

Functional medicine

## 'Pop goes the whistle' - Noisy micturition as the main presentation of pneumaturia



Vincent Khor<sup>\*</sup>, Edwin Jonathan Aslim, Lay Guat Ng, Jay Kheng Sit Lim

Department of Urology, Singapore General Hospital, Outram Road, 169608, Singapore

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### Introduction

Pneumaturia is the most common presenting symptom of enterovesical fistula, accounting for 50–70% of the cases, followed by faecaluria and recurrent urinary tract infection (UTI).<sup>1</sup> Other causes of pneumaturia include recent urinary tract instrumentation, catheterization or emphysematous cystitis.

### Case report

A 66-year-old Chinese woman presented to the outpatient Urology clinic with the chief complaint of noisy micturition for 6 months. She had no other urinary symptoms (such as dysuria, gross haematuria or recurrent UTI), nor any gastrointestinal symptoms (such as abdominal discomfort or chronic diarrhoea). She was so bothered by the noise during voiding that she recorded it with her mobile phone (the audio file is in the attached supplementary).

The patient had a past medical history of perforated distal ileum of uncertain cause 8 months ago for which she underwent an emergency exploratory laparotomy and small bowel resection. Intra-operative findings include small bowel contents in the pelvis and lower abdomen, adhesion of knuckle of small bowel to mesentery in right lower quadrant with internal herniation of small bowel into adhesion band which contained pockets of pus. There was a 5 mm perforation of the distal ileum. The rest of the bowels (both small and large) were examined carefully and there was no significant abnormality. Her post-operative recovery was uneventful.

Histological examination of the resected bowel did not show any dysplasia, inflammatory bowel disease (IBD) or malignancy. There was

no family history of IBD or gastrointestinal malignancy. She also had no history of pelvic irradiation. As she was clinical well, she did not see any urologist earlier.

Physical examination in the Urology clinic was unremarkable except for a midline laparotomy scar. The initial investigation included a negative three-swab test which excluded a fistulous connection between the vagina and urinary tract. Cystoscopy showed an erythematous patch at the bladder dome with a punctum (Fig. 1). A computed tomography (CT) scan of the abdomen and pelvis showed mural

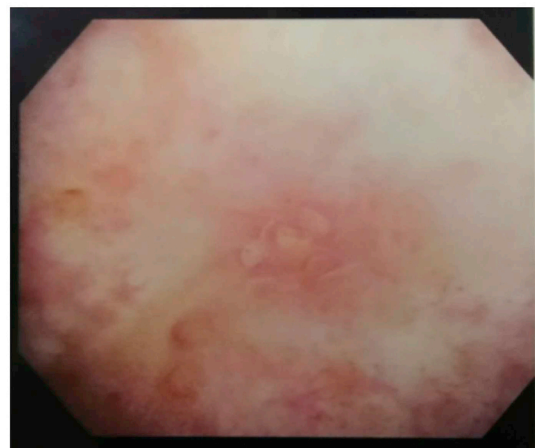


Fig. 1. Erythematous patch at the bladder dome with a punctum.

<sup>\*</sup> Corresponding author. Permanent Address: MOH Holdings Pte Ltd., 1 Maritime Square, 099253, Singapore.

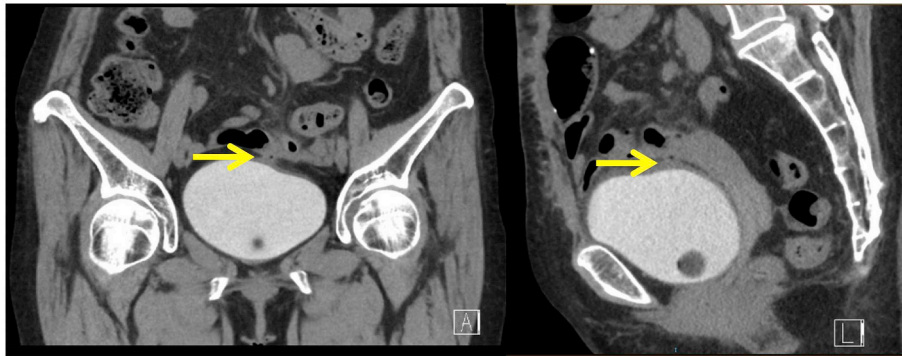
E-mail addresses: [vincent.khor@mohh.com.sg](mailto:vincent.khor@mohh.com.sg) (V. Khor), [edwinjonathan.aslim@mohh.com.sg](mailto:edwinjonathan.aslim@mohh.com.sg) (E.J. Aslim), [ng.lay.guat@singhealth.com.sg](mailto:ng.lay.guat@singhealth.com.sg) (L.G. Ng), [jay.lim.k.s@singhealth.com.sg](mailto:jay.lim.k.s@singhealth.com.sg) (J.K.S. Lim).

