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Delayed presentation of iatrogenic bladder perforation

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DESCRIPTION

A 41-year-old lady presented to a district general hospital with a 24-hour history of abdominal pain, shoulder tip pain and anuria. No other symptoms were reported, and observations were stable. Her medical history included endometriosis, one normal vaginal delivery in 1998 and three caesarean sections dated 2003, 2010 and 2012. On examination, there was tenderness in the suprapubic region and left loin; the bladder was not palpable, and she did not elicit any signs of peritonitis. A Foley catheter was inserted. Urinalysis showed 4+ blood and 2+ ketones. She had raised inflammatory markers and a raised creatinine of 200 µmol/L.

The following day, creatinine had normalised, but there was no improvement in symptoms, despite antibiotics. A CT of her kidneys, ureters and bladder was reported as showing locules of free gas in the bladder consistent with recent catheterisation. There was free fluid in the pelvis, and a faecolith was noted in the appendix.

She underwent an emergency explorative laparoscopy. The appendix, gallbladder, large bowel and duodenum were normal. A defect was seen in the urinary bladder, which appearances were consistent with chronic changes; it was plugged with appendices epiploica with a small unplugged area to the right (figure 1). The epiploica was moved to reveal a large perforation through which the Foley catheter balloon could be easily visualised inside the bladder (figure 2).

Acute intraperitoneal bladder perforation is a rare event. The majority of cases are associated with an underlying condition that caused degeneration of the bladder wall, for example, previous surgery, radiotherapy, bladder obstruction and inflammation.



Figure 1 Site of urinary bladder perforation sealed with appendices epiploica before removing it.



Figure 2 Site of urinary bladder perforation that was partially sealed with appendices epiploica. Urinary catheter balloon is seen inside the bladder.

In this case, the photographs demonstrate chronic changes, sealed with omentum, in keeping with our knowledge of the bowel's ability to seal off local perforations. This leads us to speculate if this case of urinary bladder perforation was a delayed presentation of iatrogenic damage during the patient's third caesarean section 5 years earlier.

The Royal College of Obstetricians and Gynaecologists suggest that the risk of bladder trauma during caesarean section is approximately 1 in 1000 patients¹; however, this figure can vary among studies. Salman *et al*² performed a large retrospective study noting a prevalence of 0.46%. This risk increases with repeated caesarean sections; 90.1% with bladder injury have had multiple caesarean sections. Furthermore, adhesions were present in 75% of women with a history of multiple caesarean sections.²

In this case, the caesarean section record stated that there were no complications, and the bladder and uterus were checked before closing. Adhesions were present, the bladder wall was adherent to the lower uterine segment, the segment being very thin. However, what confounds our hypothesis is that the patient has a diagnosis of endometriosis. Although no signs of endometriosis were obvious during this laparoscopy, endometriosis involving the urinary tract is a risk factor for bladder perforation.³ Small inflammatory lesions overlying the bladder can contribute to chronic degeneration and worsen adhesions. In combination with this patient's repeated surgical exposure, we raise the question: 'Should repeated caesarean sections be considered a risk factor for urinary bladder rupture?'



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Learning points

- ▶ Spontaneous bladder perforation can be a life-threatening surgical emergency, which due to its rarity and vague presentation, can be easily overlooked.
- ▶ However, the majority of bladder perforations are iatrogenic from surgical damage.
- ▶ Women who have had repeated caesarean sections are at higher risk of morbidity including bladder damage; this could present many years after caesarean section. This risk may be higher if conditions such as endometriosis are present.

Contributors ZJ and surgical registrar UM worked together to produce this case report. He was the main surgeon at the time performing the laparotomy and took the photographs intraoperatively. ZJ was undertaking ward based care for the patient, both authors later discussed the case and decided to write it up. The writing was done by ZJ under the guidance of UH, who made regular additions and editing.

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