Urachal Cyst: Unusual Presentation in an Adolescent After Intense Abdominal Exercise

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INTRODUCTION

The urachus is a fibrous cord, at the end of the allantois, which extends from the vesical dome to the umbilicus. It is located between the fascia transversalis and the peritoneum. When there is an alteration in the process of involution during early fetal development, various kinds of urachal anomaly may arise, including congenital permeable urachus, urachal fistula, urachal-vesical diverticulum, urachal cyst, and alternating sinus. Very rarely fistulas or cysts may persist; these are observed in 1 in 5000 children and in 1 in 8000 adults.[1] Alterations in this normal evolution may cause the allantoic-urachal malformations that are usually diagnosed during the neonatal period after the emission of urine through the umbilicus and that are generally related to the existence of malformations of the urinary tract (vesicoureteral reflux, ureteral or urethral obstructions). Exceptionally, the urachus that has closed normally may reopen in response to local infections or to intense abdominal traumas.[2] We present what appears to be the second case described in the international literature on urachal cysts, one that became evident after a session of intense abdominal exercise, with rupture of the umbilical scar.

CASE REPORT

A male patient, aged 14 years and a football player in a juvenile club of our city for 2 years, was treated at the emergency department at our hospital, with intense abdominal pain in the periumbilical region, accentuated on micturition, that had begun 3 days previously after a sports training session. Three days a week he trained for approximately 2 hours. The periumbilical pain began after a session of training that included exercises of abdominal musculature.

There is no relevant family or personal background. Inspection revealed the presence of a protruding lesion at the base of the navel, approximately 0.5 cm wide, with an odorless, serum-like secretion (Fig. 1). On examination, vital signs were found to be stable (body temperature 36.5°C, arterial tension 120/70, and pulse 80/minute). The patient was alert and conscious and showed no sign of respiratory distress. The most significant findings were the presence of periumbilical abdominal pain that was exacerbated on urinating and a serum-like secretion at the navel that had been occurring for 3 days. Otherwise, the physical examination of organs and functions revealed nothing abnormal. Somatometric development was normal for age, corresponding to the 75th percentile for weight and height and Stage IV gonadal development on the Tanner classification.

On complementary examination, mild leukocytosis (11,300/μL), hemoglobin levels of 15 g/dL, 45% hematocrits, and a platelet count of

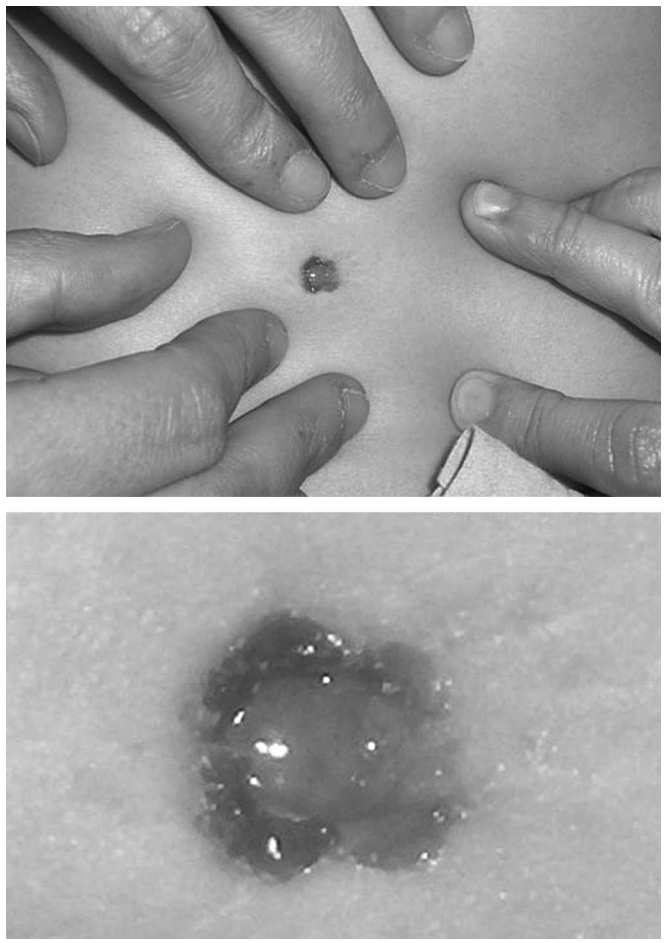

FIGURE 1. Appearance of the protruding lesion at the base of the umbilicus, approximately 0.5 cm in diameter, from which there is a serum-type odorless secretion.

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300,000/μL were found. Urine sediment tests were negative for leukocyte esterase, blood, nitrites, glucose, and bilirubin. No indications of proteins or ketonic bodies were found. Uroculture tests were negative. The metabolic biochemical study revealed no pathologic evidence of transaminase, lactodehydrogenase, or creatine phosphokinase. The umbilical exudate culture was negative. Abdominal echography (Fig. 2) revealed the presence of a thick-walled hourglass-type cystic image in the superior part of the *Chorda urachi.* The kidneys were radiographically normal.

