

Case Report

A RARE CASE OF ADULT URACHAL SINUS PRESENTING WITH RECURRENT ABSCESS FORMATION

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ABSTRACT

Urachal affections are rare. Their variable ways of presentation may represent a diagnostic challenge. Urachal sinuses are a rare type of these abnormalities. They are usually incidental findings and remain asymptomatic unless a complication (most commonly the infection) occurs. Infection of the urachal sinus would clinically present as purulent umbilical discharge, abdominal pain, and periumbilical mass. We report a case of 27 year old male with infected urachal sinus as recurrent umbilical abscess formation. The diagnosis was suspected clinically and confirmed with ultrasonography and computed tomography scan. A preoperative cystoscopy showed normal aspect of the bladder and excluded sinus communication. An initial broad spectrum antibiotic therapy followed by complete excision of the sinus and fibrous tract done. The postoperative course was uneventful. No recurrence was observed after two years of follow up. Histological examination did not reveal any sign of malignancy.

Keywords: *Urachus, Urachal Cyst, Umbilicus, Abscess*

INTRODUCTION

Since the first description by Cabriolus in 1550, few cases of urachal sinuses have been reported in literature. Urachal abnormalities result from incomplete obliteration of the foetal urachus. They are rare in adults comparing to children (Ueno *et al.*, 2003). Various types of remnants have been described and urachal sinus is the little common variety. The usual presenting symptom of this anomaly is umbilical discharge (Rowe and Gearhart, 1993). Diagnosis remains challenging due to the rarity of this lesion and the nonspecific nature of its symptomatology. This paper aims at reminding the diagnostic and therapeutic features of urachal sinus. Urachal is a rare congenital abnormality of abdominal wall defect which results from incomplete regression of the fetal urachus (Ueno *et al.*, 2003). The urachus is a fibromuscular tubular extension of the allantois that develops with the descent of the bladder to its pelvic position. They are more common in children than in adults, due to urachal obliteration in early infancy. Remnants of the tract may present as a patent urachus, vesicourachal diverticulum, urachal sinus or urachal cyst (Rowe and Gearhart, 1993). The incidence of urachal cyst in adults is rare and it is more common in men than women. In adults, urachal cyst is the commonest variety, with infection being the usual mode of presentation. We report a case of adult urachial sinus and its various presentations, management

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A 27 year old gentleman came with complaints of discharge from umbilicus for past 7 months. Pain around umbilicus for past 3 months. History of surgery done for the same twice in past 2 years at private hospital possibly incisional drainage (records not available). History of intake of antibiotic and analgesics for infraumbilical pain from private practitioner 2 weeks ago. No other significant medical or surgical history. On Examination a Healthy individual with stable vital signs. On Local examination a Swelling of 3x2 cms infraumbilical area, indurated, tender, with serous discharge on pressure from umbilicus. Sinus noted in depth of umbilicus discharging above fluid. Small well settled scar noted in overlying skin. No inguinal or axillary lymphadenopathy. Haematological and biochemical investigations normal. The USG revealed the evidence of blind tract below linea in infraumbilical region. No other intraabdominal pathology. On CT Scan of abdomen and pelvis a sinus tract noted extending from umbilicus to supravescical region (Figure 1.1). Communication with bladder could not be made out. While Cystoscopy

showed Normal bladder. Under regional anesthesia. Dye injection done. Probing was done which revealed tract extending for 5 cms towards bladder. Through lower midline approach the indurated mass just below linea was dissected out. It was found extending for 5 cms with width of 3 cms. Thin cord like extension was found passing upto dome of bladder (Figure 1.2 & Figure 1.3). Cord divided just above bladder and the entire thickened sinus was removed. No other intra abdominal pathology found. Hemostasis obtained and wound closed in layers with drain. The Post operative recovery was uneventful. Drains removed on 5th POD and sutures in 10th POD. The patient was followed up for two years.



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Figure 1.3: Shows the excised specimen

DISCUSSION

The urachus is a vestigial remnant of at least two embryonic structures: the cloaca, and the allantois. The tubular urachus normally involutes before birth, remaining as a fibrous cord between the transversalis fascia anteriorly and the peritoneum posteriorly and attaches the umbilicus to the bladder dome. Histologically, it presents with 3 layers: an innermost layer of modified transitional epithelium similar to the urothelium, a middle layer of fibro-connective tissue, and an outermost layer of smooth muscle continuing the detrusor (Ueno *et al.*, 2003; Cilley, 2006). Usually presenting in early childhood, Urachal anomalies occur in a 2 : 1 male to female ratio with 2% ratio reported in adults. Urachal abnormalities result from incomplete obliteration of the foetal urachus.

There are five types of urachal abnormalities: (1) patent urachus, in which the entire tubular structure fails to close (50%); (2) urachal cyst, in which both ends of the canal close leaving an open central portion (30%); (3) urachal sinus, which drains proximally into the umbilicus (15%); (4) vesicourachal diverticulum, where the distal communication to the bladder persists (3–5%); and (5) alternating sinus, which can drain to either bladder or umbilicus. Urachal sinus abscess usually occurs by infection of mucinous secretion via the umbilicus. The commonly cultured microorganisms from the pus are *Escherichia coli*, *Enterococcus faecium*, *Proteus*, *Streptococcus viridans* and *Fusobacterium* (Cilento *et al.*, 1998; Ashley *et al.*, 2007). The clinical signs and symptoms are nonspecific, as urachal sinus is largely asymptomatic until they become infected. However, the presence of the triad of symptoms including a tender midline infraumbilical mass, umbilical discharge and sepsis should arouse suspicion of urachal sinus.

Differential diagnosis of this condition includes anomalies of the vitelline ducts (such as Meckel's diverticulum), patent omphalomesenteric duct, infected umbilical vessel, appendicitis, or omphalitis. Ultrasonography could help in establishing the diagnosis in 77% of patients. In our case, ultrasonography was not specific and computed tomography scan was used to confirm the diagnosis and analyse the connection to surrounding structures. Urachal sinus can be complicated by stone and gaseous formation (was not seen in our patient). Other reported complications include rupture into the peritoneal cavity

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leading to peritonitis, uracho-colonic fistula, and neoplastic transformation (Cilento *et al.*, 1998). The risk of urachal malignancy in adults is high and the prognosis is poor.

Although the innermost layer of the urachus is mainly transitional cell, adenocarcinoma (mostly mucinous) is the predominant histological type. This is probably due to metaplasia arising from chronic inflammation. Urachal cyst treatment depends on the presence of complications or associated conditions. Noninfected urachal sinus are usually removed in a single-step radical excision of the remnant which removes the entire lesion with or without a bladder cuff via open or laparoscopic surgical approach (Mesrobian *et al.*, 1997).

This intervention is performed to avoid recurrence following simple drainage and to prevent developing malignant transformation. In case of infection, a single-stage procedure backed with appropriate antibiotic therapy or 2-stage procedure involving initial incision and drainage, followed by later excision of the urachal remnant are adopted with uneventful postoperative course.

Conclusion

Infected urachal sinus is rare in adults. Presentation is atypical; therefore, a high index of suspicion is required in order to achieve a diagnosis. A triad of infraumbilical mass, umbilical discharge and sepsis is suggestive. Ultrasound and computed tomography scan confirm the diagnosis and analyses the surrounding anatomical connections. An antibiotic regimen according to bacterial sensitivity is recommended prior to the surgical intervention. In order to prevent recurrence and malignant transformation, complete surgical excision with or without a bladder cuff is the standard treatment.

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