CASE REPORT

Vesicovaginal fistula and vesicocutaneous fistula in a patient having pelvic ectopic kidney with pyonephrosis: a unique therapeutic challenge

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SUMMARY

Patients with ectopic kidney require special considerations in their management due to the anatomic characteristics predisposing the kidney to obstruction and related complications. Pelvic ectopic kidneys have the added disadvantage of being confined in the bony pelvis giving less manoeuvrability during surgery of that unit. Vesicovaginal fistulas are usually managed surgically and careful surgical dissection has to be carried out because the highest success rates are usually seen at the first operation. It is rare to find a combination of such challenging diseases in a single patient. We present the case of a young woman who developed iatrogenic vesicovaginal and vesicocutaneous fistulae during an attempt to surgically manage a pyonephrotic ectopic pelvic kidney.

BACKGROUND

Ectopic kidney is a rare anomaly, but ectopic kidneys due to their anatomical characteristics are more prone to develop obstruction and related complications of urinary stasis. Their management is not challenging when the treating surgeon is versed with the anatomical characteristics. Vesicovaginal fistula (VVF) is the most common gynaecological genitourinary fistula. They usually require surgical repair transabdominally or transvaginally. We present a unique case where the patient presented with combination of pyonephrotic pelvic ectopic kidney, VVF and vesicocutaneous fistula. It was a challenging case, which was managed successfully with a meticulous approach.

CASE PRESENTATION

A 28-year-old woman had history of fever with chills and lower abdominal pain for 5 days. An ultrasound examination was done which was

suggestive of a hydronephrotic ectopic left kidney in the pelvis with internal echoes in it suggestive of pyonephrosis. She underwent non-contrast CT of the abdomen. Oral contrast was given to see the bowel. It was suggestive of a pelvic ectopic left kidney with multiple calculi in its lumen ([figure 1](#)). She was posted for open pyelolithotomy 2 weeks later. Intraoperatively, the tissues were densely adherent. Only pus could be drained and a drain was placed. In the postoperative period, she developed urine leak per-vaginally as well as from the incision site on the left iliac fossa. The drain that was placed initially drained urine but the output reduced over the next week and it was subsequently removed. Two weeks post surgery she was referred to our centre, which is a tertiary care referral centre for urological disease for further workup and management. She was afebrile and her vitals were stable. On examination, she had the scar mark of her previous surgery on the left iliac fossa, with a visible opening in the middle of the scar through which she was leaking urine.

INVESTIGATIONS

The patient's blood reports were unremarkable except for low haemoglobin of 9.5 g/dL. She already had an intravenous pyelography film with her that was done postoperatively at the centre she was operated at. It showed a normally excreting right kidney and a non-excreting left renal system along with visible calculi in the pelvic region. The drain that was placed at the time of surgery was also seen having contrast leak through it ([figure 2](#)). She was posted for cystoscopy under local anaesthesia. On cystoscopy, there was a visible fistulous communication about 1.5 cm wide between the urinary bladder and the vagina ([figure 3](#)). The right ureteric orifice had a normal appearance and efflux. On the left side, the urinary bladder was fibrosed and an opening was visible. We cannulated the opening with a 5F ureteric catheter over a 0.035-inch guide wire. The ureteric catheter along with guide wire came out through the opening at the incision site ([figure 4](#)). A diagnosis of VVF with vesicocutaneous fistula was made. We then had to confirm the function of the left renal unit and thus got a technetium-99m-L,L-ethylenedicycysteine (99mTc-L,L-EC) renal scan done. It confirmed that the left kidney was non-functioning ([figure 5](#)).

Figure 1 CT scan showing left pelvic ectopic kidney with multiple calculi in axial section (A) and coronal section (B).

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Figure 2 Intravenous pyelography done after the first surgery showing normally excreting right kidney. Left kidney is not visualised; instead, we can see the calculi in left kidney (arrows), also seen is the drain which was placed (arrow head) with leak of contrast in it.

TREATMENT

The patient was posted for definitive surgery 6 weeks after the previous surgery was done. Her abdomen was opened via an infraumbilical lower midline incision. With careful dissection, we resected the non-functioning left ectopic kidney first. We then proceeded to dissect the urinary bladder from the previous scar site. We removed the unhealthy scar and did primary repair of the bladder in two layers. For the VVF, we did a modified O'Connor's repair with omentum interposed between the repaired vagina and urinary bladder. We placed a 16F per urethral catheter and an 18F suprapubic catheter in the urinary bladder along with an abdominal drain.

