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Infected urchus cyst in a teenage girl

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ABSTRACT

We report the case of a 16-year-old girl who complained of stomach discomfort. She's been on medical therapy for roughly 6 months after being diagnosed with Crohn's disease. Magnetic resonance enterography confirmed the diagnosis of an infected urachal cyst, and she eventually had surgery. The removed material had a significant chronic inflammatory and foreign body type granulomatous response, according to histology. Because urachal cyst is an uncommon disease, early identification requires a high level of suspicion, and urachal cyst should be included in the differential diagnosis.

1. Introduction

The urachus is formed as the bladder descends to the pelvis during the fifth month of fetal development, forming the urachal canal. During fetal life, the lumen of this canal disappears. However, in early adulthood, it might develop into a fibrous tract. Some abnormalities may occur from incomplete regression of the fetal urachus. Due of urachal obliteration in infancy, they are more prevalent in children than in adults.[1]

2. Case presentation

A 16-year-old girl complained of stomach discomfort. With a diagnosis of Crohn's disease, she has been getting medical therapy (Azathioprine and prednisolone) for roughly 6 months. Periumbilical abdominal tenderness was discovered during the physical examination. She had no previous symptoms of nausea, vomiting, or fever. Her physical examination was normal. MRE (magnetic resonance elastography) revealed a 59*42*14 mm elongating lesion from the umbilicus to the bladder dome, which was enhanced in post contrast examination and restricted in DWI (diffusion weighted imaging). MRE revealed an inflammatory omental mass/lesion measuring 46*40*32 mm, as well as a lengthy section increasing thick wall ileal loop with restricted lumen close to the lesion. Since the mass was multiloculated, aspiration was not performed.

The MRE results pointed to a complex urachal remnant and a subsequent inflammatory response. (Figs. 1 and 2). Patient was treated for broad-spectrum antibiotics for two weeks. After antibiotic course, the patient underwent the surgery, which included the removal of the infected urachal cyst with midline incision. Due to infection, bladder dome and 4 inches of small intestine was also resected. The removed material had a significant chronic inflammatory and foreign body type granulomatous response, according to histology. (Fig. 3).

Her follow-up lab results were as follows: CBC (wbc:10/10, plt: 439000, HB:11/3, mcv:77.1), ESR (1h):12, CRP: 15mg, 25OH vitaminD3: 13 ng/ml, beta-hcg:0/2IU/L, AFP(ECL):0/6 ng/ml, ASCA: positive, LDH:308IU/L, Calprotectin (stool): 280 μg per kilogram, (U/A: wbc:2–4, rbc:26–28, epithelial cell: 1–2, specific gravity: 1.009, pH: 6, blood: 2+, wbc: 2–4, rbc: 26–28, ep. cell:1–2 (STOOL EXAM: no fat droplets, wbc: 0, RBC: 0, occult blood: trace).

3. Discussion

The urachus is the top portion of the bladder, both of which emerge from the ventral region of the cloaca during development.[2] The bladder descends into the foetal pelvis during the fifth month of development, pulling the urachus along with it, resulting in the creation of the urachal canal. During fetal development, the canal's lumen gradually disappears, eventually giving way to the creation of a fibrous tract in early adulthood. The urachus sits between the transversalis fascia anteriorly

; DWI, diffusion weighted imaging; MRI, magnetic resonance imaging; CT, computed tomography.

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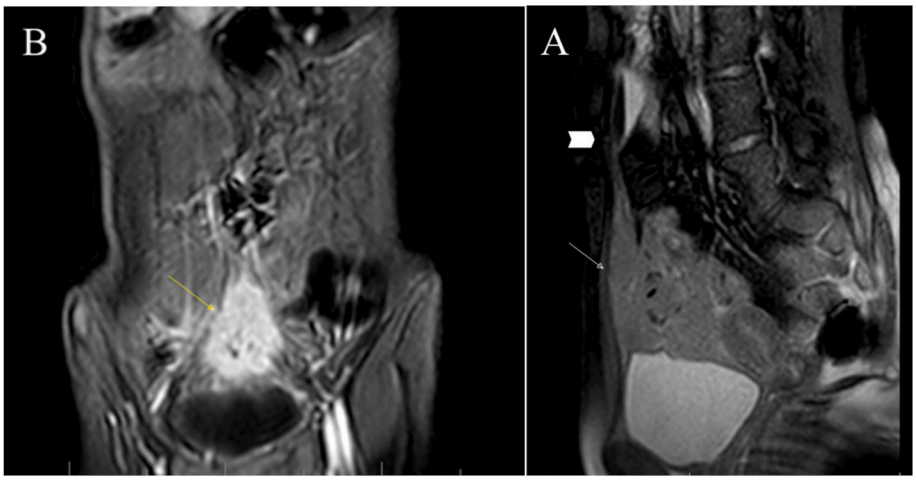

Fig. 1. Complicated urachal remnant. (A) Sagittal BTFE showed an elongated soft tissue lesion (white arrow) from the umbilicus (white arrowhead) to the dome of bladder. (B) Coronal postcontrast T1 fat-sat showed an enhancing lesion (yellow arrow), indicating complicated urachal remnant. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

