An inventive two-catheter technique to manage an extra-peritoneally ruptured and prolapsed bladder causing obstructive uropathy

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ABSTRACT

An 84 year-old lady presented with extraperitoneal bladder rupture following a fall, in the setting of procidentia causing longstanding bilateral ureteric obstruction. Imaging demonstrated that while part of her bladder was in the pelvis, a large component was within the prolapse. After catheterising the pelvic portion, CT Cystogram confirmed decompression of the bladder in the pelvis, but on-going distension of the bladder in the prolapse. A second urethral catheter was placed in to the prolapsed portion of the bladder facilitating easy manual reduction of the prolapse. This reduction resolved the ureteric obstruction and was maintained with a pessary.

Introduction

Procidentia is a common cause of lower urinary tract symptoms in women, with problems varying from mild voiding dysfunction to rarely acute and chronic renal failure, and rarely end stage renal failure. Invasive management options have been described previously by Moslemi et al. including bilateral nephrostomy tube insertion, as well as surgically with burch colpsuspension and bilateral retrograde ureteric stenting.

There have been other case reports, including a case described by Dubowitch et al. where an elderly demented lady had acute uropathy from urethral obstruction secondary to a procidentia which was managed with manual prolapse reduction and subsequent urethral catheterisation.

There have been rarer examples reported where bladder rupture complicates these cases of procidentia and obstructive uropathy. Miller et al. in 1990 described such a case that required surgical repair and more recently Ojewola et al. reported a young lady with a highly traumatic case of an everted prolapsed ruptured bladder following severe pelvic injury. This required complex surgical repair and fixation.

We report an elderly lady who ruptured her bladder following a fall at home. Her case was complicated by a procidentia containing a large cystocele and causing bilateral hydronephrosis. An innovative drainage technique was used to enable reduction of the prolapse, and the bladder rupture and overall case was subsequently managed non-operatively.

Case presentation

Mrs B presented to the emergency department via ambulance complaining of abdominal pain and haematuria following a fall at home.

Clinical examination revealed an alert and orientated elderly lady with a distended abdomen who was tender suprapubically. Complete procidentia was noted.

She was normotensive and had a sinus tachycardia of about one hundred beats per minute, she was afebrile; mildly tachypnoeic at twenty breaths per minute and required 2 L of oxygen via nasal prongs to maintain saturations of ninety four percent.

Laboratory results demonstrated a leucocytosis of 14.3 × 10⁹/L with a neutrophilia of 13.2 × 10⁹/L; she was found to be anaemic with a haemoglobin of 98g/L, and notably she had deranged renal function with a creatinine of 178 μmol/L and estimated glomerular filtration rate of 23 ml/min/1.73 m². Her clotting studies were unremarkable.

A 12F urinary catheter was placed and a urine sample was obtained which contained a large amount of leucocytes, large blood, and positive nitrites; and this was sent for bacterial culture.

CT Urography was performed and demonstrated a leucocytosis of 14.3 × 10⁹/L with a neutrophilia of 13.2 × 10⁹/L; she was found to be anemic with a haemoglobin of 98g/L, and notably she had deranged renal function with a creatinine of 178 μmol/L and estimated glomerular filtration rate of 23 ml/min/1.73 m². Her clotting studies were unremarkable.

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A CT Cystogram was performed and demonstrated severe chronic bilateral hydronephrosis and a fluid collection in the pelvis. The distal ureters were not visualised on the scan as they extended distally beyond the pelvis into her severe prolapse [Fig. 1].

A CT Cystogram was performed and confirmed an extraperitoneal bladder rupture. There was an unusual “hourglass appearance” to the bladder [Fig. 2], with the upper portion of the bladder being ruptured in the pelvis, and the lower portion of the bladder prolapsed in the
procidentia. The distal ureters were obstructed here in the prolapsed part of the bladder.

Imaging demonstrated that the urinary catheter had decompressed the pelvic portion of the bladder, however the prolapsed portion was still distended [Fig. 3]. A second urinary catheter was placed alongside the other catheter via the urethra to drain the prolapsed portion of the bladder. This made the prolapse much less tense facilitating manual reduction at the bedside that was maintained with a pessary. Both small indwelling catheters were then removed, and a single larger in-dwelling catheter was placed.

For the remainder of the inpatient stay, the prolapse was maintained with this pessary and the extraperitoneal bladder rupture was managed with conservative bladder drainage and antibiotics. Renal function improved, and interval imaging demonstrated improvement of the bilateral hydronephrosis. She was discharged from the surgical ward to rehabilitation on day fifteen.

Discussion

We report on a novel conservative management strategy to manage extraperitoneal bladder rupture in the context of procidentia.

An inventive technique was conceived in the passing of a second urethral catheter to drain the prolapsed portion of the bladder facilitating its reduction and resolution of the upper tract obstruction. This avoided the need for alternative drainage options such as nephrostomies or surgical intervention – which have been the more commonly described option in case reports noted above.

One consideration with this technique is that forcible reduction could potentially exacerbate the bladder injury, however in this case the prolapse was able to be reduced very gently such that this risk was felt to be extremely low.

Conclusion

This unusual case of a ruptured prolapsed bladder was managed with non-operative techniques and an innovative two urethral catheter drainage technique that has not been previously reported to the best of the author’s knowledge. We suggest that it can be used safely in this
rare scenario where there are two separate portions of the bladder that need to be drained separately.

Conflict of interest

None to declare.

Verbal and written consent was obtained from the patient in order to compile this case report and for the use of the images included.

References

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