CASO CLINICO

ONFALITIS ASOCIADO A MALFORMACIÓN DEL URACO EN UN NEONATO: REPORTE DE CASO

OMPHALITIS ASSOCIATED WITH URACUS MALFORMATION IN A NEONATE: A CASE REPORT

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RESUMEN

Introducción: la involución del uraco da lugar al ligamento umbilical medio; cuando hay fallas durante el proceso de obliteración de este, se pueden presentar anomalías como el quiste del uraco con importantes repercusiones clínicas. **Caso**: Paciente femenina de 28 días de vida fue llevada por salida de pus por ombligo y fiebre, asociado a celulitis de pared abdominal. Se sospechó en primera instancia onfalitis y cuerpo extraño infraumbilical tras primera ecografía, pero ante persistencia de clínica y segunda ecografía, la impresión diagnóstica cambió a quiste de uraco persistente. Posterior a cistouretrografía miccional no se observó trayecto fistuloso hacia ombligo, planteándose el diagnóstico de seno uracal y remisión a cirugía pediátrica por consulta externa. **Discusión:** las malformaciones del uraco son patologías poco frecuentes cuya presencia puede ser evidente al momento del nacimiento por medio de anomalías del cordón umbilical o más tardíamente en la adolescencia y adultez por infecciones urinarias o umbilicales recurrentes. El diagnóstico es imagenológico y el manejo definitivo es quirúrgico; las complicaciones son raras. **Conclusión:** En un recién nacido o lactante con ombligo húmedo debemos descartar una malformación congénita del tipo persistencia del uraco y cuyo primer método diagnóstico es la ecografía, complementar con estudios de la vía urinaria y dar tratamiento definitivo por medio de la exéresis de la malformación, en la cual si hay infección se difiere hasta la resolución de esta.

PALABRAS CLAVES: uraco; onfalitis; uraco persistente; anomalía congénita.

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SUMMARY

Introduction: the involution of the urachus gives rise to the middle umbilical ligament; when there are failures during the obliteration process, anomalies such as the urachal cyst may occur with important clinical repercussions. **Case:** A 28-day-old neonate was brought in due to pus leaking from the navel and fever, associated with abdominal wall cellulitis. Omphalitis and infraumbilical foreign body were initially suspected after the first ultrasound, but due to persistence of symptoms and a second ultrasound, the diagnostic impression changed to a persistent urachus cyst. After voiding cystourethrography, no fistulous tract was observed towards the umbilicus, leading to the diagnosis of urachal sinus and referral to pediatric surgery through outpatient consultation. **Discussion:** Urachal malformations are rare pathologies whose presence may be evident at birth through anomalies of the umbilical cord or later in adolescence and adulthood due to recurrent urinary or umbilical infections. The diagnosis is imaging, and the definitive management is surgical; complications are rare· **Conclusion:** In a newborn or infant with a wet navel, we must rule out a congenital malformation of the persistent urachus type and whose first diagnostic method is ultrasound, complement it with studies of the urinary tract and provide definitive treatment through excision of the malformation, in If there is an infection, it is deferred until it is resolved.

KEY WORDS: urachus; omphalitis; persistent urachus; congenital anomaly.

INTRODUCTION

The urachus connects the apex of the bladder to the allantois during fetal life. As the bladder increases in size, the allantois involutes, forming a thick tube: the urachus, which at birth transforms into a fibrous cord: the median umbilical ligament.

When this embryological process fails, congenital urachal anomalies occur. These anomalies have a prevalence of 1.03% in the general pediatric population. In 92.5% of cases, they are an incidental finding, and in newborns, they may present as a wet navel, abdominal pain, and fever.

Retrograde cystourethrography should be part of the diagnosis, and ultrasound is commonly used; surgical excision is usually the treatment of choice. 3 We present the case of a newborn with urachal malformation.

CASE REPORT

A female patient, the product of a first full-term pregnancy, presented with a clinical picture of approximately 15 days of periumbilical inflammatory signs of edema, erythema, warmth, and redness, followed by purulent discharge from the navel, which was not foul-smelling and gasless, accompanied by unmeasured fever that did not improve after the administration of acetaminophen, for which the mother sought medical attention. A family member with recurrent folliculitis.

