Urachal sinus in a 40-year-old male: A case report

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ABSTRACT

The urachus or median umbilical ligament is a normal embryonic remnant of the primitive bladder dome and extends upward from the anterior dome of the bladder toward the umbilicus. The tubular urachus is normally changed into a fibrous band after birth. If this regression is incomplete, disorders of the urachus can appear. Umbilical-urachal sinus occurs when the umbilical end of the urachus fails to obliterate and persists as a fusiform outpouching structure just below the navel. Periumbilical pain and tenderness with a periodic discharge through the navel and a wet umbilicus are usually reported in patients with an umbilical-urachal sinus. We report the case of a 40-year-old, diabetic, and hypertensive male presenting with recurrent episodes of pus discharge from the umbilicus. Further, evaluation with a computed tomography confirmed the presence of urachal sinus. We discuss the management of the same, along with a brief review of the literature.

Key words: *Surgical excision, Urachal anomalies, Urachal sinus, Urachus*

Urachus or the median umbilical ligament is a fibrous strand connecting umbilicus to the bladder, representing the embryologic remnant of the cloaca and allantois [1]. Urachus may persist after birth and give rise to a spectrum of pathological anomalies: Patent urachus (about 50%), umbilical cyst (about 30%), umbilical sinus (about 15%), or vesicourachal diverticulum (about 3–5%) [2]. Conventionally, all symptomatic urachal anomalies in children are removed to alleviate the symptoms. The recent literature, however, suggests excision of even incidentally discovered urachal anomalies so as to prevent future problems [3]. Development of urachal adenocarcinoma though rare carries significant morbidity and mortality. We report the case of a 40-year-old male presenting with a urachal sinus.

CASE REPORT

A 40-year-old male presented to the urological services of the hospital with complaints of recurrent episodes of pus discharge from the umbilicus. These symptoms appeared in episodes over the past 10 years. The patient was a diabetic and hypertensive, diagnosed 5-years before the presentation, and was on oral medications.

On physical examination, the pulse rate was 88 bpm and blood pressure was 140/90 mmHg measured in the right arm with the patient in a supine position. A purulent, non-foul smelling discharge was seen from the umbilicus; no opening was visualized.

Blood biochemistry results were normal except for the elevated blood sugar levels and glycosylated hemoglobin of 11.9%. The patient was started on antibiotics (injection cefotaxime 1000 mg IV, 12th hourly) and injection insulin to control diabetes mellitus. Ultrasonography of the abdomen revealed no obvious abnormality. Computed tomography (CT) showed evidence of a thin linear hypodense tract extending from the umbilicus toward the bladder of an approximate length of 4.5 cm. There was a focal speck of calcification on the anterior wall of the urinary bladder and attachment of the tract (Fig. 1a and b).

A diagnosis of the urachal sinus was made and the patient prepared for surgery. The patient underwent diagnostic rigid cystoscopy to rule out any bladder pathology. A midline incision extending from 2.5 cm superior to umbilicus until the pubic symphysis was taken. The urachal tract was identified and dissected up to the bladder. The urachal sinus and diverticulum were dissected and excised along with a cuff of the bladder (Fig. 2a-d).

The excised specimen was sent for histopathological examination. Gross findings revealed a brownish tubular structure measuring 7 cm×3 cm external surface was unremarkable, and the cut section showed a smooth inner surface. Microscopy studies revealed a tubular structure lined by transitional epithelium

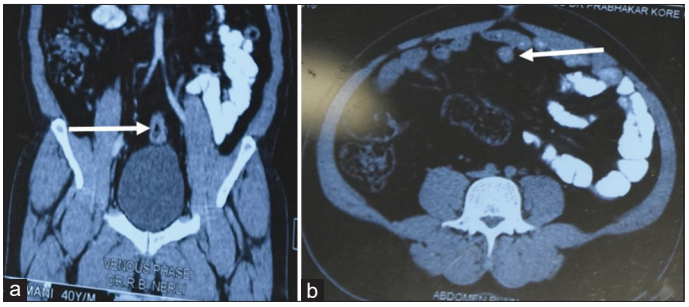

Figure 1: (a and b) Computed tomography scan shows evidence of a thin linear hypodense tract extending from the umbilicus toward the bladder of an approximate length of 4.5 cm

