

## URACHAL CYST: AN UNSPECTED COMPLICATION

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**Abstract.** The urachus is the remnant of the allantois, which usually becomes obliterated shortly after birth. Urachal remnants due to an incomplete obliteration of different portion of the urachus are rare, but they need to be treated surgically because of their potential for infectious complications and malignant degeneration. We present a case report with an unsuspected post-operative complication. M.E., a 10 years old boy, came to the Accident and Emergency Department for an acute abdominal pain, without other symptoms, twice in one year. The blood tests, urine sample and voiding cystourethrogram were normal. The ultrasound scan showed a thickened urachal duct. After antibiotic and anti-inflammatory therapy for two weeks, we performed laparoscopic surgery. In the second postoperative day the patient showed abdominal pain and hematuria. An ultrasound scan and a voiding cystourethrogram showed a leak from the dome of bladder. We performed an open surgery to close the defect on the bladder's dome. The patient was discharged in 10th postoperative day. Now he is healthy. Clinically manifest persistent urachal anomalies are rare, but they carry a risk of recurrent infection and subsequent malignant degeneration. For these reasons the radical excision of the remnant is suggested. Today, due to the large laparoscopic experience, all the reports showed that this technique can be used safely, but we have to pay attention to all steps of the procedure. This case is a paradigmatic situation and it illustrates the importance of a meticulous technique during the excision of urachal remnant. Indeed even if laparoscopic excision could be safe and effective, it is not free of complication.

**Key words:** Rachal remnant, laparoscopic excision, complications.

## INTRODUCTION

The urachus is the remnant of the allantois, which usually becomes obliterated shortly after birth. [1] Urachal remnants due to an incomplete obliteration of different portions of the urachus are rare, but they need to be treated surgically because of their potential for infectious complications and malignant degeneration. Traditionally they are treated by open surgical excision. [2] Recently there have been several reports of the laparoscopic treatment of urachal remnants without any major complications. [3] We want to describe this case report because we had an unsuspected complication after laparoscopic excision of a urachal cyst.

## CASE REPORT

A 10 years old boy came to the Accident and Emergency Department for an acute abdominal pain twice in one year. He had not fever or other symptoms. The blood tests and urine sample were normal. The ultrasound scan showed, in the hypogastric region a thick-

ened urachal duct. We discharged the patient with antibiotic and antiinflammatory therapy. After two weeks we reviewed the patient. The patient was well and we repeat an ultrasound scan that confirmed the presence of an urachal cyst. A voiding cystourethrogram showed no signs of vesico-ureteral reflux and no communication between the bladder and the cyst. The patient undergone laparoscopic excision of the cyst. Under general anesthesia the patient was placed in a supine position and a Foley catheter was inserted and removed at the end of the surgical procedure. The peritoneal cavity was accessed using the Hasson open technique through the umbilicus and insufflated using CO<sub>2</sub> with intra-abdominal pressures maintained at 12 mmHg. A 30° telescope was used. We inserted under direct vision two other operative 5 mm ports at the left and the right abdominal wall. We identified the median, laterals umbilical ligaments and the cyst. Dissection of median umbilical ligament began below the urachal cyst with a laparoscopic hook and continued just above the bladder dome. We used two ligatures (endoloops) to secure the end of the median umbilical ligament and with excised the specimen that was sent for histolog-

