSSION

Umbilical cord connect placenta to growing fetus and contain VID, allantois, umbilical vessels. Umbilical cord abnormality can arise from any deviation from normal process [Table/Fig-5].

Embryologically urachus or allantois, develops from ventral part of uro-genital sinus and it connects bladder to umbilicus. The allantois gradually become obliterates and replaced by a thin fibrous tract known as urachus or median umbilical ligament. Histologiclly urachus has an inner wall made up of modified transitional epithelium which clearly shows




**[Table/Fig-5]:** Umbilical anatomy and pathology at a glance.

its embryological relation and connection to urinary bladder, and outer most layer of smooth muscle merging with detrusor congenital urachal abnormalities has male preponderance and exists twice as common in men as in women. Congenital urachal anomalies is of broadly four types [1].

a) Patent urachus, which is also most common in occurrence.

b) Urachal cyst

c) Urachal sinus

d) Vesico-urachal diverticulum

There are no exact incidence shown in any literature, but since 19$^{th}$ century less than 200 cases has been reported, this statistics was further supported by a 31 year long study showing only 12 adult cases of urachal anomalies out of which 5 are urachal cyst [2].

Urachal cyst arise mainly in the lower third of the urachus, just above the dome of the bladder [3]. Clinically sign and symptoms are vague and nonspecific. Urachal cyst become symptomatic when they are enlarged, most urachal cyst at the time of presentation are infected and infection is also most common complication of UC [4]. In our case also cyst present with pain abdomen and infection, and located in upper third of the urachus which is atypical for a urachal cyst presentation. USG helps in making diagnosis in 77% of cases. In our case USG scan was non-conclusive and CT- scan findings help in making a diagnosis and delineating its relation and configuration to surrounding structures, CT findings were in corroboration with surgical findings. CT and MRI are preferred modalities for demonstration of urachal cyst and possible secondary complication.

Under umbrella IV antibiotic course, open incision and complete surgical excision of the cyst and fibrous tract is the treatment of choice. Study also suggested a 2 staged procedure involving initial incision and drainage

followed by complete excision of urachal remnant [5]. Laproscopic surgery as an alternative option is also gaining popularity this days [6].

However, possibility of recurrence and degeneration to carcinoma development and chances of loss of follow-up in Indian settings are also high, which makes surgery the definitive treatment [7].

Urachal cyst is common in neonate and pediatric age group, however in adult patients presentation is atypical, and occurrence is rare, therefore a high index of suspicion is required to establish the diagnosis. Complete surgical excision is the treatment of choice, considering the risk of malignant transformation.

## CONCLUSION

Urachal anomalies are rare and present when complicated. A set of radiological imaging will help identifying most of the urachal entities, however we suggest, in patients with atypical history it should be included in differential diagnosis.

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