Appendicitis masking a perforated urinary bladder due to polyembolokoilamania

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SUMMARY

Right iliac fossa (RIF) pain is the most common presentation in acute appendicitis (AA). There are several varying differentials to the symptom due to the anatomical proximity of the appendix to other structures, including the urinary tract. Polyembolokoilamania refers to the act of inserting foreign bodies (FB) into bodily orifices, often times leading to disastrous effects. This behaviour is almost never willingly shared during presentation due to its paraphiliac nature. We report a case of a teenage male who presented with classic symptoms and signs of AA, underwent an open appendicectomy; only to find a perforated urinary bladder (UB) due to FB insertion via the urethra.

INTRODUCTION

The inflamed appendix is the most common surgical cause of an acute virgin abdomen,[1] with its presentation and management well documented in surgical textbooks. With proper history taking, examination, as well as basic biomarkers, the diagnosis of an acute appendicitis (AA) can be made. Scoring systems and imaging assistance are occasionally used in tandem to aid in diagnosis.[2] The most common symptom of an AA is sudden lower abdominal pain, later localising to the right iliac fossa (RIF). There are multiple differentials to this presentation. A urinary bladder (UB) perforation is rarely considered to be a differential of sudden lower abdominal pain. In this case report, an open appendicectomy was performed in our centre for a teenage male patient who presented with symptoms typical of AA—revealing instead a perforated UB due to foreign body (FB) insertion.

CASE PRESENTATION

A 12-year-old male with a paediatric history of nephrotic syndrome in complete remission presented to the emergency department with sudden non-radiating RIF pain and vomiting of 1-day duration. He was otherwise afebrile with no genitourinary or other gastrointestinal symptoms. There was a history of several episodes of dysuria for the past 2 months but had resolved spontaneously and was not prevailing during the current presentation. On social history taking, it was noted that the patient's parents were recently divorced.

During the general examination, the patient was found to be dry, normotensive but tachycardic and afebrile. His abdominal examination revealed a tender, guarded McBurney's point with positive rebound tenderness and elicitable Rovsing's sign. Bowel sounds were normal otherwise. Other systemic examinations, including genitalia and hernial orifices revealed normal findings. Patient's erect abdominal X-ray was unremarkable. Blood tests indicated marked leucocytosis (25.27×10^9/L) with raised serum lactate (3.35 mmol/L). Renal and liver function tests were normal. Urinalysis was positive for protein (2+), leucocyte (1+) and nitrite (1+). qSOFA score was 0.

In view of the presentation of a young, fit patient in sepsis with a brief history of tender and guarded RIF, a provisional diagnosis of perforated appendicitis was made, and the parents were counseled for consent to proceed with an open appendicectomy. On entering the peritoneum through the Lanz incision, 200cc of turbid yellow fluid was found in the pelvic cavity. Despite that, the appendix was only mildly inflamed. Appendicectomy was performed without difficulty. No Meckel's diverticulum was found; however, slough was noted covering the small bowel in several places. Further exploration was arduous due to the small Lanz incision thus, conversion to midline laparotomy was made after intraoperative counseling with his parents by a surgical specialist.

On further exploration via the midline incision, the sigmoid colon was seen adherent to the fundus of the UB. Careful dissection revealed protrusion of a thin white plastic tube through the UB wall into the peritoneal cavity (Figure 1). It was then realised that the appendix was inflamed due to uroperitoneum caused by UB perforation. Methylene blue solution was infused retrogradely into the UB via a Foley's catheter, and the solution trickled out from the UB into the peritoneum through the lumen of the plastic tube, confirming a communication (Figure 2). The tube was removed prudently, later measured to be 7.2cm × 0.3cm (Figure 3). The perforation site at the UB was repaired with double-layer absorbable suture. Rest of bowels were thoroughly examined and found to be viable. A surgical drain was placed, and the abdomen was closed with no difficulties.