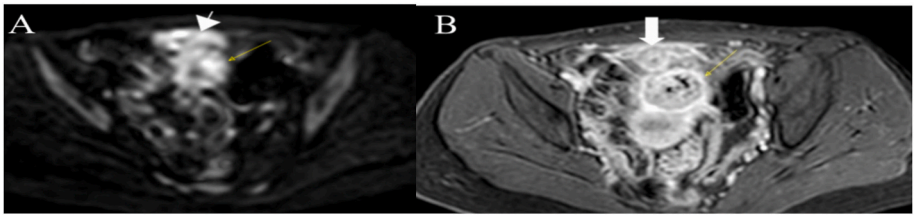

Fig. 2. (A) Restriction in complicated urachal remnant (White thick arrow) and omental adhesion (yellow thin arrow) is seen. (B) Axial post contrast T1 fat-sat showed an enhancing complicated urachal remnant (White thick arrow) and enhancing omental adhesion (yellow thin arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

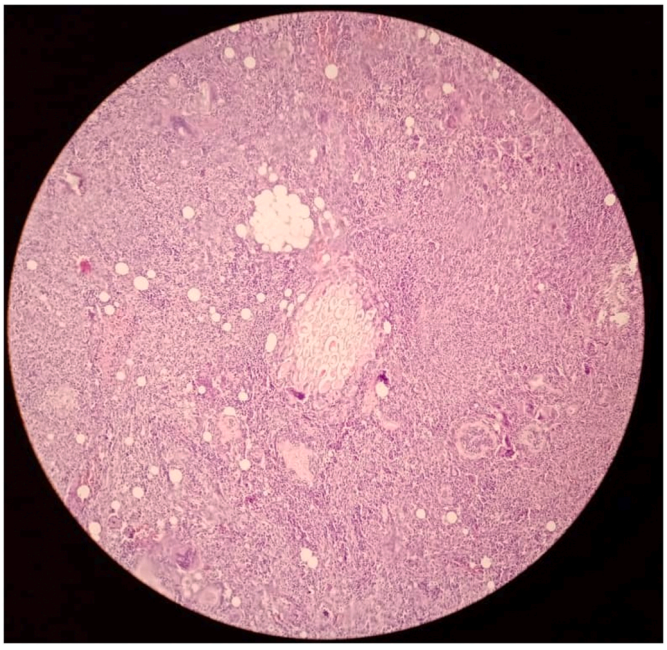

Fig. 3. Severe chronic inflammatory and foreign body type granulomatous reaction.

and the peritoneum posteriorly at the end of development (space of Retzius), that connects the umbilicus to the bladder dome and is bordered by loose areolar tissue. There are five different kinds of urachal abnormalities: urachal cyst, where both ends of the urachal canal close, leaving an open central portion; urachal sinus, which drains proximally into the umbilicus; patent urachus, where the entire tubular structure fails to close; alternating sinus, which can drain to either the bladder or the umbilicus, and vesicourachal diverticulum, which connects distally with the urinary bladder.[2] Urachal abnormalities are produced by the partial obliteration of the urachus and are uncommon in adults. Patent urachus, urachal sinus, vesicourachal diverticulum, and urachal cyst are urachus congenital abnormalities. Urachal cysts occur when the umbilical and vesical ends of the urachus shut at the same time yet a part of the urachus remains open. Congenital urachal abnormalities account for 30% of all congenital urachal malformations.[3] When urachal cysts get infected, they typically become symptomatic. Fever, stomach discomfort, abdominal soreness with erythema, lower abdominal mass, nausea, vomiting, and dysuria are all symptoms of infected urachal cysts. The diagnosis of urachal cysts is mostly clinical, with ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI) being used to confirm the diagnosis. These imaging techniques also provide information on the cyst's size and connection to surrounding tissue. However due to number of complications associated with urachal system, its differential diagnosis is quite extensive. It can be misdiagnosed Meckel diverticulitis, inflammatory bowel disease, or pelvic inflammatory disease.[4] Complete primary excision is the preferred therapy for urachal cysts. Laparoscopic and robot-assisted laparoscopic surgeries are also effective for the removal of urachal cysts.[5]

4. Conclusion

Urachal cyst is an uncommon illness with a wide range of symptoms. As a result, it can be difficult to diagnose. The key to early diagnosis is a strong suspicion, and urachal cyst should be included in the differential

diagnosis.

Conflicts of interest

The authors deny any conflict of interest in any terms or by any means during the study.

Sources of funding

No funding was secured for this study.

Ethical approval

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Consent to participate

Patient consent was obtained prior to the surgery.

Author contribution

Dr. Parisa Rahmani: conceptualized and designed the study, drafted the initial manuscript, and reviewed and revised the manuscript.

Dr. Bahar Ashjaee and Dr. Fatemeh Zamani: Designed the data collection instruments, collected data, carried out the initial analyses, and reviewed and revised the manuscript.

Dr. Parastoo Sharifi: Coordinated and supervised data collection, and critically reviewed the manuscript for important intellectual content.

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request. Research registration: **N/A Guarantor:** Parisa Rahmani.

Availability of data and material

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

References

1. Hammond G, Yglesias L, Davis JE. The urachus, its anatomy and associated fasciae. *Anat Rec*. 1941;80(3):271–287.
2. Begg RC. The urachus: its anatomy, histology and development. *J Anat*. 1930;64(Pt 2):170.
3. Berman S, Tolia B, Laor E, Reid R, Schweizerhof S, Freed S. Urachal remnants in adults. *Urology*. 1988;31(1):17–21.
4. Allen JW, Song J, Velcek FT. Acute presentation of infected urachal cysts: case report and review of diagnosis and therapeutic interventions. *Pediatr Emerg Care*. 2004;20 (2).
5. Kwok CM. Infected urachal cyst in an adult: a laparoscopic approach. *Case Reports in Gastroenterology*. 2016;10(2):269–274.