



LAPAROSCOPIC EXCISION OF URACHAL CYST – A PREFERRED MODALITY OF MANAGING AN URACHAL ABNORMALITY.

General Surgery

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ABSTRACT

Urachal cyst represents the embryologic remnants of the allantois and is one of the commonest urachal abnormalities. It is usually asymptomatic and often detected in the USG or CT scan during investigating for other abdominal conditions or when presented with umbilical pain, discharge, erythema or sign and symptoms of urinary tract infection or rarely adenocarcinoma of the urinary bladder. Laparoscopic complete excision from umbilicus to the dome of the urinary bladder is the preferred modality of management after ensuring control of local infection if present.

KEYWORDS

Allantois, urachal cyst, umbilical sinus, infection, laparoscopic excision.

INTRODUCTION

Urachus, the embryologic allantois is attached from the apex of the urinary bladder to the umbilicus and serves the purpose of draining the fetal urine into the amniotic sac during first trimester of pregnancy. This usually obliterates after 12th week of IUL and forms a fibrous structure in the midline, on the infraumbilical anterior abdominal wall called median umbilical ligament in the preperitoneal space of Retzius lying between the transversalis fascia and the peritoneum.

Incomplete obliteration of the urachus can result in four types of abnormalities as:

- Patent urachus – connecting the umbilicus to the dome of the urinary bladder and present as discharge of urine through the umbilicus.
- Urachal cyst – due to nonobliteration of the urachus at the midpoint to a varying extent, which remains asymptomatic and get detected on USG or CT scan done for other abdominal conditions. However it may be infected causing umbilical pain and inflammation with cloudy or bloody discharge at the umbilicus.
- Umbilical-urachal sinus – due to nonobliteration of the urachus at the umbilicus, that may remain asymptomatic or present with umbilical pain and discharge when infected.
- Vesico-urachal diverticulum – when the distal end of the urachus at dome of the urinary bladder remains patent, that may remain asymptomatic or present as urinary tract infection or rarely as adenocarcinoma of the dome of the urinary bladder.

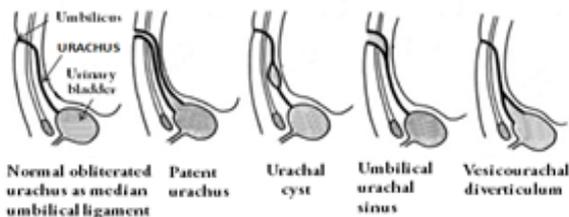


Figure 1: Fate of urachus and its four possible developmental abnormalities

CASE STUDY

A 20 years male was attended in the surgery OPD with complaint of cloudy scanty discharge and pain at the umbilicus since 20 days. No

H/O fever, burning micturition or similar discharge in the past. No H/O major medical or surgical illness or allergy. On examination, umbilicus found inverted with tenderness and scanty turbid fluid expressed on pressure at & below the umbilical region or swelling felt per abdomen. Patient was afebrile, pulse - 76/min, BP - 118/76 mmHg, TLC – 10,800/cu mm and urine examination was normal. The USG abdomen showed a 15mm X 7.4mm cystic structure seen underneath the anterior abdominal wall within obliterated urachal remnant/ligament, 45mm away from umbilicus & 39mm away from urinary bladder. The urachus is showing hypoechoic band beneath umbilicus suggestive of patent urachus. The final diagnosis of urachal cyst with infected umbilical sinus was made. Local betadine dressing and antibiotics based on culture and sensitivity given for 10 days resolved the umbilical discharge. He was then planned for laparoscopic excision of urachal cyst. Patient in supine position, 3 ports, all placed on right side of the abdominal wall. 10mm camera port is placed at level of the umbilicus along right anterior axillary line. Two working ports 5mm each at hypochondriac and iliac fossa in the same anterior axillary line. Using a 10mm 300 laparoscope, the dissection was carried out by hook diathermy. After the urachal cyst was dissected fully from umbilicus to the urinary bladder, double ligation of the caudal end of the urachal cyst at dome of urinary bladder was done by extracorporeal suturing with 2-0 PDS suture. Excision of the urachal sinus at the umbilicus is completed under vision. He was allowed orally after 24 hours, Foley's catheter removed on 3rd POD and then he was discharged home. Portsite & umbilical site sutures removed on 8th POD and was found healing. The histopathology report of the excised tissue revealed inflammatory changes at umbilical end. He was then reviewed thrice in the OPD every 2 months interval & found symptom free.

DISCUSSION

Urachal abnormalities arise due to a failure of complete obliteration, of which urachal cyst is the commonest with an incidence rate of 1 in 5000 births [1]. Urachal cyst usually remains asymptomatic unless infected, when present with infraumbilical swelling, pain or occasionally thick umbilical discharge. Spontaneous involution of the urachus can be expected by up to end of one year of birth [2]. Similarly an asymptomatic urachal cyst or umbilical-urachal sinus or a vesico-urachal diverticulum can reopen under pathological conditions, especially infection and become symptomatic. It can be accurately diagnosed by an USG of the abdomen, as the bowel gas does not interfere with its sonologic characterization. USG findings as described by Cacciarelli et al is an elliptical hypoechoic swelling of variable size in the infraumbilical anterior abdominal wall in the space

of Retzius between transversalis fascia and the peritoneum [3]. However CT scan is very helpful in equivocal cases. Calcification changes occur in 50-70% cases of urachal carcinomas and are very helpful in differentiating it from urachal infection [4].

Management of the urachal cyst is its complete excision from umbilicus to dome of urinary bladder. When accompanied by umbilical discharge or urinary tract infection, analgesics and antibiotics based on culture and sensitivity report for 7-10 days duration is followed prior to surgical excision. Excision of urachal remnants by laparoscopy was first described by Trondsen in 1993 [5]. Laparoscopic excision of the urachal cyst under magnified view along with other advantages of laparoscopy is currently the preferred modality over the conventional open procedure. The excised specimen should be sent to histopathology for exclusion of adenocarcinomatous change at the vesical end.

CONCLUSIONS

Diagnosis of the urachal cyst as one of the four possible abnormalities occurring due to embryological failure of urachus needs a high clinical suspicion in cases presenting with umbilical pain, swelling, discharge, inflammation or lower abdominal pain with recurrent urinary tract infection. USG adequately diagnose the condition in most of the cases. Management of urachal cyst with infection at the umbilicus includes analgesics and appropriate antibiotics for 7-10 days followed by its complete excision from umbilicus to the dome of urinary bladder, preferably by laparoscopy. The excised specimen should be sent to histopathology for exclusion of adenocarcinomatous change at the vesical end.



Figure 2: USG abdomen showing the urachal cyst

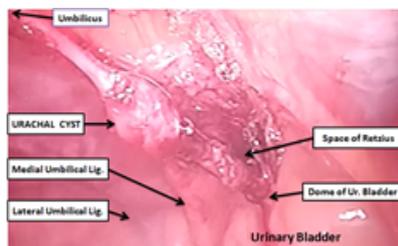


Figure 3: intraoperative laparoscopic view of urachal cyst

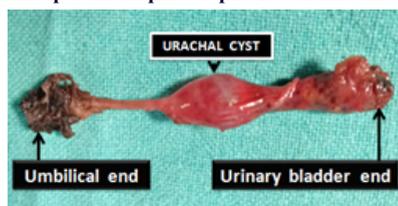


Figure 4: completely excised urachal cyst with both the cut ends

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