Evaluation was done later in ward by a psychiatrist who exposed a telling history by the mother that she had once caught her son inserting a marble into his urethra. The patient's act was reprimanded by her, and she thought the issue had resolved, thus it was not brought into light

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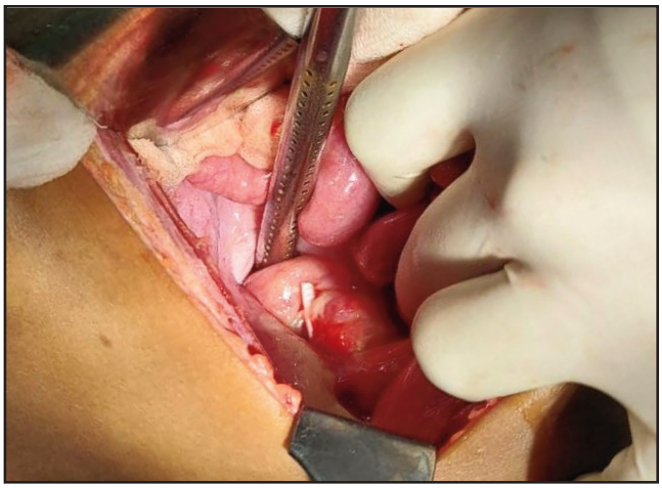

Fig. 1: White plastic tube protruding from the bladder into the peritoneum

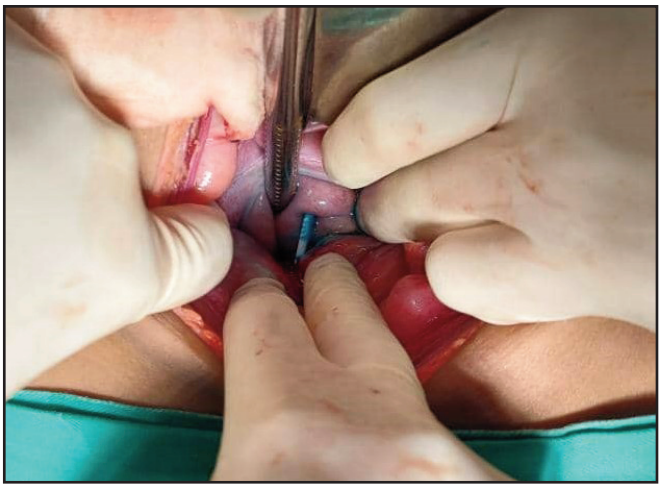

Fig. 2: Methylene blue fluid seen draining from the tip of the plastic tube

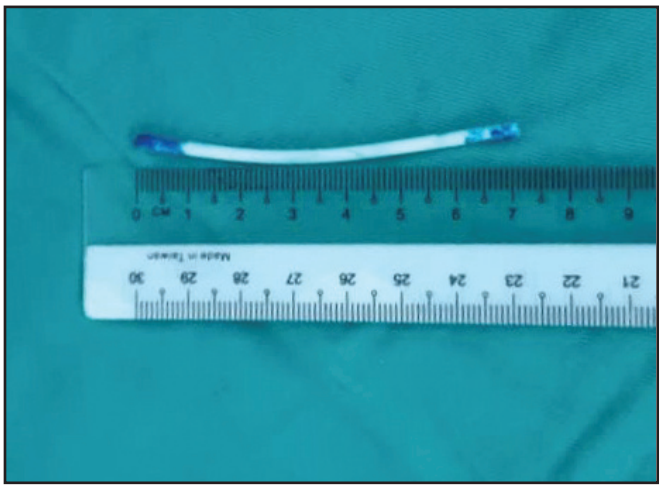

Fig. 3: Measurements of the offending plastic tube

previously. The patient was soon informed of the details of intraoperative findings, and when queried, he immediately denied any act of urethral self-insertion. After a further dialogue, the patient admitted to inserting a cotton bud stick into his urethra 2 months ago and was unable to retrieve it but was not keen to reveal his intention for the behaviour.

Operative recovery went smoothly, and the surgical drain was removed. The patient was discharged with a urinary catheter. Histopathology of the appendix showed periappendicitis. Cultures of his urine sample were reported as mixed growth of multiple organisms, whereas his peritoneal fluid had no bacterial growth on culture. CT cystogram was performed 2 weeks post-operatively, showing no leakage. The urinary catheter was subsequently removed. On psychiatric follow-up, the patient was found to be depressed due to his parents' separation. He recuperated well and is reportedly in good spirits post counseling and therapy. There were no long-term complications concerning the bladder repair upon follow-up after a year.

