The Egyptian Journal of Radiology and Nuclear Medicine (2015) **46**, 755–759

Egyptian Society of Radiology and Nuclear Medicine

The Egyptian Journal of Radiology and Nuclear Medicine

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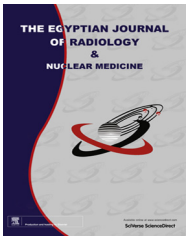

CASE REPORT

Late presentation of congenital urachal sinus in a middle aged male complicated by an umbilical abscess: A case report

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Received 7 December 2014; accepted 15 April 2015
Available online 6 May 2015

KEYWORDS

Urachus;
Umbilical abscess;
Umbilical sinus;
Umbilicectomy

Abstract Urachus or the median umbilical ligament is a fibrous strand connecting umbilicus to bladder, representing embryologic remnant of cloaca and allantois. Urachal anomalies are infrequent in adult population. Moreover they have a different course in adults than pediatric age group in which they are more common, frequently involute and have a benign course. These remnants are prone to infection and development of malignancy. A proper diagnostic workup by clinical and imaging tools is required. We present a case report of a urachal sinus complicated with abscess in an adult with brief review of the literature.

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Peer review under responsibility of Egyptian Society of Radiology and Nuclear Medicine.

http://dx.doi.org/10.1016/j.ejrnm.2015.04.010

1. Case report

A 42 year old male presented with moderate, progressive pain in mid abdomen around umbilicus since 1 week which was followed by foul smelling discharge from the umbilicus with periumbilical erythema since 2 days. There was no alteration in bladder or bowel habits. On examination fever was present. There was no visible swelling over abdomen. Tenderness was present over lower abdomen in umbilical and infraumbilical regions with a palpable lump. There was a history of a similar milder episode 1 year back which resolved spontaneously. Liver and renal functions and serum electrolytes were normal. Anemia and polymorphonuclear neutrophilia were present. Initial swab culture from umbilical discharge did not show growth of any organisms over 48 h.

Abdominal US showed irregular heterogeneously hypoechoic elongated fusiform collection with few internal septa in infraumbilical region extending from umbilicus posteroinferiorly (Fig. 1). It measured approximately 6.5 cm × 3 cm in size. Subsequent CECT of the abdomen with intra umbilical instillation of iodinated contrast showed peripherally enhancing fusiform collection suggestive of abscess, extending from umbilicus into the preperitoneal space and ending blindly (Fig. 2). Posteroinferiorly an isodense linear band extended from the collection connecting it to the fundus of the bladder. There was partial opacification of the abscess cavity with contrast instilled from umbilicus. The medial umbilical ligament and ligamentum teres were also prominent (Fig. 3). Based on the radiologic findings diagnosis of urachal sinus with abscess formation was made.

Diagnosis of urachal sinus with abscess was confirmed upon surgery. Patient underwent drainage of the abscess with umbilicectomy and complete excision of the sinus along with the fibrous tract (Fig. 4).

Histopathology of the wall of the abscess revealed transitional epithelium with surrounding infiltration of inflammatory cells and fibrosis.

2. Discussion

Urachus is a fibrous band extending from the anterior end of bladder to the umbilicus. Embryologically it represents the vestigial part of cloaca (a urogenital sinus extension) and allantois (a yolk sac derivative). Usually the urachus involutes in utero

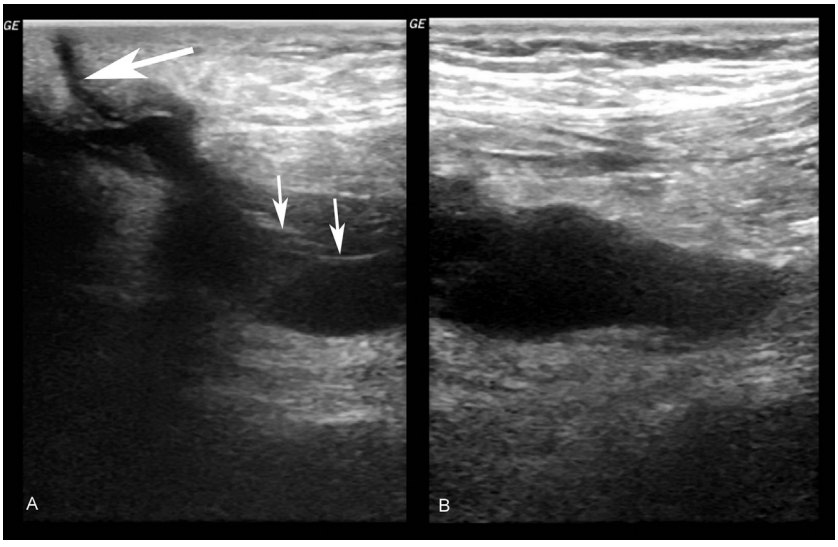

Fig. 1 Midsagittal US of abdomen in infraumbilical region (A and B) shows fusiform hypoechoic collection communicating with umbilicus (large white arrow) with thin internal septa (small white arrows) extending posteroinferiorly in preperitoneal space.