Physical examination revealed multiple pustules on the skin, navel, gluteal area and back, so empirical antibiotic therapy was initiated after taking a

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culture of umbilical secretion which reported *methicillin-sensitive Staphylococcus Aureus* a complete blood count with no leukocytosis, and a slightly positive PCR. Empirical antibiotic therapy was discontinued and linezolid was started. Omphalitis, superinfected umbilical granuloma, abdominal wall cellulitis secondary to pustular melanosis of the newborn, and diaper rash were suspected.

To complement the diagnosis, an abdominal ultrasound was taken **(Figure .1)** which showed 1 cm collections of abdominal wall with a fistulous tract to the skin, correlatable with omphalitis and a linear echogenic area of foreign body (suture thread) was not ruled out, but there was no history of silk use at the time of cutting the umbilical cord and the clinical picture suggested a superinfected umbilical granuloma, for which a pediatric surgery evaluation was requested.

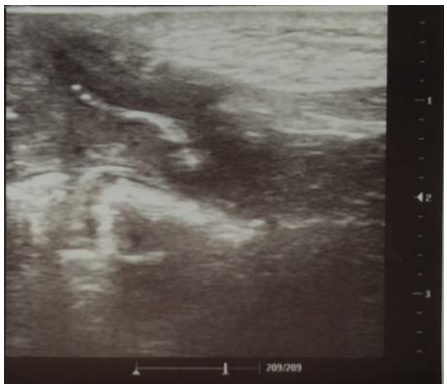

Figure 1.*Ultrasound. Hypoechoic area below the abdominal wall with fluid content.*

Pediatric surgery requested a repeat abdominal wall ultrasound, voiding cystourethrography, and urine culture. This ultrasound revealed a persistent urachal cyst with diffuse edema of its walls due to superinfection, and minimal fluid draining toward the umbilicus. The cyst measures 41 x 10 x 10 mm and connects the umbilical canal to the upper bladder wall. There was no significant fluid collection at the time, nor were there any hernias or masses.

In the urine culture, multisensitive Klebsiella Pneumoniae was isolated, linezolid was suspended and cefazolin 90 mg IV every 6 hours (75 mg/kg/day) was started until completing 5 days prior to its administration.

On the 13th day of hospitalization, a cystourethrography **(Figure 2.)** was performed, which was normal. After administration of contrast via catheter, no fistulous tract toward the navel was observed, leading to the diagnosis of a distal urachal cyst, or what is known as an urachal sinus.

Finally, on the 16th day of her hospital stay, the patient was discharged in good general condition after 15 days of antibiotic therapy and was referred to the pediatric outpatient surgery department for urachal sinus excision following complete resolution of the infectious process.

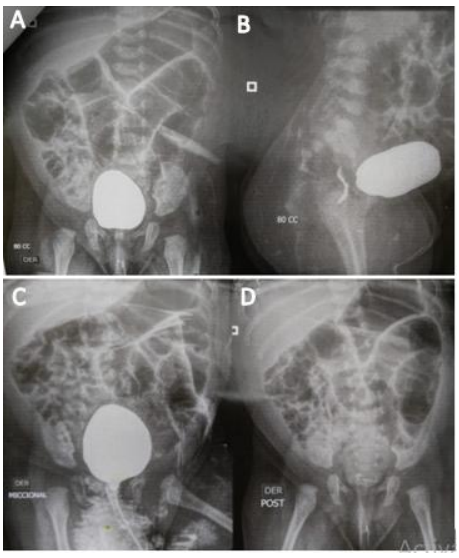

Figure 2.*Voiding cystourethrography.* ***(A, B, and C)*** *show a normal bladder with preserved morphology and size, regular walls, and no filling defects.* ***C)***

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no vesicoureteral reflux is observed, voiding images are uneven, and the voiding projection shows no residual urine.

DISCUSSION

The urachus is an embryonic ductal remnant that arises from the involution of the allantois and cloaca, extending from the dome of the bladder to the umbilicus. 5 In normal development, the process of ductal obliteration is completed between 26 and 28 weeks of gestation, and in some cases, even after birth, giving rise to the median umbilical ligament. Failures in this process cause congenital anomalies of the urachus, which represent a rare and underdiagnosed entity [3,4].

