

CASE REPORT

Urachal Bladder Mass Presenting as a Colovesical Fistula

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The urachus is an embryonic remnant of communication between the bladder and the umbilicus. It usually obliterates and becomes a fibrous cord, but the incomplete obliteration or partial recanalization leads to the development of anomalies such as urachal cyst or patent urachus. This case presents itself differently which makes it an important learning experience for the clinician. This is a case of a 41 year old male who initially treated as a bladder tumor which turned out to be a urachal remnant. Upon further investigation, due to persistence of symptoms, led to diagnosing the patient with a urachosigmoid fistula who then underwent corrective surgery. With deeper understanding of the disease, we could diagnose and treat similar patients more effectively in terms of cost spent, time rendered and proper treatment.

Key words: Colovesical fistula, urachal remnant, urachal fistula, urachovesical fistula

Introduction

Vesicoenteric fistulae commonly occur in the setting of bowel disease, such as diverticulitis, colorectal carcinoma, and Crohn disease. With this, diverticulitis is the most common cause of colovesical fistulae in most series, accounting for approximately 70% of cases (Mileski, et al. 1987; Pollard et al, 1987; Walker et al, 2002; Najjar, et al. 2004). The second most common cause of vesicoenteric fistulae is cancer, followed by Crohn's disease, lower urinary tract symptoms are more common at presentation (Morse and Dretler, 1974; Ray, et al. 1976).¹

In patients with colovesical fistula, pneumaturia is considered the most common presenting symptom noted in 50% to 70% of cases (Morse and Dretler, 1974; Pontari et al, 1992; Jarrett and Vaughan, 1995; Solem et al, 2002). Gastro intestinal symptoms may include

fecaluria and tenesmus. Other symptoms like recurrent UTIs or cystitis refractory to antibiotic therapy may also suggest a colovesical fistula (Rao et al, 1987).¹

Urachal remnants that abnormally remain patent are often subject to infection, spontaneous rupture, fistula formation or a malignant change. Sigmoid-urachal fistulas have been reported in cases of colonic diverticulitis or an infected urachal cyst. As a consequence of the diverticulitis episode, the sigmoid colon or peridiverticular abscess may adhere to the patent urachus and develop a colourachal fistula.²

In this case, the patient presented with recurrent UTI and eventually pneumaturia or increase in bubbling of his urine. Initial work up showed a bladder mass and underwent cystoscopy which final histopath showed a urachal remnant. Further work up showed a urachovesicosigmoid fistula thus patient underwent surgery.

The Case

This is a case of a 41 year old male who had recurrent urinary tract infection. Three months prior to consult, patient noted excessive bubbling or air upon urination with no consult done. Patient didn't present with fever, gross hematuria or flank pain. Persistence of symptoms, patient sought consult and initial work up showed a bladder mass upon CT-stonogram (Figure 1). Patient then underwent cystoscopy with transurethral resection of bladder tumor. Final histopath showed a benign urothelium and submucosa with areas consistent of urachal remnants.

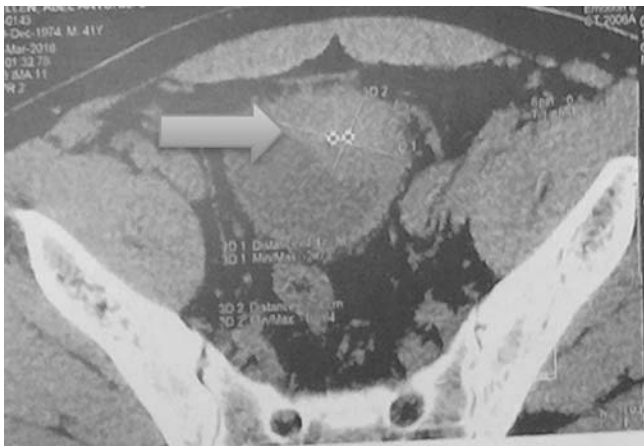


Figure 1. Initial CT stonogram shows a heterogenous mass at the left anterolateral side of the urinary bladder (arrow)

Upon follow up, patient still complains of excessive bubbling and this time with fecaluria. CT scan with triple contrast of the whole abdomen showed a colovesical fistula (Figure 2a & 2b) with associated sigmoid diverticulitis. Patient was then advised surgery.

Patient underwent exploratory laparotomy, excision of urachosigmoid fistula, partial cystectomy, end to end anastomosis (Figure 3a & 3b). There was a connection or thickened area between the anterior part of the bladder dome and sigmoid colon. Pathologic examination demonstrated a follicular cystitis with fistulous tract. Patient's symptoms eventually resolved and with good post operative results.