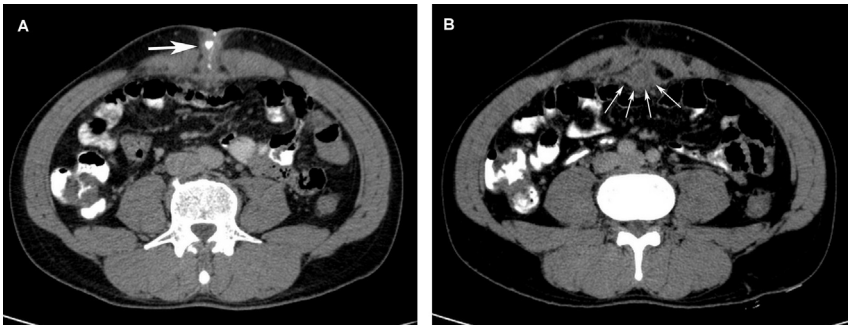

Fig. 2 Axial intravenous contrast enhanced CT sections with umbilical instillation of contrast (A) reveal peripherally enhancing hypodense collection (B).

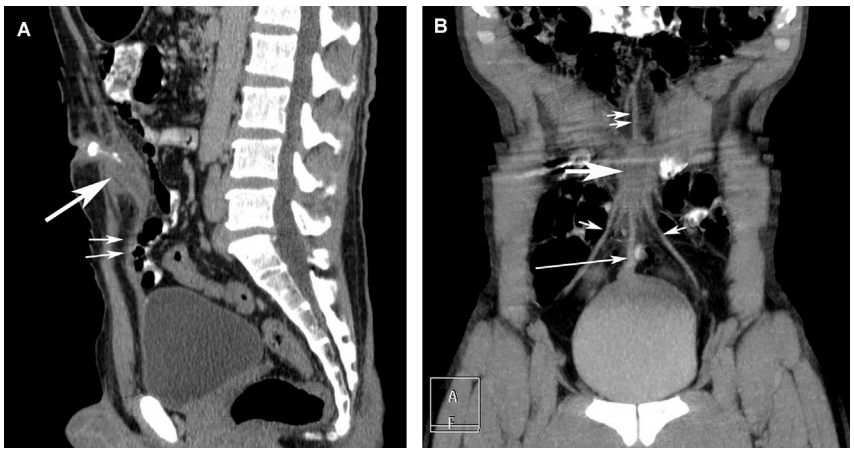

Fig. 3 Midsagittal intravenous contrast enhanced CT scan image with umbilical instillation of contrast (A) and Excretory phase coronal CT image (B) showing fusiform abscess (large white arrow in A and B) extending from umbilicus superiorly to thickened median umbilical ligament (small white arrows in A and long white arrow in B) inferiorly. Medial umbilical ligaments (small white arrows in B) and ligamentum teres (double arrows in B) are seen.

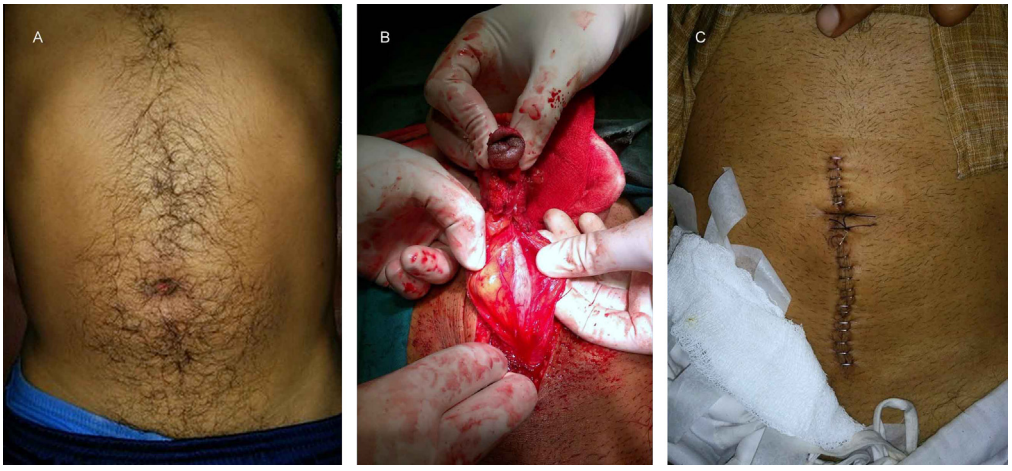

Fig. 4 (A) Preoperative photograph showing periumbilical redness, (B) intra-operative photograph showing incised abscess cavity with fibrous tract extending from umbilicus to fundus of urinary bladder, (C) post-operative photograph showing umbilicectomy with surgical sutures and staples in situ.

