CASE REPORT

Traumatic catheterisation: a near miss

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SUMMARY

A 68-year-old man presented with acute urinary retention. An indwelling catheter was inserted by a junior doctor, which immediately caused perineal pain to the patient. When asked about the catheterisation technique, the junior doctor admitted that he did not insert the catheter to the hilt prior to inflating the balloon. The patient was investigated with a pelvic CT scan and a senior doctor in the emergency department interpreted that the catheter was inserted extravasically with possible haemorrhage. However, subsequent cystoscopy revealed no urethral trauma but a small bladder and a diverticulum. It became clear that the suspected haemorrhage was actually the bladder with markedly thickened wall. What was thought to be the bladder turned out to be the diverticulum. Both pathologies were attributable to chronic bladder outlet obstruction from the occlusive prostate. The patient was discharged with a catheter in situ and planned for transurethral resection of prostate in a week's time.

BACKGROUND

Iatrogenic urethral injury is one of the most common causes of urethral trauma and many iatrogenic urethral injuries are related to improper catheterisation. In this case report, we tell a story of a junior doctor who performed catheterisation with an improper technique and had the fright of his life. The history, clinical findings and CT images will allow readers to follow this case from the beginning and see how it turned out to be a near miss. This case will also remind readers of the importance of proper catheterisation technique.

CASE PRESENTATION

A 68-year-old man presented to the emergency department in the middle of the night with acute urinary retention. This was on a history of long-term lower urinary tract symptoms including poor flow, dribbling and frequency. On initial examination, his vital signs were within normal range and abdominal examination revealed a palpable bladder in the lower abdomen. Rectal examination revealed an enlarged but smooth prostate. Bladder scan showed 600 mL of urine within the bladder. A urinary catheter was inserted by a junior doctor who had started working as an intern just a few weeks earlier. Immediately after the catheter balloon inflation, the patient reported severe perineal pain and the catheter slowly drained 100 mL of lightly blood-stained urine. This was immediately reported to a senior doctor. When asked about the catheterisation technique, the junior doctor admitted that he did not insert the catheter to the hilt prior to inflating the balloon. On examination by the senior

doctor, the bladder scan still showed around 500 mL of urine within the bladder but the catheter ceased draining urine. The history and examination strongly suggested that the catheter was misplaced and potentially caused trauma.

INVESTIGATIONS

Subsequently, the patient was investigated with a non-contrast pelvic CT. The CT image was interpreted by a senior doctor in the emergency department as an extravasically inserted Foley catheter ([figure 1](#)). There was also a large amount of intermediate density material surrounding the catheter and the inflated balloon, which was suspected to be haemorrhage. The patient was urgently referred for urological opinion.

DIFFERENTIAL DIAGNOSIS

Traumatic catheterisation.

TREATMENT

A cystoscopy was performed by an on-call urologist to identify the location of false passage. However, to everyone's surprise, no trauma was found along the lower urinary tract. The bladder was small and trabeculated. A large bladder diverticulum with a narrow communicating channel was also found. It became clear that the intermediate density material seen in the CT scan was actually the bladder with markedly thickened wall. What was thought to be the bladder on the CT scan turned out to be a distended bladder diverticulum ([figure 2](#)). The formation of both thick-walled bladder and

Figure 1 The pelvic CT scan performed on presentation. The catheter balloon containing a gas bubble can be seen (red arrow).

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Figure 2 A follow-up pelvic CT scan with contrast. The bladder is markedly thick-walled with an inflated catheter balloon in situ (red arrow). A large diverticulum can be seen posterolateral to the bladder.

diverticulum was likely due to chronic bladder outlet obstruction from the patient's occlusive prostate. A guide wire was inserted into the bladder under vision and a catheter was guided in successfully. This time, the catheter was able to decompress the bladder and the diverticulum, draining a large amount of urine.

OUTCOME AND FOLLOW-UP

The patient remained asymptomatic for 24 h after the catheter insertion, and the bladder diverticulum appeared decompressed on a second CT scan. Therefore, the patient was discharged with a catheter in situ and planned for transurethral resection of prostate in a week's time.

DISCUSSION

Iatrogenic urethral injury is one of the most common causes of urethral trauma and many iatrogenic urethral injuries are related to improper catheterisation.^{1–3} It is estimated that the incidence is 3.2 per 1000 patients during hospital admission.⁴ Symptoms of traumatic catheterisation are penile and/or perineal pain (100%) and, commonly, urethral bleeding (86%).⁴ The European Association of Urology Guidelines on Urethral Trauma recommend urethroscopy as the first-line investigation for suspected urethral trauma from catheterisation.⁵ If false passage is found, endoscopic guide wire placement and catheter

insertion is recommended.⁵ If there is pre-existing stenosis, suprapubic drainage should be performed.⁵

Retrospectively, we know that the catheter was inserted into the bladder when the patient was in the emergency department. The inflated catheter balloon filled up the space within the abnormally small and thickened bladder and this potentially blocked the opening of the diverticulum, causing acute retention in the diverticulum. The distended diverticulum, on CT imaging, masqueraded as the bladder and gave the catheter the appearance of being located extravasically, with the abnormally thickened bladder surrounding the catheter balloon giving the impression of haemorrhage. The perineal pain experienced by the patient was, however, unexplainable.

Overall, it was very fortunate that no harm was done by the improper catheterisation. However, we believe that the junior doctor involved in this case definitely had the fright of his life and had learnt a valuable lesson from it.

Learning points

- ▶ Iatrogenic urethral injury is one of the most common causes of urethral trauma and many iatrogenic urethral injuries are related to improper catheterisation with an estimated incidence of 3.2 per 1000 admissions.
- ▶ It is of paramount importance to perform catheterisation properly to avoid iatrogenic urethral injury and improve patient safety.
- ▶ For suspected urethral trauma from catheterisation, the recommended first-line investigation is urethroscopy.

Competing interests None declared.

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