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CASE STUDY

A RARE CASE OF PATENT URACHUS WITH CALCULUS WITH OMPHALOLITH

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ABSTRACT

Patent urachus is a well-known pathological and clinical entity presenting usually in infancy or in the elderly (Burns *et al*., 2004). Urachal affections are rare. Their variable ways of presentation may represent a diagnostic challenge. Urachal sinuses are a rare type of these abnormalities (Nix *et al*., 1964). Omphalolith (Umbolith) is uncommon under normal circumstances. However in a deeply retracted umbilicus in an obese individual, accumulation of sebum and keratin may lead to the formation of a stone (Russel *et al*., 2004). This calculus may remain undiagnosed for many years until revealed by secondary infection or ulceration. We report a case of 45 year old male with urachal sinus as umbilical discharge. The diagnosis was suspected clinically and confirmed with ultrasonography and computed tomography scan. An initial broad spectrum antibiotic therapy followed by complete excision of the sinus and fibrous tract done. The postoperative course was uneventful. Histological examination did not reveal any sign of malignancy. The post operative period was uneventful and discharged on sixth post operative period. it is being presented for its rarity.

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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 (Burns *et al*., 2004). 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 (Nix *et al*., 1964). 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 (Burns *et al*., 2004). 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 (Nix *et al*., 1964). 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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Case Report

A 45 years old gentleman came with complaints of discharge from umbilicus for past 3 months. Pain around umbilicus for past 3 months. History of intake of antibiotic and analgesics for infraumblical pain from private practitioner 2 months ago. No other significant medical or surgical history. On Examination a Healthy individual with stable vital signs. On Local examination there was black discharge noted in depth of umbilicus (Fig 1.1). No inguinal or axillary lymphadenopathy. Haematological and biochemical investigations normal. The USG revealed the infected umbilical sinus. No other intraabdominal pathology. On CT Scan of abdomen and pelvis revealed that omphalolith. 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). Cord divided just above bladder and the entire thickened sinus was removed. omphalolith removed with omphalectomy (Fig. 1.3). 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 is on regular follow up.

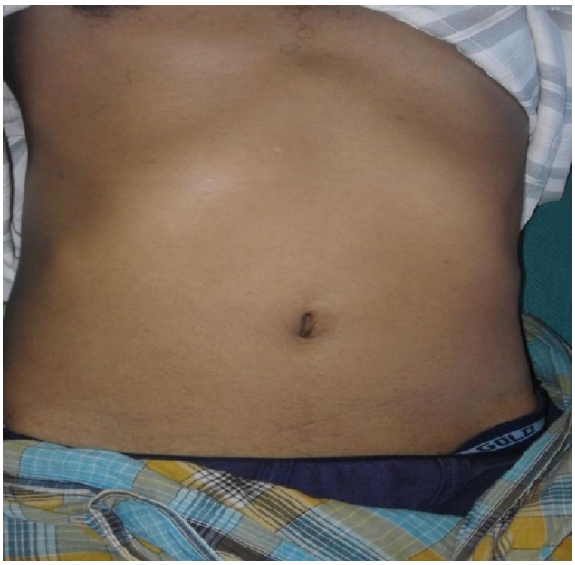

Fig. 1.1. The image of umbilicus image

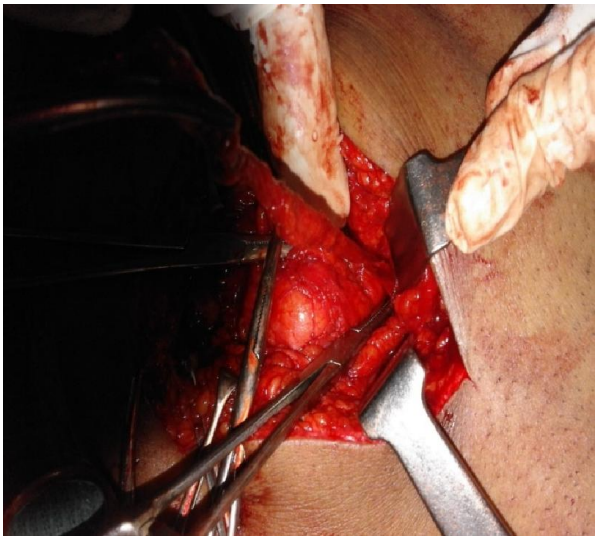

Fig. 1.2. Intraoperative image of urinary bladder with patent urachus

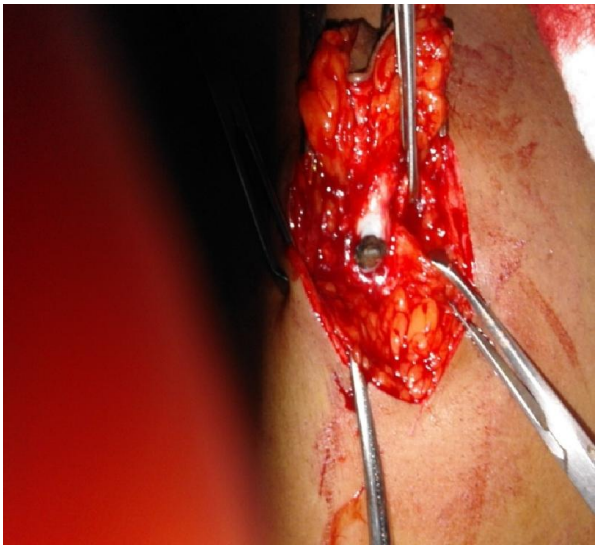

Fig 1.3. The intraoperative image of omphalolith with calculus

DISCUSSION

At birth, the umbilical cord contains two arteries and a vein, the rudimentary urachus (allantois) and the vitelline (omphalo-mesenteric) duct enveloped in Wharton's jelly (Burns *et al*., 2004). After separation and retraction of the stump, an umbilicus, a puckered scar in the centre of the anterior abdominal wall is formed. This umbilicus may have variable depth. In some cases persistence of the urachus or vitelline duct at the umbilicus may cause trouble in early or adult life (Nix *et al*., 1964). A deeply retracted umbilicus in obese people may be the site of infection or foreign bodies. An accumulation of sebum and keratin may lead to the gradual formation of a hard stone like mass which may be revealed by secondary infection as in this case. Mostly in these cases the umbilical calculus is black in colour and is composed of desquamated epithelium which becomes inspissated and collected in the deep recess of the umbilicus. In these cases, the treatment is to dilate the orifice and extract the calculus. But to prevent recurrence, it may be necessary to excise the umbilicus (Burns *et al*., 2004; Nix *et al*., 1964; Russel *et al*., 2004). 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 (Russel *et al*., 2004). 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. (Ueno *et al*., 2003; Rowe *et al*., 1993) 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 (Cilley *et al*., 2006).

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. (Cilento BG Jr, Bauer *et al*., 1998) 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. Other reported complications include rupture into the peritoneal cavity leading to peritonitis, uracho-colonic fistula, and neoplastic transformation. 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 (Ashley *et al*., 2007). This is probably due to metaplasia arising from chronic inflammation (Widni *et al*., 2010). Urachal cyst treatment depends on the presence of complications or associated conditions (Mahato *et al*., 2010). 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 (Risher *et al*., 1990). This intervention is performed to avoid recurrence following simple drainage and to prevent developing malignant transformation (Mesrobian *et al*., 1997). In case of infection, a single-stage procedure backed with appropriate antibiotic therapy or 2-stage procedure involving initial incision and drainage (Kingsley *et al*., 2009), 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.

Footnotes

Source of Support: Nil

Conflict of Interest: Nil.

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