or early childhood forming the median umbilical ligament (1). However, rarely it may persist and give rise to a spectrum of pathological anomalies: patent urachus (about 50%), umbilical cyst (about 30%), umbilical sinus (about 15%) or vesico-urachal diverticulum (about 3–5%) (Table 1, Figs. 5 and 6) (2).

The incidence of urachal pathologies in childhood is approximately 1 in 5000 with a male to female ratio of 3:1 (3). In adults it is rare, approximately 2 cases per 100,000 hospital admissions, because urachal anomalies usually involute in early childhood (4). But, the presentation and progression in pediatric and adult population is different. Adults have a higher risk of urachal cancer and incur more morbidity. Thus the proper and early diagnosis of urachal pathologies is must. Due to rarity, urachal anomalies present a diagnostic challenge in adult population. However, with proper Clinical and Imaging workup they can be managed effectively (5).

Table 1 Types of urachal anomalies (2).

Type	Description
Patent urachus	Free communication between bladder and umbilicus
Umbilical sinus	Blind ending tract communicating with umbilicus
Umbilical cyst	Persistence of central part of the urachal canal leading to a double blind ending cavity
Vesico-urachal diverticulum	Blind ending tract communicating with bladder

Clinically there may be umbilical/urinary discharge, umbilical mass, vague abdominal pain or hematuria. Discharge may aid in diagnosis. Urine discharge from umbilicus suggests patent urachus, hematuria points to vesico urachal diverticulum and pus such as discharge from umbilicus may be present

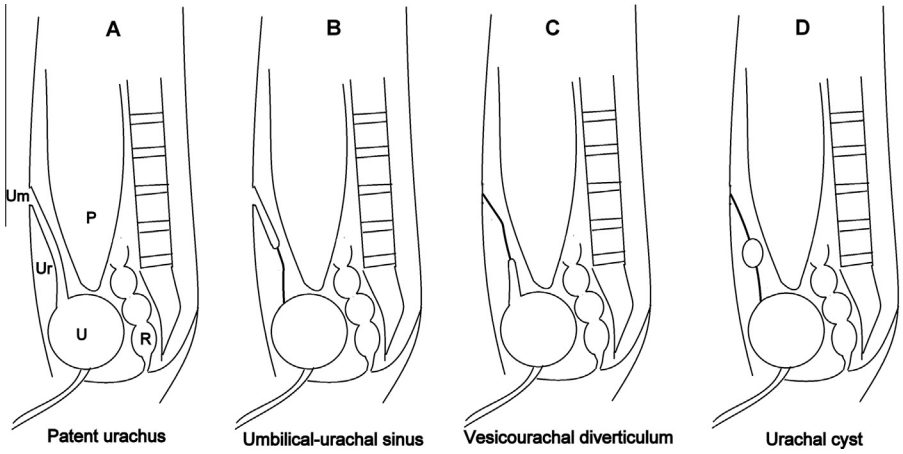

Fig. 5 Graphic representation of urachal anomalies (A–D). Um-umbilicus, Ur-urachus, U-urinary bladder, R-rectum, P-peritoneal cavity.