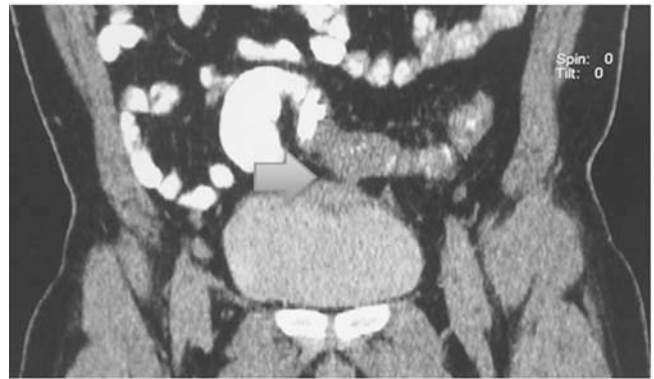


Figure 2a. Coronal view of the whole abdominal CT scan with oral contrast of the patient which shows a fistulous connection (arrow) between the sigmoid colon and the superior portion of the bladder. The bladder also shows enhancement due to the mixture of dye and urine.

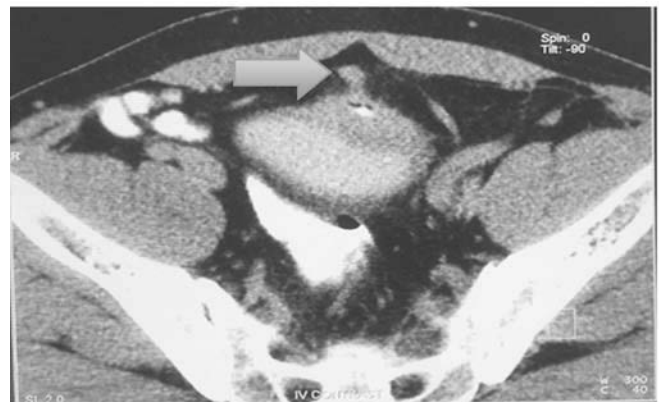


Figure 2b. Axial view of the whole abdominal CT scan with oral contrast of the patient showing the fistulous connection (arrow) between the sigmoid colon and the anterior portion of the bladder. The bladder shows contrast enhancement.



Figure 3a. Specimen of the patient post excision of urachosigmoid fistula, partial cystectomy, end to end anastomosis: The Kelly is pointing at the fistulous tract between the portion of the bladder (upper left side) and the portion of the sigmoid colon (lower right side).

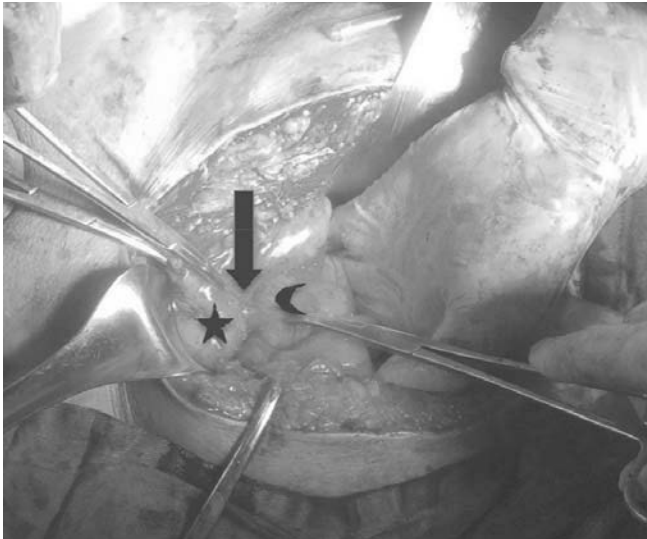


Figure 3b. Intra-operative: there is a fistulous connection (arrow) between the bladder (star) and the sigmoid colon (crescent moon)

Discussion

The urachus is an embryonic remnant of the communication between the bladder and the umbilicus; the persistence of this communication is a 1 in 5000 incidence of urachal anomalies. Usually, the urachus obliterates prenatally or, sometimes, during the first year after birth. The obliterated urachal tube forms the median umbilical ligament in which the inner layer contains an epithelium similar to the urothelium.² The route of infection of urachal remnants (Figure 4) may be via the lymphatics, hematogenous or vesical. A wide variety of gram-positive and gram-negative microorganisms have been cultured from infected urachal remnants. A colo-urachal or colo-vesical fistula is a very rare disease entity, and colonic diverticulitis, inflammatory bowel disease, gastrointestinal or genitourinary neoplasms, postradiation therapy, pelvic surgery and foreign bodies have also been implicated as causes for fistula formation.³ Colo-urachal fistulas can be secondary to diverticulitis pathology (4 cases; 50% of which) which irritates a preexisting urachal cyst.⁵ For other cases, fistula is probably due to fistulisation into colon of an infected urachal cyst after a long irritation period.⁶

