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Persistence of Urachus in A 7-Month-Old Male Patient with Surgical Resolution: Case Report

Freddy Alexander Aldaz Vallejo[1]*, Wendy Vanessa Vaca Vega[2], Gabriela Michelle Tubay Vera[3], Tatiana del Rosario Pérez Landázuri[4], Andrea Elizabeth Sánchez Vega[5]

[1]Specialist in Pediatric Surgery, Baca Ortiz Pediatric Hospital, Quito, Ecuador
[2]Specialist in General and Laparoscopic Surgery, IESS Hospital, Esmeraldas, Ecuador
[3]Pediatric Specialist, Jipijapa Basic Hospital, Ecuador
[4]General Physician, José Miguel Rosillo Basic Hospital, Cariamanga, Ecuador
[5]General Physician, Los Andes Health Center, Pasto, Colombia

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***Corresponding author:** Freddy Alexander Aldaz Vallejo
Specialist in Pediatric Surgery, Baca Ortiz Pediatric Hospital, Quito, Ecuador

Abstract **Case Report**

***Introduction*:** Patent urachus refers to a rare condition called urachus anomaly. These conditions are caused by the failure of the normal fetal tissue used to empty the fetal bladder to degenerate. Some of these urachal abnormalities are obvious at birth, while others are more subtle and are not diagnosed until adulthood or are discovered only incidentally after imaging for other reasons. Urachal anomalies in children with wet umbilical cord, persistent drainage, recurrent urinary tract infections, and recurrent umbilical cord infections require accurate and timely diagnosis to help relieve symptoms, prevent recurrent serious infections, and ensure timely treatment. ***Clinical case*:** The case of a 7-month-old male patient is presented. The mother reports umbilical granuloma of several months of evolution. He goes to a doctor where he suggests an ultrasound examination that rules out persistence of urachus. Mass in umbilical region persists, which is why she comes again. ***Evolution*:** By laparoscopic vision, umbilical hernia plus persistence of urachus is evident, findings such as the presence of indirect bilateral inguinal hernia are found. After surgery, the patient recovered satisfactorily. ***Conclusions*:** Diagnosis of urachal anomalies can be elusive, but continued drainage of the umbilical cord is a concern in the case of urachal anomalies. Although this condition is usually an isolated finding, the possibility of posterior urethral valves in infants with a patient urachus should not be ruled out.

Keywords: Persistence of urachus, umbilical hernia, abdominal pain, obstruction.

INTRODUCTION

The urachus is a tubular structure that extends cranially from the anterior dome of the bladder to the umbilicus. The formation of urachus anomalies (UA) is associated with incomplete degeneration of embryonic structures, which causes various pathologies. During early embryonic development, the urinary bladder is continuous with the allantois, a tubular fibromuscular stalk that connects the fetal bladder to the umbilical cord for drainage [1]. As the bladder descends into the fetal pelvis, the urachus typically becomes occluded by a fibrous connection to the abdominal wall of the abdomen called the median umbilical ligament. Complete occlusion usually occurs at the end of fetal development or in early childhood [2].

Partial or complete failure of urachal obstruction can result in four different embryonic anomalies: patent urachus, urachal sinus, vesicourethral diverticulum, or urachal cyst. Many of the above entities are diagnosed in early childhood and monitored by ultrasound. Among them, urachal cyst is the second most common after patent urachus cyst [3, 4].

Urachal anomalies in children with wet umbilical cord, persistent drainage, recurrent urinary tract infections, and recurrent umbilical cord infections require accurate and timely diagnosis to help relieve symptoms, prevent recurrent serious infections, and ensure timely treatment [5].

CLINICAL CASE

A 7-month-old male patient, the patient's mother, reports the presence of a mass in the umbilical region of 3 months' duration. He goes to a doctor where they suggest an umbilical hernia. The symptoms do not improve. He goes to the nearest public hospital where tests are performed and urachus is evident. persistent.

Personal history: does not refer.
Surgical history: does not refer.
Medication: does not refer.
Allergies: none. Vaccines. Complete for age, does not present license.
Information source: Mother.
Patient with the clinical condition.

On physical examination, his vital signs were Blood pressure: 92/71 mmHg, heart rate: 110 beats per minute; respiratory rate of 28 breaths per minute; temperature of 36.1°C; Oxygen saturation 98% with FiO2 of 21%, Weight: 9.7 kg.

Patient enters the Pediatric Surgery area with a patent peripheral line.

Skin and skin: with hot, anicteric skin with preserved turgor and elasticity. Preserved distal vascular filling. Normal set flat ears.

Thorax: symmetrical, expandable. Lungs vesicular murmur preserved.

Cardiovascular: rhythmic heart sounds, capillary refill 4 seconds. Without the presence of murmur or superadded noises.

Abdomen: distended, depressible, pain on superficial and deep palpation in the hypogastrium, a painful mass of hard consistency is evident, with a regular surface, precise limits and displaceable within the umbilical region.