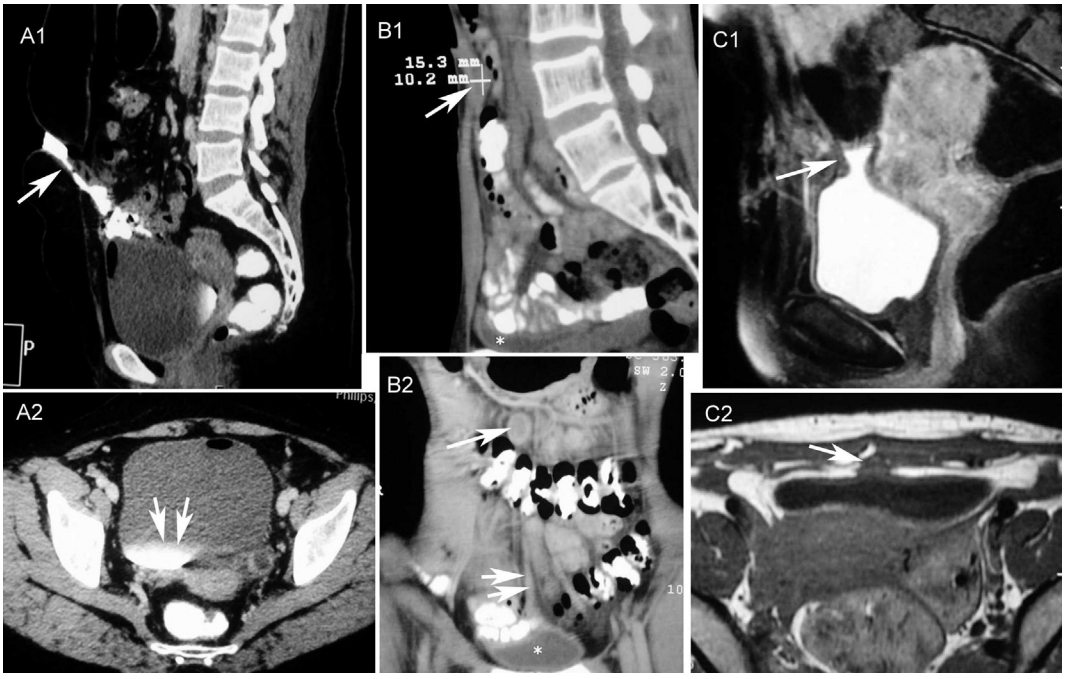

Fig. 6 (A) Thirty year old female with watery discharge from umbilicus. Midsagittal (A1) and axial (A2) CT images with umbilical contrast instillation show patent urachus (arrow) with passage of contrast into the urinary bladder (double arrows). (B) Midsagittal (B1) and coronal (B2) CT images of a 35 year old male showing urachal cyst (arrow in B1 and B2) and thickened medial umbilical ligament (double arrow). (C) Midsagittal T2 (C1) and axial T1 (C2) MR images of a 29 year old female showing urachal umbilical diverticulum (arrow in C1) and thickened median umbilical ligament (arrow in C2). (Image courtesy – Dr. Dinesh Sood, Professor and Head, Department of radiology, DRPGMC, Kangra at Tanda, Himachal Pradesh, India).

with urachal sinus. Further complications such as infection and malignancy may present. Imaging has a definitive role in classifying the type of urachal anomaly and further characterizing the disease. Ultrasound and CT are the two imaging modalities. In case of external opening, contrast can be given through the umbilicus to delineate the tract. A relatively anterior location in the preperitoneal space with no obscuration by bowel gas makes ultrasound a good tool for diagnosis. CT is further required for confirmation and to look for malignancy. Findings include a tract/collection extending from the umbilicus with prominent median umbilical vein. In case there is a tract communicating with the bladder then it signifies a patent urachus. Blind ending tract arising from umbilicus suggests umbilical sinus. And double blind ending cavity is a urachal cyst. A vesico urachal diverticulum is seen arising from bladder with no communication with the umbilicus (4).

Urachal malignancies are extremely rare. Tumors of urachal origin are benign: fibromas, adenomas, hamartomas and

malignant: adenocarcinoma (most common), transitional, squamous or anaplastic (6–8). Features suggesting malignancy in symptomatic adult patients are a midline mass in typical extravesicular infraumbilical location in preperitoneal space, solid cystic appearance, peripheral calcification (characteristic finding), mural nodularity, invasion of surrounding structures and metastasis (9).

Urachal anomalies may get secondarily infected via lymphatic, hematogenous or vesical route by a wide spectrum of microorganisms and may form a urachal abscess. Fever, severe abdominal pain and pus discharge may ensue. In rare cases infected urachal abscess may burst into the peritoneum causing severe peritonitis. Ultrasound may show collection with complex echogenicity or septations. CT may reveal inhomogeneous attenuation or abnormal enhancement (rim or patchy enhancement) (10).

Treatment includes complete excision of the urachal remnant. In case of infection/abscess, initial control of infection/pus drainage should be followed by surgery. A complete excision of the wall is important as there is a high probability of reinfection and chances of development of malignancy in residual remnants (11,12).

3. Conclusion

Urachal anomalies are rare clinical entities and asymptomatic urachal sinuses persisting into late adulthood even more so. Infected urachal remnant should be kept in differential in patients with umbilical discharge and inflammation. Correct diagnosis with multimodality imaging and complete surgical resection is recommended to prevent subsequent reinfection or malignant transformation.

Source of support

Nil.

Conflict of interest

We have no conflict of interest to declare.

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