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Encysted Urachal Abscess Associated With a Premalignant Lesion in an Adult Male

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ABSTRACT

Congenital anomalies of the urachus are uncommon in adults. If these anomalies persist into adulthood, they very frequently present as complications of the anatomical entity. Encysted urachal abscesses with associated premalignant urothelium of the bladder wall have been very rarely reported. A 56-year-old male presented with infraumbilical pain and swelling. He was diagnosed as having an infected urachal cyst. The cyst did not communicate with the bladder or the umbilicus. On surgical exploration, the interior of the bladder wall near the urachal connection showed an exophytic mass. Histopathological analysis revealed that it was an exophytic papillomatous metaplasia of the bladder urothelium. The remnants of urothelium within the urachal cyst demonstrated normal transitional epithelium. Long-term follow-up was recommended because the features of papillary urothelial neoplasm exhibit a low malignancy potential. The present case is unique because it presents a rare combination of: (1) an encysted urachal abscess, (2) a blind urachal diverticulum, and (3) an exophytic, potentially malignant papillomatous lesion of the bladder epithelium close to its apex.

INTRODUCTION

The urinary bladder in humans develops from the anterior part of the endodermal cloaca that is situated at the terminal part of the gut tube [1]. The cloaca is cleaved into anterior and posterior segments by the urorectal septum. This septum develops in a coronal plane and extends caudally to divide the cloaca into an anterior bladder and posterior rectum. The apical part of the primitive bladder is connected to the umbilicus with the allantoenteric diverticulum or the urachus. The urachus represents the remnant of either the cloaca or the allantois [2]. This communication gradually obliterates by the fourth or fifth month of intrauterine life. It remains as a fibrous cord throughout life, representing the median obliterated ligament. Adults may contain a small, blind lumen within the urachus that is lined by transitional epithelium.

Urachal anomalies are well documented and may present in adulthood with a male preponderance [3-5]. Autopsy studies have reported a 1 in 5000 incidence of urachal anomalies in humans [4]. These diseases may variedly present (in order of frequency) as a patent urachus, urachal cyst that may be infected, urachal sinus, or urachal diverticulum [6]. Anomalies of the urachus are associated with epithelial metaplasia of the urachus from a transitional to columnar or glandular variety, resulting in malignancy [2]. Urachal carcinoma usually presents as mucinous adenocarcinoma very near the apex of the bladder on the inner aspect of the upper surface [7]. Other varieties of malignant and benign neoplasms have also been reported with urachal disease. Adenomas, fibromas, fibroadenomas, and fibromyomas have been associated with urachal anomalies [8]. Prognosis in urachal malignancy depends on the stage of its presentation,

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case report

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state of local invasion, and distant metastasis. It is extremely rare to find occurrence of exophytic urothelial papilloma of the bladder wall associated with a urachal remnant, as reported in the present case.

CASE REPORT

A 56-year-old male presented with pain in the lower abdomen with a 'stone-like' feeling, mild fever, and a generalized sense of illness. On physical examination, the infraumbilical swelling was found to be tender and uniform in texture with a fluid-like consistency. The patient reported no history of umbilical discharge and none was observed.

Ultrasound evaluation showed a cystic swelling with a sinus tract at the anterosuperior aspect of the dome of the urinary bladder, in the midline. On surgical exploration, this tract was seen to extend up to the umbilicus, buried between the 2 halves of the rectus abdominis muscle. The tract did not show any opening at the umbilicus. The lower part of the tract demonstrated a cystic swelling that was flush with almost the entire extent of the superior wall of the bladder. This swelling was filled with pus. No communication could be explored between the cystic cavity and the bladder. A blind sinus measuring about 5 cm extended from the distal end of the cyst upward in the midline to the umbilicus. The bladder and the cystic cavity (with its extension) could be visualized in the ultrasound image (Figure 1). The inset in the figure shows a schematic representation of the position of the papillomatous growth and the extension of the cyst toward the umbilicus. The tract was situated between the transversalis fascia and the parietal peritoneum as it extended up within that plane, insinuated between the 2 halves of the rectus muscles. The walls of the cystic abscess were edematous.

The entire cyst and the blind tract were excised. A part of the bladder was removed with the base of the cyst; the entire mass measured 8.5 cm x 7 cm x 6 cm. The interior of the bladder, very near its apex, revealed a papillomatous growth on the right lateral wall (Figure 2, inset).

Figure 1. Ultrasound Evaluation of the Urinary Bladder, Seen in Profile.

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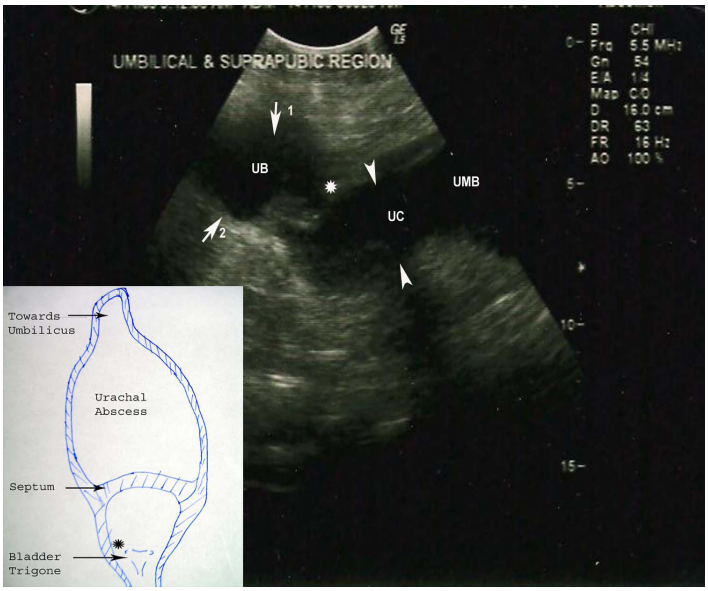

Arrows 1 and 2 denote the anterior and posterior walls of the urinary bladder (UB), respectively. The position of the septum between the bladder and the abscess cavity is marked by an asterisk. The urachal cyst (UC) is demarcated by arrowheads and demonstrates its extension toward the umbilicus (UMB). The inset shows the bladder and the cyst from the anterior aspect. The position of the growth on the right side of the trigone is shown by an asterisk.