DISCUSSION

Correctly diagnosing a sudden painful RIF for possible AA has always been considered a challenge to the surgical fraternity. Differentials of the symptom include gastrointestinal, urological, gynaecological, vascular and musculoskeletal pathologies. Surgeons have routinely relied on clinical history, physical examination findings and basic laboratory investigations for diagnosing an AA. Based on these parameters, various scoring systems were developed for diagnostic aid, yet there is insufficient evidence to support their use.[3] Few surgeons rely on them due to their low specificity.[2] The advent and emergence of radiological imaging, on the other hand, have proven to be a useful tool in the management of AA.[2] Imaging assistance is recommended in cases with indeterminate diagnosis—particularly in young or pregnant patients or those with atypical presentations.[3] An ultrasound is preferred for females (high preponderance of gynaecological disease), gravidae, or children; whilst a CT scan is advocated for the elderly.[3] Additional assessment by gynaecologists is also often requested for female patients of reproductive age with equivocal findings for the possibility of tubo-ovarian or uterine pathology.[2]

Treatment strategies for AA mainly involve an operative intervention, constituting either an open or laparoscopic approach. The laparoscopic method has always been favoured over open appendicectomy wherever not contraindicated and when technically feasible. It has been proven to have lower complication rates, reduced post-operative pain and shorter recovery and hospital stay.[3] Non-operative management of AA has been explored via primary antibiotic treatment, although it is not without controversy due to failure rates and the need for subsequent appendicectomy.[2]

Urinary tract infection (UTI) is also a well-known differential diagnosis for acute RIF. The patient will also classically present with dysuria, frequent voiding, incomplete voiding, haematuria and suprapubic tenderness. The upper urinary tract is involved in more severe cases, mainly in the form of pyelonephritis, whereby patients will be more ill and have

back or loin pain in addition to symptoms of a lower UTI. UTIs are routinely diagnosed with the presence of an abnormal urinalysis, namely pyuria. Nevertheless, abnormal urinalysis is not a rare occurrence in patients with AA, with Scott et al.[4], Puskar et al.[5] and Kretchmar and McDonald[6] reporting incidences of 53%, 48% and 19%, respectively. The relation of pyuria with AA is due to the varying anatomical deviations of the inflamed appendix and its close proximity to the urinary tract, causing symptoms that mimic a UTI.[7] Thus, UTI is a probable diagnosis in an acute RIF with the presence of pyuria—nevertheless, it does not rule out an AA.

A rare differential diagnosis of the acute RIF is a perforated UB due to urethral FB insertion. The act of FB insertion into bodily orifices is termed as polyembolokoilamania. Most patients with polyembolokoilamania have some form of psychiatric abnormality.[8] Various cases of urethral self-insertion have been reported worldwide, but the true incidence is unknown since patients typically do not present themselves—unless a complication arises. The two methods of FB introduction into the UB are transurethral and trans-bladder. The transurethral approach was mainly self-inflicted, whereas all trans-bladder approach were iatrogenic.[9] Symptoms of FB in the UB are closely related to those of a UTI due to the FB being a bacterial harbour, irritating the bladder wall and later leading to cystitis and urinary stasis.

In this particular case, a prior imaging was not requested due to the typical history and examination findings resembling a perforated appendicitis in an otherwise young, healthy and fit male. It is difficult for practitioners to uncover acts of polyembolokoilamania in patients who present in an acute setting of abdominal pain since they will unlikely be forthcoming on this habit and possibly consider it unrelated or taboo. Obtaining such history voluntarily is implausible given that the act is done for either erotic stimulation, sexual curiosity or due to psychological problems.[10] The rarity of this confounding diagnosis is therefore proven to be a diagnostic challenge and makes it a story worth telling.

CONCLUSION

Presence of FB in the UB can manifest symptoms similar to that of an AA, albeit an unlikely diagnosis. Careful history taking, especially in ambiguous presentations of sudden RIF pain might reveal further information which could justify additional investigations prior to operation at the discretion of the practitioner. Routine usage of imaging assistance in all cases of acute RIF in conjunction with clinical findings will assist greatly in pre-operative management.

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CONSENT

Written informed consent for photographs and publication was obtained from the patient's guardian (patient was a minor).

CONFLICT OF INTERESTS

The authors have no conflicts of interests to declare.

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