In our case, patient presented with a bladder mass which, upon histopathology, turned out to

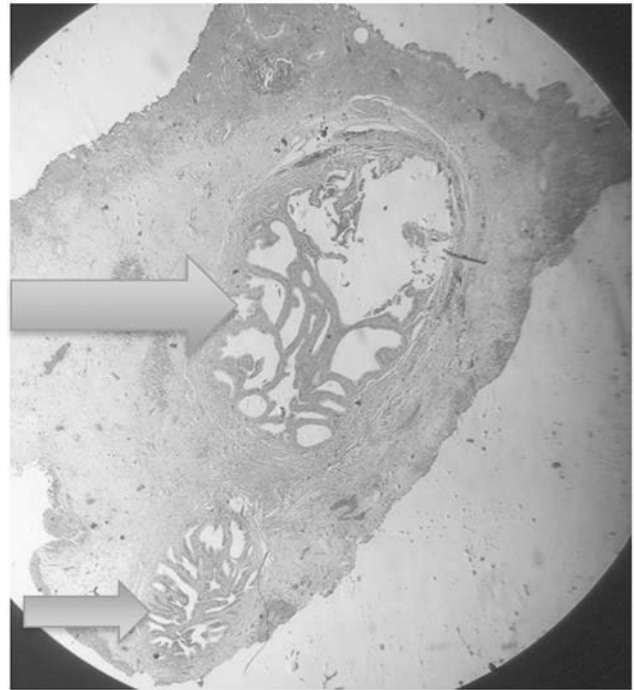


Figure 4. Urachal remnant (arrow)

be a urachal remnant. The urachus made a fistulous connection with the sigmoid probably due to the colonic diverticulitis or a urachal abscess. Only a few cases of urachal fistula involving the colon have been reported in the medical literature (Pubmed and NCBI). Sawyer described a fistula between the sigmoid colon and a large urachal cyst due to diverticulitis, diagnosed by barium enema. Flanagan reported a urachal-sigmoid fistula in an adult with no documented colon pathology, and Quek reported the case of a patient with a history of abdominal pain, fever, and fecaloid leakage from the umbilicus that had an intraoperative finding of an abscess with perforation of the sigmoid colon, diverticular disease, and fistula toward the urachus. Peters reports the case of a colo-urachal-cutaneous fistula with diverticular disease in an 88-year-old patient with symptoms of intermittent bleeding and a gaseous discharge through the umbilicus.⁵

In literature, cystoscopy has the highest yield in identifying a potential lesion, with some type of abnormality noted on endoscopic examination in more than 90% of cases (Morse and Dretler, 1974) but findings on cystoscopy are often non-

specific and include localized erythema, papillary, or bullous change; a definitive diagnosis using cystoscopy can be made in only 35% to 46% of cases (Woods et al, 1988; Pontari et al, 1992). Initial cystoscopy and biopsy of abnormal-appearing tissue or an established fistula tract in the setting of a history of malignancy are often indicated to evaluate for the possibility of a malignant fistula.¹

Further work up of the patient showed a colovesical fistula through cross-sectional imaging, especially CT-scan and has become the imaging modality of choice (Goldman, et al. 1984, 1985; Jarrett and Vaughan, 1995; Gruner, et al. 2002). Usually with a finding of bladder wall thickening adjacent to a loop of thickened colon, air in the bladder (in the absence of previous lower urinary manipulation) or the presence of colonic diverticula (Labs et al, 1988).¹

Treatment goals of operative management are to separate and close the involved organs with minimal anatomic disruption and normal long-term function of both systems.¹ Treatment of colo-urachal fistula consists of en bloc excision of the urachus remnant and colon segmental resection.⁶ Antibiotics and percutaneous drainage are commonly performed prior to surgery.⁶ Colic anastomosis can be established primary or delayed according to pre operative conditions.

Conclusion

A urachovesicosigmoid fistula is a rare condition especially in the adult.. In patients who

present with classic symptoms of colovesical fistula, a whole abdominal CT scan with triple contrast is so far the most reliable tool. Cystoscopy is also one of these diagnostic tools but is more helpful in determining the histopathology. Treatment usually includes excision of the urachal remnant and the involved bladder and colon.

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