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**Fig. 2.** CT cystogram showed communication between a loop of small bowel and the dome of the urinary bladder with thickening of the bladder wall at the site of communication.

thickening at the dome of the urinary bladder, with tethering of an adjacent loop of small bowel. Gas was present in the urinary bladder. Diverticular disease of the colon was noted on CT scan as well. The clinical impression was enterovesical fistula secondary to her distal ileum perforation.

The patient then underwent an elective exploratory laparotomy to close the fistula tract. Intra-operative findings include dense adhesions with small amount of pus between two knuckles of the small bowel, which were adhered to the bladder dome. The two knuckles of affected small bowel were resected and repaired with primary anastomosis. The intra-abdominal portion of the bladder was dissected free from all adhesions to ensure no further bowel attachments. There were no adhesions of the bladder posteriorly at the pouch of Douglas.

The water leak test of the bladder was performed and there was no obvious leak from the surface of the adherent bladder dome. A small bowel run through did not show any additional areas of bowel perforation. Histological examination of the resected small bowel did not show any features of IBD, dysplasia or malignancy. She had minimal output from her surgical drain and made a good postoperative recovery. However, despite negative intraoperative findings, her symptom of noisy micturition recurred 1 month later. A CT cystogram was performed, showing communication between a loop of small bowel and the bladder dome (Fig. 2). As she did not have any other symptoms, she opted for conservative management this time round.

## Discussion

Enterovesical fistula is an abnormal connection between the urinary bladder and the gastrointestinal tract. It can be divided into four types: rectovesical, colovesical, ileovesical and appendicovesical. Diverticulitis is the most common cause of colovesical fistula, accounting for 50–70% of the cases, followed by colorectal malignancy. Other causes include Crohn's disease, infection and iatrogenic trauma. The pathognomonic features of pneumaturia, faecaluria and recurrent urinary tract infections were present in 75% of patients.<sup>2,3</sup>

This case is unique for its unusual chief presentation of noisy micturition, which is an unusual symptom for enterovesical fistula. The noise was so bothersome to the patient that it led her to seek medical help. We conducted a literature search to review how common noisy

micturition is as a manifestation of pneumaturia. There have only been two other cases reported, both in non-English languages. In a report published in Swedish, the author described “whistling with the penis” from colovesical fistula.<sup>4</sup> In another report in German, the patient presented with pneumaturia following an infection of the hip prosthesis. Following the revision surgery, the patient noticed a “barking” noise during micturition, which was later worked up to be secondary to colovesical fistula from perforated sigmoid diverticulitis.<sup>5</sup>

In our patient, she had an intermittent noise throughout her micturition. The mechanism of this sound is probably due to bladder gas jetting through the collapsible urethra, thereby creating turbulence and vibrations, akin to whistling through closed lips. Perhaps this sound is more easily noticeable only when there is a significant amount of gas present in the bladder.

## Conclusion

Noisy micturition is a rare manifestation of pneumaturia and, to our knowledge, this is the first case reported in English language literature. A thorough workup is necessary for every case of pneumaturia to exclude malignancy as a cause.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.eucr.2019.01.013>.

## References

1. Rovner ES. Urinary tract fistulae. In: Wein AJ, ed. *Campbell-Walsh Urology*. eleventh ed. Philadelphia, PA: Elsevier Saunders; 2016:2223–2226.
2. Scozzari G, Arezzo A, Morino M. Enterovesical fistulas: diagnosis and management. *Tech Coloproctol*. 2010;14(4):293–300. <https://doi.org/10.1007/s10151-010-0602-3>.
3. Golabek T, Szymanska A, Szopinski T, et al. Enterovesical fistulae: aetiology, imaging, and management. *Gastroenterology research and practice*. 2013;2013:617967. <https://doi.org/10.1155/2013/617967>.
4. Dimberg L. “Whistling with the penis” — a result of colo-vesical fistula. *Lakartidningen*. 2015;112.
5. Weisenstein DB, Popescu IA. “Barking” micturition noise as sign of acute hip-TEP-late infection. *Orthopä*. 2016;45(9):789–791. <https://doi.org/10.1007/s00132-016-3300-7>.