Inguinogenital region: male external genitalia. Extremities: symmetrical, mobile, no edema, preserved vascular filling.

Neurological: active, reactive to management. Normally light-reactive isochoric pupils.

Hospital evolution

On the first day of hospitalization, laboratory tests were performed: glucose 90.30 mg/dl, urea 8.6 mg/dl, creatinine 0.11 mg/dl, quantitative Pcr (c-reactive protein) 3.70 mg/dl, leukocytes 7.25, neutrophils 1.49, lymphocytes 5.28, hemoglobin 11.88 g/dl, hematocrit 38.30%, platelets 387.

Laparoscopic surgery is urgently performed (Figure 1-4).

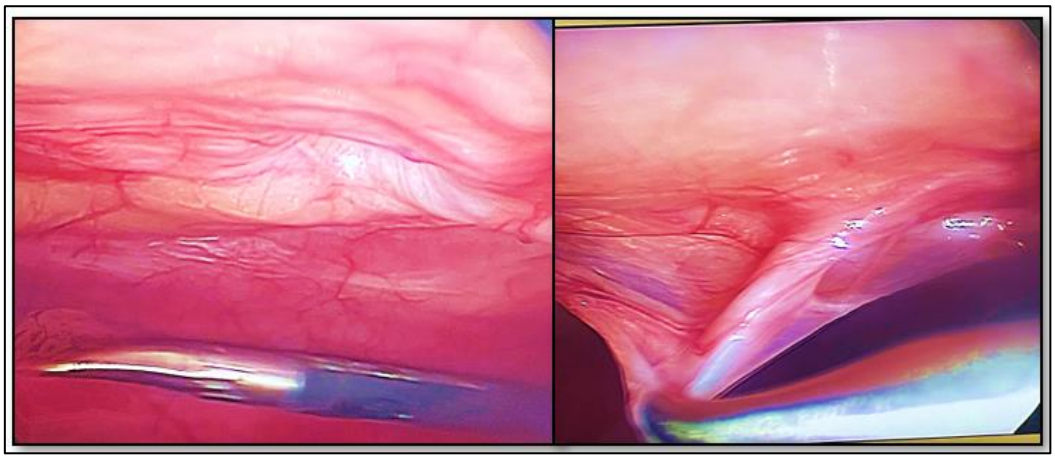

Figure 1: Visualization of persistent urachus

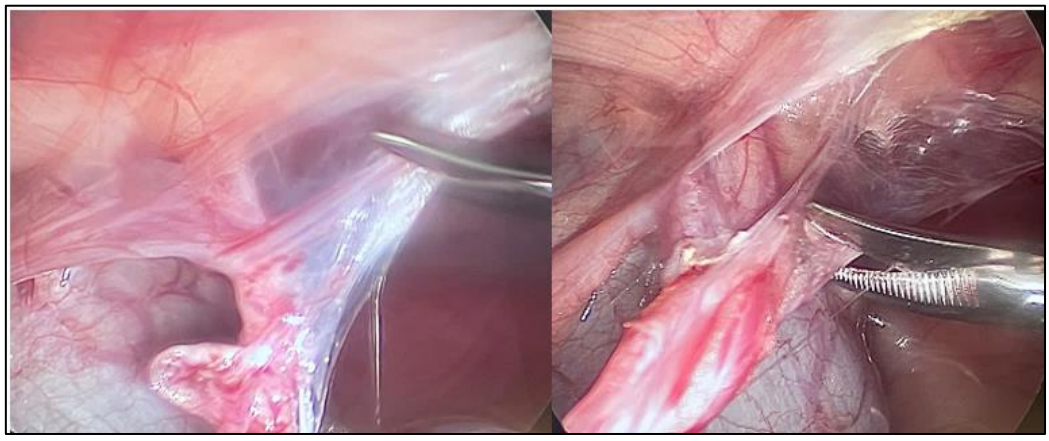

Figure 2: Peritoneal wall dissection with laparoscopic scissors plus electrocautery