The urology department at our hospital decided on antibiotic and antiinflammatory treatment; after 5 days, the spontaneous closure of the fistulous trajectory was observed and the symptoms disappeared. Definitive surgical reparatory measures were postponed pending later assessment. At the present time, 1 year after the referred episode, the patient is revised periodically by the urology department of our hospital; although he has not been treated surgically, he remains without symptoms and carries out his habitual sport activity.

DISCUSSION

Urachal pathology is uncommon after the neonatal period. However, if periumbilical abdominal pain does then occur, after a session of intense abdominal exercise, such a diagnosis should be considered. To the best of our knowledge, the literature only describes 1 case of a similar presentation after physical exercise, which was the case of a professional footballer aged 22 years.[1] Abdominal pain is normally in the periumbilical area, begins suddenly, is nonradiating, and is exacerbated by movement and by walking.[3] Urachal cysts present in a variety of clinical presentations including recurrent urinary tract infections, macroscopic hematuria, hypogastric midline tenderness often associated with a mass, umbilical discharge, and even peritonitis. In children older than 10 years of age, other causes of periumbilical abdominal pain are appendicitis, gastroenteritis, and constipation—causes that can be easily discarded with the clinic and the patient's exploration.

During the period of lactation, the umbilical scar is strong and is rarely weakened. Exceptionally, and almost always in relation to a deficiency of the scar, or because of an infection, or because of both factors simultaneously, the region may be weakened and a given exertion (crying, defecation, convulsion, etc) may produce a tear in the skin followed by visceral protrusion. Various factors may produce the rupture of the umbilical scar, including the existence of an amniotic umbilicus or of congenital hernia or the presence of a foreign body in the umbilicus. In this sense, the existence of a malformation of the allantoic duct may interfere with the normal cicatrization of the umbilicus.[2]

Although the course of the urachus is extraperitoneal, the possible development of intraperitoneal complications has also been reported; episodes of abdominal obstruction related to localized inflammatory episodes have been reported.[4] At the present time, treatment is initiated with intravenous antibiotics followed by complete excision of the umbilicovesical tract including a cuff of bladder. For lesions not communicating with the bladder, conservative excision of the remnant cyst is adequate. Traditionally excision of the urachus starts at the umbilicus and extends down to the bladder through an extraperitoneal approach. More recently laparoscopic excision of the urachal remnant has been proposed to be as effective and as safe as the open operation with the additional advantages of decreased hospital stay.[5] Some authors[6] recommend conservative treatment at first, similar to the one referred in our patient. However, the high recurrence rate and the possibility of degeneration to carcinoma development in the urachal remnant[7] make surgery the recommended definitive treatment.[8]

We present the second case to be described of a urachal cyst[1] which became evident after intense abdominal exercise by an adolescent. Although urachal disorders are uncommon among children, and even more so among adults, the possibility of such an occurrence should be considered in the differential diagnosis of posttraumatic periumbilical abdominal pain. The sudden onset of periumbilical pain, following a significant degree of physical effort, especially if accompanied by micturition syndrome, should suggest this diagnosis.

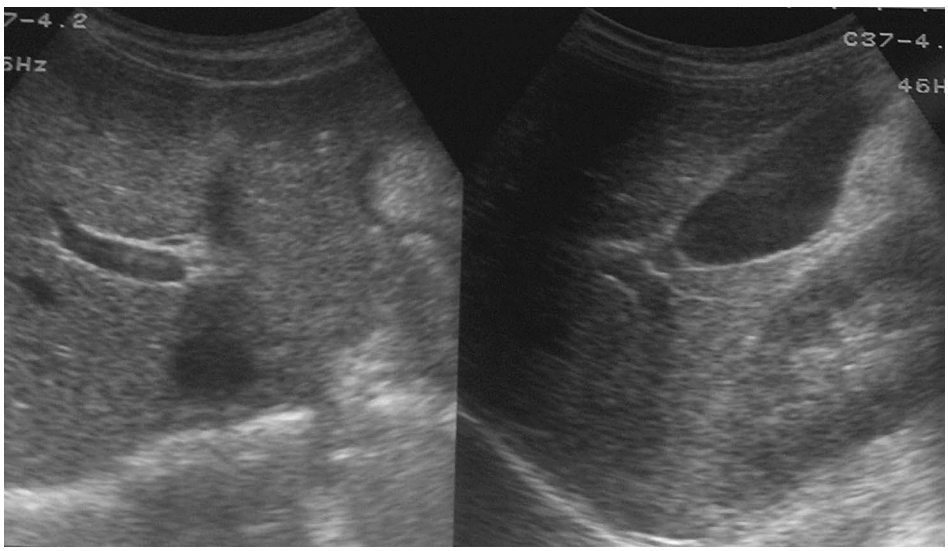

FIGURE 2. Echography of the thick-walled cyst in the trajectory of the medial umbilical ligament (urachal cyst).

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