Figure 2. Histopathological Examination of the Bladder Wall Near the Apex (10x).

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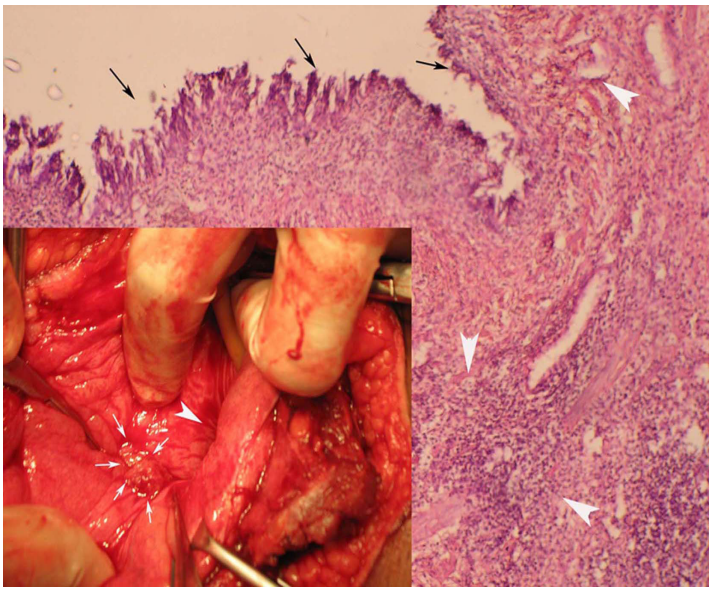

Note the normal epithelium (black arrows) and the bladder musculature infiltrated with inflammatory cells (arrowheads). The inset shows the interior of the bladder during surgery. The tumor (demarcated by arrows) is located on the right wall of the bladder. The arrowhead shows the internal urethral meatus.

Figure 3. Microscopic (10x) View of the Excised Tumor.
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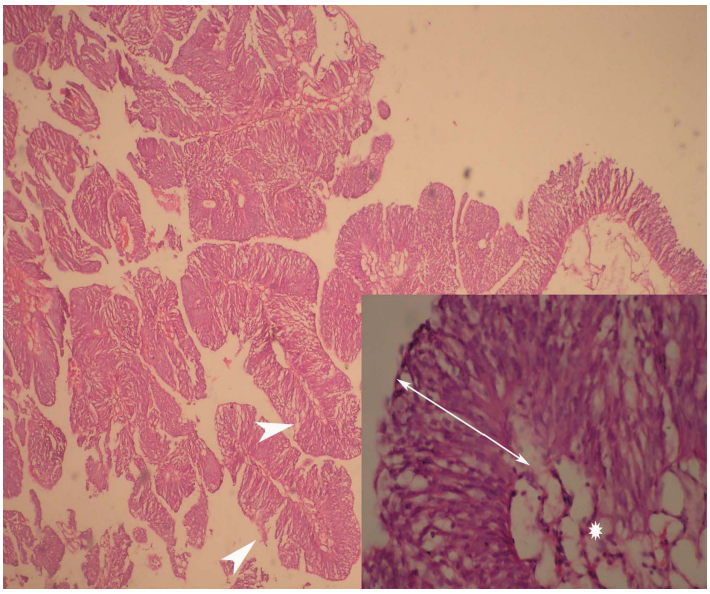

Finger-like growths (arrowheads) are shown. The inset shows the span of the thickened epithelium of the papillomatous growth (arrow). The fibrovascular core of a projection is denoted by an asterisk.

Histopathological examination of the cyst could not identify well-defined transitional epithelium, probably due to the chronicity of the abscess. The upper bladder wall excised with the cyst (Figure 2): (1) was lined by normal bladder mucosa, (2) was composed of muscle bundles infiltrated with eosinophils, lymphocytes, plasma cells, and histiocyte aggregates, and (3) had areas of hemorrhage and proliferating fibroblastic tissue. Microscopic examination of the excised papillomatous mass (Figure 3) presented: (1) a multilayered (12-16 layers) transitional epithelium lining, (2) mild pleomorphism and large nuclei, and (3) a fibrovascular core. Long-term follow-up was recommended to the patient because of the features of papillary urothelial neoplasm that demonstrate a low malignancy potential.

DISCUSSION

Urachal disorders are usually detected and treated in pediatric patients. These disorders may also present in adults with different anatomical variations of the anomaly, such as the infected urachal cyst reported in the present case [9]. A combination of an infected urachal cyst with a blind distal diverticular extension is very rare [10,11]. More importantly, the case reported here also presented with a papillomatous outgrowth at the right bladder wall, close to the uracho-vesicle junction. This mass was detected as an exophytic papilloma of the bladder mucosa near the apex of the bladder. This type of a premalignant condition associated with a urachal anomaly has not yet been reported. Urachal remnants are often associated with benign and malignant lesions of the urothelium of the urachus and not the bladder wall. A patent urachus may also present with other congenital anomalies at the lower abdomen [12]. To conclude, the present case is unique because it presents a rare combination of: (1) an encysted urachal abscess, (2) a blind urachal diverticulum, and (3) an exophytic, potentially malignant papillomatous lesion of the bladder epithelium close to its apex.

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