

Minimally invasive management of a foreignbody granuloma mimicking an infected urachal sinus

Abstract

Infected urachal sinus is a rare medical condition characterized by abdominal pain and purulent discharge through umbilicus. It is usually diagnosed after a computed tomography. The best management is to resect all the remnant tissue. However surgical drainage can be performed before the definitive treatment. We report a case of a patient diagnosed with infected urachal sinus who underwent laparoscopic surgery with excellent results. Laparoscopy demonstrated to be safe and feasible to manage this type of urachalanomaly.

Keywords: urachus, laparoscopy, urachalsinus, urachalremnant

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Introduction

Urachus is a fibrous and tubular structure linked with the bladder dome and the umbilicus that is obliterated after birth. Eventually, there are abnormalities with the closure of this structure during fetal life. When the urachus sells of distally and is opened at the umbilicus leading to and blind ending area it is called sinus.¹ Although urachal remnants are mostly asymptomatic, urachal sinus may, sometimes, become infected. Abdominal pain and purulent drainage through the belly bottom are part of clinical presentation in these cases. Moreover, imaging exams, as ultrasound and computed tomography (CT), are helpful to confirm the diagnosis.² The management of urachal sinus is surgical excision of all remnant tissue with dissection from the umbilicus to the bladder dome. Occasionally, a bladder cuff is resected when urinary fistula is present.³ Therefore we sought to report a case of a patient who was diagnosed with an infected urachal sinus and underwent laparoscopic treatment.

Case presentation

We report a case of a 72 years-old male patient who had history of previous purulent drainage through the belly bottom during the last 18 months. He had undergone to open appendectomy 14 years ago. During these episodes local treatment with topical antibiotics was performed with partial resolution. He came to the clinical office complaining about purulent discharge through the umbilicus again. CT showed a 4 cm fluid collection located in the infraumbilical middle line, communicating with the belly bottom Figure (1 & 2). The patient accepted to undergo surgery. We performed a laparoscopic approach. Before portal placement and pneumoperitoneum we dissected the infected area inside the umbilicus, sutured with 2-0 Vycril® and left the specimen inside the abdominal cavity. Figure 3 demonstrates our standard ports placement. After this, we placed a 10 mm port, 8 cm above the belly bottom and started the pneumoperitoneum. The camera was placed in this trocar. Another two 5 mm ports were placed lateral to the rectus abdominis, one for a grasper and the other for scissor (Figure 4) Adhesions were perceived during cavity inspection.. We dissected the urachus and. a retained suture material with intense inflammatory reaction was identified (Figure 5). Bladder resection was not needed. The surgical specimen was removed through a 5 mm portal. Fascia was sutured with 0 Vycril®. Estimated blood loss was not quantified. Operative time was 94 min. Patient was discharged

24 h after the procedure and no early or late complications were reported after 60 days of follow-up. Pathology report demonstrated fibrotic connective tissue with chronic inflammation and foreign body granuloma in a 6.0 x 2.0 x 1.8 cm specimen.



Figure 1 & 2 CT scan demonstrated images suggesting an infected urachusremnant.

Discussion

Congenital urachus remnants are uncommon diseases in adults and occur approximately in 1/8000 patients with a male to female proportion of 3:1.^{4,5} Acquired urachal anomalies may also be found. It is more frequently caused by bladder neck dysfunctions, lower urinary tract obstruction, neurogenic bladder or trauma.⁴ The first description of urachal disease in the literature was published by

Cabrolus in 1550.⁶ In that case, the author described a young woman who presented with urinary discharge through the umbilicus and who was diagnosed with urachal fistula.⁶ In fact, congenital urachal anomalies can be divided in four main groups: patent urachus, urachal cyst, urachal sinus and vesicourachal diverticulum.⁷ The urachal cyst is the most prevalent in the adult age.⁷ However urachal disease can also be acquired and several possible causes have already been reported. For example, Murray et al.⁸ reported a case of urachal cyst caused by a blunt abdominal trauma. Clinical presentation depends on the type of the anomaly. Urinary discharge is present in vesicourachal fistula cases, painful palpable midline abdominal mass can be seen in infected cysts and the association with purulent discharge through the umbilicus can be caused by infected urachal sinus.⁹ Calcifications sometimes were present inside the remnant and are associated to infection.¹⁰

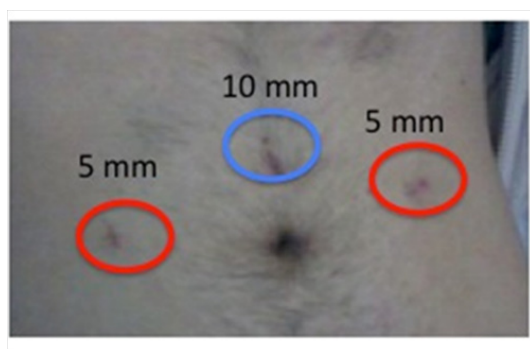


Figure 3 Portsplacement.

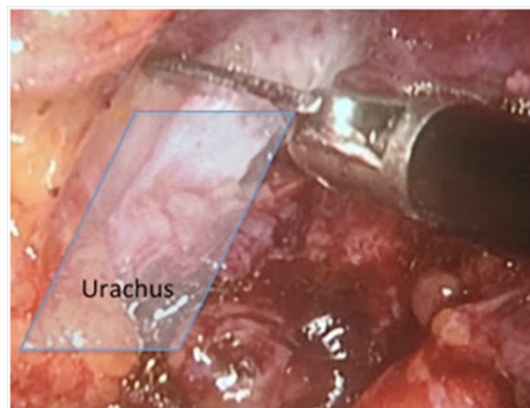


Figure 4 Dissection of suspected infected urachusremnat.



Figure 5 Retained suture material with intense inflammatory reaction.

Moreover, acute abdomen with peritonitis can occur with rupture of an infected sinus or cyst.¹¹ Occasionally the diagnosis is incidental. For instance, Mac Lucas described a case of an urachal sinus that was diagnosed after a umbilical trocar placement during a laparoscopic surgery.¹¹ During the cavity inspection the surgeon realized that he was actually inside urachal sinus. Adenocarcinoma of urachus is another possible differential diagnosis.¹² Imaging studies are routinely used to confirm the diagnosis when urachus remnants are suspected. Although an abdominal ultrasound is commonly performed at the beginning of clinical investigation, CT scan is more accurate when infection is present.¹³ Furthermore, Mesrobian et al.¹⁴ who studied the usage of urethrocytography in the diagnosis of urachal anomalies. The authors found a extremely low accuracy for this method since 80% of the imaging studies were normal.¹⁵ Treatment of urachus anomalies is basically the excision of all remnant tissue with an eventual bladder dome resection.^{14,16} Some authors avoid excision of infected remnants and perform surgical drainage before the definitive treatment.¹⁴ Conversely, others recommend surgical treatment at the time of diagnosis with or without infection.¹⁶ Surgical approach can be conventional (open) or minimally invasive (laparoscopy or robot-assisted). Usually, three trocars are placed, one of 10 or 12mm and two of 5 mm as described by Cadeddu et al.¹⁷ We used the same approach in our patient.

Conclusion

Urachal anomalies are not prevalent among adult population. However they should be thought, as a possible diagnose, when pain or discharge are noticed in umbilical region. Laparoscopic management of urachus sinus demonstrated to be safe, feasible and a good treatment option.

Acknowledgments

None.

Conflicts of Interest

None.

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