It has a male-to-female sex ratio of 2:1, and some literature reports that up to 70% of cases are in males, while the age at diagnosis is usually between the first days of life and 14 months of age[5,6]. The patient in this report is within the average age at diagnosis, while these abnormalities are rare in females.

The literature classifies congenital urachal anomalies as follows: patent urachus, characterized by a free and constant communication between the bladder and the umbilicus, leading to a moist umbilicus that may be painful, periumbilical dermatitis, and urinary tract infections 1, 4. It is the most common urachal anomaly, reported in 1–2.5 per million live births. 7 In other literature, it represents 50% of urachal anomalies.

These symptoms are consistent with those of the patient in this report, with the addition that she also has a palpable subumbilical mass, which is why a persistent urachal cyst was considered when the second ultrasound was performed. An urachal cyst is the second most common urachal anomaly, in which the bladder and umbilical ends are obliterated with dilation of liquid content between both ends. If infected, abdominal pain, erythema, and/or edema in the lower umbilical area may appear. 9 These symptoms are much more consistent with those of the patient in this report.

Ultrasonography is the most commonly used imaging study in the diagnosis of urachal remnants and, in general, the first line in children with symptoms of abdominal pathology4.

On computed tomography (CT), infected urachal cysts may appear with thick, irregular walls, peripheral enhancement, and thickening of the underlying bladder wall, but it is important to limit the use of CT in children due to the impact of radiation on them. MRI is used in some cases, especially for differential diagnosis.

In this case report, because the patient presented with a wet umbilicus, the presence of a small lumen connecting the bladder to the umbilicus could not be ruled out. Therefore, a cystourethrogram was requested by the pediatric surgeon to determine surgical approach. The results were normal, and an urachal sinus was considered, the third most common anomaly. In this case, the blind dilation of the urachus is located at the umbilical end, with periodic discharges from the umbilicus, and is the one most associated with infectious complications 4, 8. Finally, the vesicourachal diverticulum is the most rarely detected urachal anomaly. The absence of obliteration is located at the bladder end, and complications tend to be fewer and may even be asymptomatic. 4 The patient in this report most likely has an urachal sinus, a condition that makes it even less common.

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Within the differential diagnoses of infections of urachal malformations, there are different causes of acute abdomen including appendicitis, since clinically in both entities symptoms such as pain and defense in the right iliac fossa, asthenia, adynamia, hyporexia can occur11. In turn, a differential diagnosis should be made with umbilical granuloma, which is characterized by being a small, pink nodule and the omphaloenteric duct, which embryologically joins the yolk sac with the midgut and in the sixth week should be obliterated, if this is not obliterated, what is known as Meckel's diverticulum is formed12.

Treatment for urachal cysts will depend on whether or not they present associated complications. Non-infected urachal cysts can be successfully treated in a single surgical procedure, with complete excision of the lesion accompanied by a small cuff of the bladder dome, since simple cyst drainage is associated with a 30% recurrence rate. Another reason justifying complete excision of the urachal remnant is the possibility of late malignant degeneration into adenocarcinoma, sarcoma, or transitional cell carcinoma, which has been observed in a proportion of 1 in 5,000,000.

In case of infected urachal anomalies, antibiotic therapy associated with drainage is chosen first if necessary, reserving surgery for persistent lesions once the infection has been resolved.[13.14]In this case report, our patient was not in optimal condition to undergo surgery because she presented with Staphylococcus Aureus abdominal wall cellulitis with superinfected umbilical granuloma.

Therefore, antibiotic therapy was considered as initial treatment to control the infection. Once this treatment was completed, the patient was discharged and referred to the pediatric surgery outpatient clinic for ongoing monitoring and surgery scheduling.[14].

CONCLUSION

In a newborn or infant presenting with umbilical discharge ('wet umbilicus'), a congenital malformation such as a persistent urachus should be ruled out. The ideal diagnostic method is ultrasound, which is the gold standard, and it should be complemented with urinary tract imaging to assess for communication between the bladder dome and the anterior abdominal wall. In this case, the condition presented with an infection, and therefore, definitive surgical treatment was postponed until after the resolution of the infectious episode.

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