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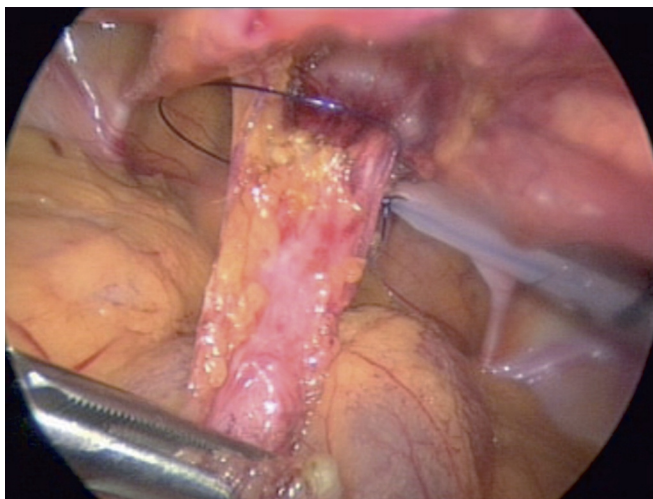
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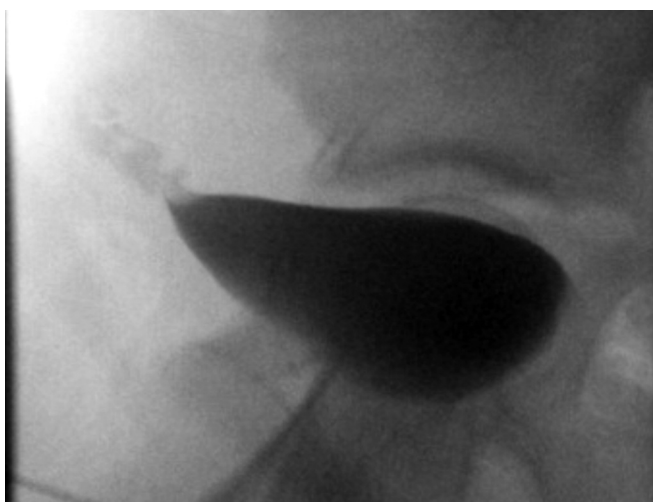
ical evaluation. (Figure 1) In the second post-operative day the patient started to complain increased abdominal pain and hematuria. The blood examination were normal and the ultrasound scan showed a lot of free fluids in the peritoneal cavity. A voiding cystourethrogram showed a leak of contrast in the peritoneal cavity from the dome of the bladder. (Figure 2) At that point we decided to perform an open surgery. Under general anesthesia through a Pfannestiel incision we identified the bladder and we found a 4 cm long defect on the dome. (Figure 3) We closed the defect with a double layers sutures and left the vesical catheter. The patient was discharged 10 days after the second operation without any voiding problems.



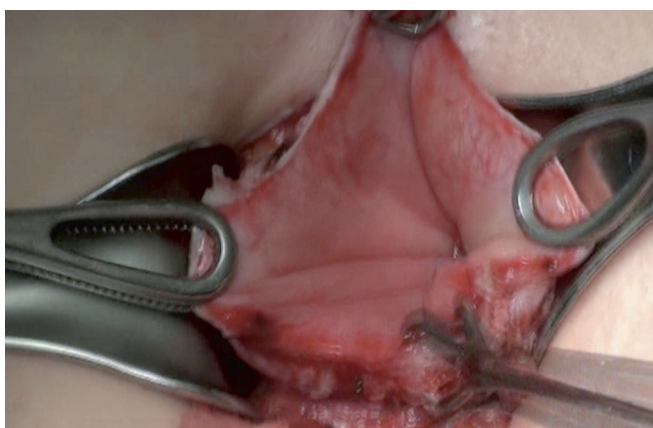
**Figure 1.** After dissection of the urachal remnant we secure the end of the median umbilical ligament with two ligatures (endoloops).

## DISCUSSION

Clinically manifest persistent urachal anomalies are rare, but they carry a risk of recurrent infection and subsequent malignant degeneration in adulthood (adenocarcinoma, urothelial carcinoma or sarcoma). [3] These are the reasons why radical excision of the remnant is suggested. In 1993 Trondsen et al (cutting) reported the first laparoscopic excision of a urachal remnant. [4] Since then there have been several reports of laparoscopic treatment of various types of urachal remnants in patients of various ages. [3-5] All the reports showed that the laparoscopic technique can be used safely and effectively with minimal morbidity. According to Turial et al. the minimally invasive approach is superior cosmetically and visually compared to the traditional lower midline vertical or transverse mid hypogastric incision. [3] We operated with the same technique other 6 patients without any intraoperative or postoperative complications, but in this case we opened the bladder during the first operation without realizing it. Cutting et al were the first in Literature to describe a different position for the ports. [6] They operated 5 cases. In one case they had a recurrence of the problem due to inadequate removal of the residual urachal tissue. Because of that, in the fifth case, they decided to try a different technique, positioning all the ports in the lateral part of the abdomen. The lateral view provided by this ports positioning seemed to give them a better perspective on the full extent of the urachal remnant and the bladder. We want to underline another technical point. We removed the urinary catheter at the end of the procedure, but this seems to be premature. The urinary catheter could be essential to protect the sutures or ligatures at the bladder post-operatively and it helps to increase and decrease the filling state of the bladder intraoperatively. [4] As a matter of fact a good visualization of dome of the bladder intraoperatively, if necessary even filling it with methylene blue, is essential to avoid a major complication as we had.



**Figure 2.** In the second postoperative day a voiding cystourethrogram showed a leak of contrast in the peritoneal cavity from the dome of the bladder.



**Figure 3.** Under general anesthesia through a Pfannestiel incision we identified the bladder and we found a 4 cm long defect on the dome.

## CONCLUSION

With the description of this case we want to underline the importance of a meticulous technique during the excision of urachal remnant. The laparoscopic excision could be safe and effective, but it is not free of complication. The patient and the parents have to be aware about every options and every possible complications.

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