

Case Report

Delayed diagnosis of appendicovesical fistula following orchidectomy for testicular abscess: a case report

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ABSTRACT

Appendicovesical fistula (AVF) is a rare subtype of enterovesical fistula that most commonly develops as a complication of chronic or recurrent appendicitis. Owing to the predominance of urinary rather than gastrointestinal symptoms, diagnosis is frequently delayed, resulting in recurrent infections, repeated investigations, and unnecessary interventions. A 31-year-old man presented with recurrent urinary tract infections (UTIs) complicated by a testicular abscess requiring orchidectomy. Histopathological examination demonstrated non-specific chronic active inflammation. Previous cystoscopy identified a small posterior bladder opening, which was managed as a bladder diverticulum, while colonoscopy was unremarkable. Persistent urinary symptoms prompted referral to the colorectal team, and computed tomography urography suggested an enterovesical fistula. Exploratory laparotomy demonstrated the appendiceal tip adherent to the bladder dome with a calcified faecolith within the appendiceal lumen. Appendicectomy with partial cystectomy was performed. Histopathological examination confirmed a benign AVF. The patient recovered uneventfully with complete resolution of urinary symptoms. AVF should be considered in patients with recurrent or persistent UTIs when conventional urological investigations are inconclusive. Early recognition with contrast-enhanced computed tomography (CT) and timely definitive surgical management can prevent prolonged morbidity and achieve excellent clinical outcomes.

Keywords: Urinary bladder fistula, Urinary tract infection, Appendicitis, Cystectomy, Appendectomy

INTRODUCTION

Appendicovesical fistula (AVF) is a rare subtype of enterovesical fistula characterised by an abnormal communication between the appendix and the urinary bladder. It accounts for approximately 1-5% of enterovesical fistulas and most commonly arises as a consequence of chronic or recurrent appendicitis.^{1,2} Although less common, Crohn's disease, diverticular disease, appendiceal neoplasms, and other chronic inflammatory conditions have also been reported as underlying causes.^{1,2}

Patients with AVF typically present with urinary rather than gastrointestinal symptoms, making diagnosis

particularly challenging. Recurrent UTI, pneumaturia, faecaluria, are the most frequently reported clinical manifestations, whereas classical features of acute appendicitis may be absent.^{1,2} Consequently, diagnosis is often delayed, exposing patients to repeated antibiotic treatment, multiple urological investigations, and avoidable procedures before the underlying pathology is recognised.

Contrast-enhanced computed tomography (CT), particularly CT urography, is regarded as the imaging modality of choice because it provides comprehensive assessment of both the urinary and gastrointestinal.³ Nevertheless, definitive diagnosis frequently requires

surgical exploration with subsequent histopathological confirmation.^{1,4}

We report a rare case of AVF presenting as recurrent UTIs complicated by a testicular abscess requiring orchidectomy before the underlying diagnosis was established. This case highlights the diagnostic challenges associated with AVF and underscores the importance of maintaining a high index of suspicion in patients with persistent urinary symptoms despite conventional urological evaluation.

CASE REPORT

A 31-year-old presented with recurrent UTI in 2017, and it was severe enough until he had to undergo orchidectomy for a testicular abscess with the HPE was reported as a nonspecific active chronic infection. A cystoscopy was done and shows a small opening at the posterior bladder wall, possible diverticulum, and the urologist clipped the opening. Colonoscopy demonstrates normal rectal and colonic wall mucosa. He was treated in a private hospital as an outpatient for over a year before being referred to colorectal team when his UTI not resolving and a CTU done shows a possible colovesical fistula (Figure 1).

An exploratory laparotomy was done and intraoperatively, the tip of the appendix has adhered to the bladder dome with calcified fecalith inside the lumen (Figure 2). We proceeded with appendicectomy and partial cystectomy. The surgery went well, and he recovered with no complications upon follow up. The HPE of appendix shows no inflammation of appendiceal wall and is consistent with benign fistula tract.

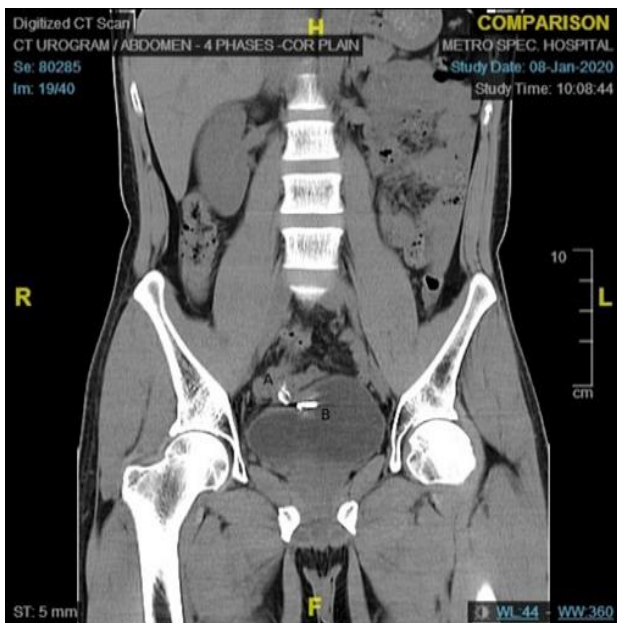


Figure 1: CT urogram of the patient shows foreign body in a bowel loop (A) with previous surgical clip applied during cystoscopy (B).