OUTCOME AND FOLLOW-UP

The patient fared well postoperatively. Her abdominal drain was removed on the fifth postoperative day. She was discharged

Figure 3 Cystoscopic view of the vesicovaginal fistula.

Figure 4 Cystoscopic view of the vesicocutaneous fistula with a ureteric catheter passed through the internal opening (arrow, (A)). The same catheter was seen coming out of the external opening at the previous incision site (arrowhead, (B)).

with the suprapubic and per urethral catheter in situ, which were kept for 3 weeks post surgery. We did a cystogram subsequently which showed no leak and then the two catheters were removed as well. She was advised to void frequently and avoid sexual intercourse for 3 months. As she was young and desirous of pregnancy, she was advised to have regular antenatal monitoring and elective caesarean section for the subsequent pregnancies. Six months postoperatively, the patient is doing fine.

DISCUSSION

Cases like the one mentioned vide supra are seen far and few in day-to-day clinical practice. Ectopic kidney is a rare congenital anomaly with reported incidence of 1 in 900 in the literature. An ectopic pelvic kidney is even rare with an incidence of 1 in 2000 to 1 in 3000.¹ Ectopic kidneys are usually malrotated

Figure 5 Renal scan of the patient showing no uptake in the region of left ectopic kidney (red circle).

with an anterior position of the renal pelvis. Thus, they are more prone to develop hydronephrosis and urinary stasis. This leads to complications such as renal calculi, pyelonephritis and pyonephrosis. Indeed the incidence of obstruction and calculi is higher in ectopic kidneys than in a normal kidney.² The ectopic kidney located inside the bony pelvis has less potential place for manoeuvrability and is thus slightly difficult to approach surgically. This along with the surrounding inflammation due to pyonephrosis made the initial surgery difficult that subsequently had to be abandoned. The same probably led to the iatrogenic injury to the urinary bladder resulting in formation of VVF and vesicocutaneous fistula. The O'conor technique has been widely established as the gold standard for transabdominal repair of VVF.³ A paper was published from our institute in 2006 where we made a modification to his technique and now we routinely

use this modified O'conor technique for transabdominal repair of VVF.⁴ An omental flap is usually interpositioned between the bladder and the vagina. If omentum is not available, then a peritoneal flap is used. With the advent of ultrasound and other radiological image-guided procedures, the initial management of a pyonephrotic kidney is percutaneous drainage. In this patient also radiological percutaneous drainage would have been a better procedure to do initially than surgery. We could successfully manage this case as we waited 6 weeks for the inflammatory fibrosis to subside and then did a meticulous surgical dissection. The cystoscopy done preoperatively guided us as well. Cases like these pose a challenge for the urologist that can be overcome with a methodical meticulous approach.

Contributors SP conceived the case report. SP and AA were major contributors towards writing the manuscript. MK, SS and SP treated the patient and also interpreted the patient data. SP and SS were involved in the review. All authors read and approved the final manuscript.

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REFERENCES

- 1 Izmeth A, Al-Dujaily SS, Rahman F, *et al.* Right pelvic ectopic kidney with pelvi-ureteric obstruction causing contralateral obstruction to kidney and ureter: a novel presentation of a pelvic ectopic kidney. *BJU Int* 1999;84:875–6.
- 2 Cinman NM, Okeke Z, Smith AD. Pelvic kidney: associated diseases and treatment. *J Endourol* 2007;21:836–42.
- 3 Nesrallah LJ, Srougi M, Gittes RF. The O'Conor technique: the gold standard for supratrigonal vesicovaginal fistula repair. *J Urol* 1999;161:566–8.
- 4 Dalela D, Ranjan P, Sankhwar PL, *et al.* Supratrigonal VVF repair by modified O'Connor's technique: an experience of 26 cases. *Eur Urol* 2006;49:551–6.

Learning points

- ▶ Ectopic pelvic kidneys due to their anatomy are more prone to develop obstruction and renal calculi; also, their anatomical location makes them difficult to explore surgically.
- ▶ In cases with pyonephrosis in an ectopic kidney, it is better to do radiological percutaneous drainage first.
- ▶ Even complex procedures like vesicovaginal fistula repair can be done along with management of the pyonephrotic ectopic kidney provided the inflammation has subsided and a meticulous technique is used.
- ▶ When such complex reconstruction is carried out in women desirous of pregnancy, it is advisable to have regular antenatal monitoring and an elective caesarean section for the subsequent pregnancies.

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