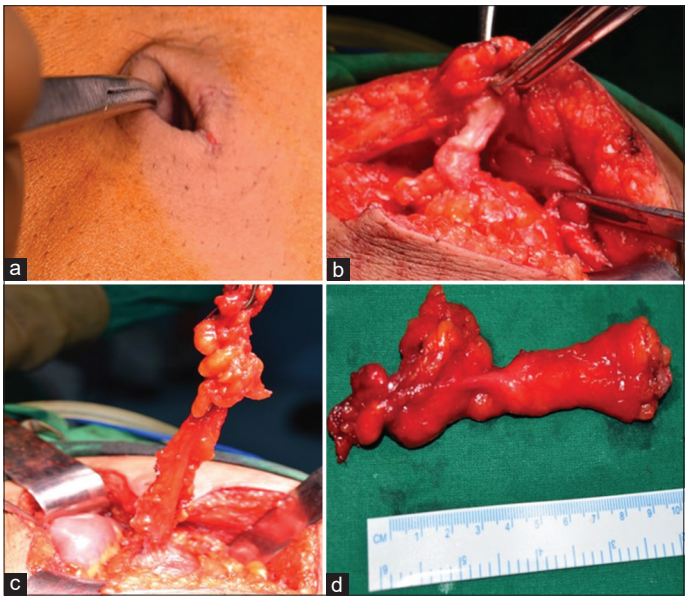

Figure 2: (a) Visualization of the umbilicus under anesthesia revealed a small opening within it; (b) A midline incision extending from 2.5 cm superior to umbilicus until the pubic symphysis was made; (c) The urachus tract was identified and dissected up to the bladder; (d) The excised urachus specimen.

and the lumen of the tubular structure was patent. Plenty of fibromuscular and fibroareolar connective tissue surrounded the tubular structure.

DISCUSSION

Usually, the urachus involutes in utero or early childhood forming the median umbilical ligament [4]. The incidence of urachal pathologies in childhood is approximately 1 in 5000 with a male-to-female ratio of 3:1 [5]. In adults, it is rare, approximately two cases per 100,000 hospital admissions, as the urachal anomalies usually involute in early childhood. As urachal anomalies are rare, they present a diagnostic challenge in the adult population. Adults carry a higher risk of urachal cancer and incur more morbidity [6].

Clinically, the patient may present with umbilical/urinary discharge, umbilical mass, vague abdominal pain, or hematuria. Discharge helps in diagnosis. Urine discharge from the umbilicus suggests patent urachus, hematuria points toward vesicourachal diverticulum, and pus discharge from umbilicus may be present in umbilical/urachal sinus. The patient may also present with complications such as infection and malignancy.

Imaging plays a major and definitive role in classifying the type of urachal anomaly and further characterizing the disease. Ultrasound and CT are the two imaging modalities that are commonly used. Whenever an external opening is visualized, contrast can be injected 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 further confirms the lesion and assesses for malignancy.

Urachal anomalies may cause considerable morbidity if not detected and treated promptly. Benign urachal tumors are extremely rare and can arise from any portion of the urachal tract, usually mimicking urachal malignancy. The most commonly described benign tumors of the urachus are adenomas and cystadenomas [7]. Because they mimic malignancy, the diagnosis is usually made at histopathologic analysis after resection of the lesion.

Malignant urachal neoplasms are rare and account for less than 1% of all bladder cancers. They usually remain undiscovered for a long period of time and may be found incidentally at imaging or an advanced stage when symptoms of local invasion or systemic spread have developed [8]. Around 80% of urachal cancers are adenocarcinomas, including mucin-producing adenocarcinomas (69%) and mucin-negative adenocarcinomas (15%). The remaining 20% of urachal cancers are urothelial, squamous, and sarcomatoid neoplasms. Urachal adenocarcinomas unfortunately present with large tumors and manifest with a more prominent extravesical component than do other non-urachal tumors of the bladder [8]. The prognosis of urachal adenocarcinoma is usually poor due to late presentation and advanced stage with local invasion. The 5-year survival rate for urachal adenocarcinoma is variable and has been reported to be approximately 49% after treatment.

CONCLUSION

Persistence of urachus leads to a number of complications, including urachal sinus. Urachal sinus when symptomatic needs to be excised so as to relieve the patients of symptoms and prevent long-term complications of adenocarcinoma.

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