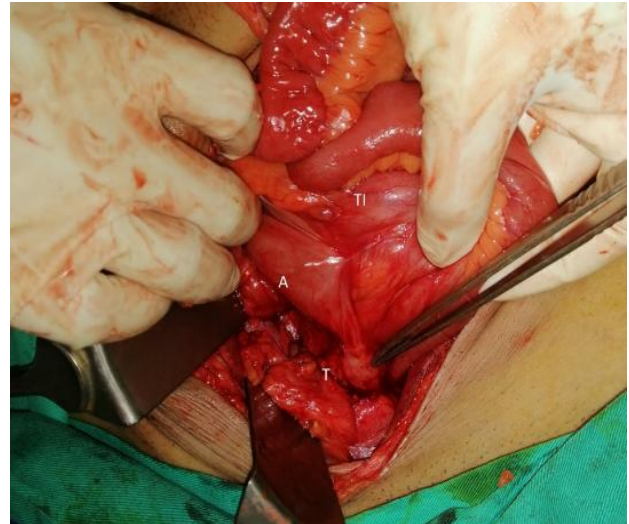


Figure 2: Laparotomy findings shows tip of appendix (T) adhered to bladder wall. TI: Terminal ileum.

DISCUSSION

Appendicovesical fistula (AVF) is an exceptionally rare subtype of enterovesical fistula, representing approximately 1-5% of reported enterovesical fistulas. It most commonly develops following chronic or recurrent appendicitis, in which persistent inflammation promotes adhesion of the appendix to the urinary bladder with subsequent erosion and fistula formation. A recent systematic review of appendiceal fistulas identified AVF as the most frequent appendiceal fistula subtype and highlighted the rarity of this condition, with fewer than 150 cases reported in the literature.² Although complicated appendicitis remains the predominant aetiology, AVF has also been associated with Crohn's disease, diverticular disease, appendiceal neoplasms, and other chronic inflammatory conditions.^{1,2} Consequently, histopathological examination is essential following surgical excision to exclude alternative pathological processes.

The diagnosis of AVF is frequently delayed because urinary symptoms predominate, whereas gastrointestinal manifestations are often absent or subtle. Recurrent UTI, dysuria, urinary frequency, suprapubic pain, pneumaturia, faecaluria, and haematuria are among the most commonly reported presentations.^{1,2} As a result, many patients undergo repeated antibiotic therapy and multiple urological investigations before the underlying diagnosis is established. In the present case, recurrent UTIs progressed to severe genitourinary sepsis requiring orchidectomy for a testicular abscess before referral to the colorectal team. This unusual clinical course illustrates the significant morbidity associated with delayed recognition of AVF.

Preoperative diagnosis remains challenging because no single investigation is diagnostic. Cystoscopy may demonstrate inflammatory changes at the bladder dome,

or a small fistulous opening; however, these findings are frequently non-specific, particularly in the presence of chronic inflammation.¹ Likewise, colonoscopy is useful for excluding colorectal malignancy or inflammatory bowel disease but rarely visualises the fistulous tract. Current evidence supports contrast-enhanced CT, particularly CT urography, as the imaging modality of choice because it simultaneously evaluates the gastrointestinal and urinary tracts while demonstrating indirect features such as focal bladder wall thickening, intravesical gas, periappendiceal inflammatory changes, appendiceal adherence to the bladder, and retained appendiceal faecoliths.³ The characteristic imaging findings facilitate early recognition and aid operative planning. In our patient, cystoscopy and colonoscopy failed to establish the diagnosis, whereas CT urography correctly suggested an enterovesical fistula that was subsequently confirmed during exploratory laparotomy.

Surgical excision remains the definitive treatment for AVF. The recommended procedure consists of appendectomy with complete excision of the fistulous tract and repair of the bladder defect, while partial cystectomy is indicated when the fistulous opening involves inflamed or fibrotic bladder tissue.^{1,2} Complete resection not only eradicates the source of chronic infection but also enables histopathological assessment to exclude Crohn's disease and malignancy. Although minimally invasive approaches have been increasingly reported with favourable postoperative outcomes, open surgery remains appropriate in patients with uncertain preoperative diagnosis or dense inflammatory adhesions.^{1,4} Appendectomy with partial cystectomy achieved complete excision of the fistulous tract, and histopathological examination confirmed a benign inflammatory fistula.

The prognosis following definitive surgical treatment is excellent. A recent systematic review and meta-analysis of enterovesical fistulas demonstrated that complete surgical excision is associated with high rates of symptom resolution and a low risk of recurrence in benign disease.⁵ Postoperative follow-up should focus on recurrence of urinary symptoms, urinary leakage, and wound-related complications, while additional investigations should be guided by histopathological findings and clinical suspicion of underlying disease. This case reinforces the importance of maintaining a high index of suspicion for AVF in young patients with unexplained recurrent UTIs, particularly after unsuccessful urological interventions. Early

multidisciplinary assessment, appropriate cross-sectional imaging, and timely definitive surgery are essential to prevent prolonged morbidity and avoid unnecessary procedures.

CONCLUSION

Appendicovesical fistula is a rare but important cause of recurrent UTI that should be considered when conventional urological investigations are inconclusive. This case highlights the diagnostic challenge of AVF, particularly when urinary symptoms predominate and lead to unnecessary interventions. Early recognition with appropriate cross-sectional imaging and timely surgical excision can achieve definitive treatment, prevent prolonged morbidity, and result in excellent clinical outcomes.

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