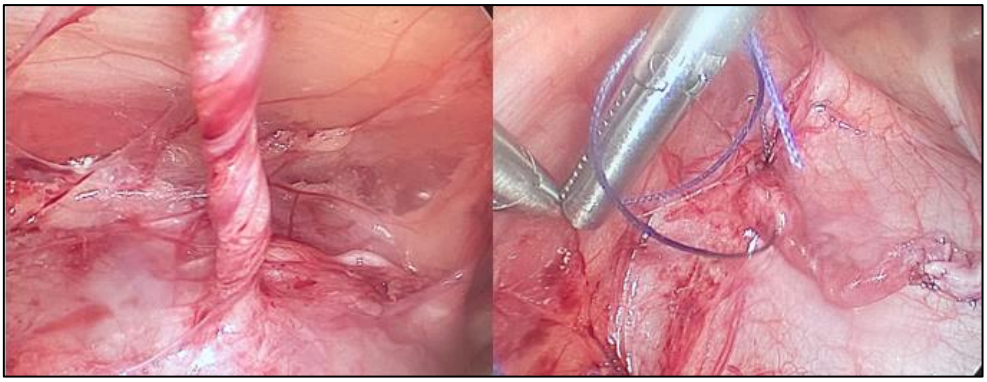

Figure 3: Twist plus transfixion point is performed

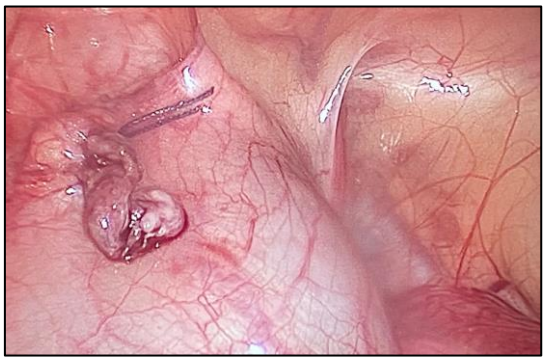

Figure 4: Endoloop Collation

Procedure: Laparoscopy plus Uracus Exceresis.

The presence of a wet granulomatous mass at the level of the navel is evident, under laparoscopic vision the presence of an umbilical hernia plus persistence of the urachus. Bilateral indirect inguinal presence. Rest of macroscopically normal organs.

Post-surgical patient with immediate recovery, favorable prognosis, follow-up by the pediatric specialty. At the moment the patient is in excellent condition.

DISCUSSION

The prevalence of urachal anomalies is thought to be difficult to determine because some urachal anomalies are asymptomatic or undiagnosed. The prevalence of all urachal anomalies in the general pediatric population is 1.03%. A true permanent urachal anomaly is a rare diagnosis and accounts for only 1.5% of all diagnosed urachal anomalies [6, 7].

The appearance of urachal abnormalities depends on the location of the remaining tissue. A permanent urachus leads to communication from the bladder to the umbilicus. The presence of persistent tissue in the navel that is not connected to the bladder can lead to persistent umbilical drainage, dermatitis, and possible umbilical infection [8]. Bladder diverticulum occurs when persistent tissue connects to the bladder; This is usually of no consequence unless the diverticulum causes a blockage of the ureter. A urachus cyst occurs when there is a permeability in the middle part of the urachus and the duct that leads to the navel and bladder closes. Infection of the cyst may occur, which may cause abdominal or suprapubic pain and a palpable mass [9].

A persistent urachus should be removed by open or laparoscopic surgery to avoid recurrent urinary tract infections and damage to the umbilical skin. For newborns or young children, open surgery usually has smaller incisions, fewer scars, and is relatively simple from a technical standpoint [10]. The persistent urachus should be completely removed, including the part of the bladder to which it is attached, and the bladder should be sutured in two layers with absorbable sutures. In older children, laparoscopic repair may be more beneficial, especially if a formal laparotomy can be avoided [11, 12].

As suggested in this case report, families should be educated about the causes of urachus abnormalities. If diagnosed in childhood, the possibility of other urinary tract defects should be analyzed and whether further investigations are necessary [13, 14]. Families of infants undergoing umbilical cord moisture assessment should be reassured that this may be self-limiting umbilical cord granulation tissue. Surgical resection and prospective rehabilitation should be carefully considered in children with a known open urachal cyst, a previously infected urachal cyst, or symptomatic urachal polyps or diverticula [15, 16].

CONCLUSIONS

In persistent uraquia, concomitant anomalies are rare, and the prognosis is favorable. Therefore, prenatal differential diagnosis is important. When diagnosing an umbilical cord cyst in early pregnancy, even if the cyst disappears, specific ultrasound examinations should be performed regularly.

Frontline healthcare providers should diagnose persistent urothelial debris or its various manifestations as an emergency response in children with persistent urothelial drainage, recurrent urinary tract infections, umbilical cord infections, or a palpable mass near the umbilicus in the differential diagnosis.

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Authorship Contribution

Conceptualization: Freddy Aldaz, Wendy Vaca, Gabriela Tubay, Tatiana del Rosario Pérez, Andrea Sánchez.

Investigation: Freddy Aldaz, Wendy Vaca, Gabriela Tubay, Tatiana del Rosario Pérez, Andrea Sánchez.

Methodology: Freddy Aldaz, Wendy Vaca, Gabriela Tubay, Tatiana del Rosario Pérez, Andrea Sánchez.

Project management: Freddy Aldaz, Wendy Vaca, Gabriela Tubay, Tatiana del Rosario Pérez, Andrea Sánchez.

Original eraser wording: Freddy Aldaz, Wendy Vaca, Gabriela Tubay, Tatiana del Rosario Pérez, Andrea Sánchez.

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