CASE REPORT

Stent extrusion on the external surface of the transplanted kidney: unusual occurrence

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SUMMARY

Here we present the case of a 40-year-old man, who underwent deceased donor renal transplantation. Towards the end of this operation, open-ended double J stent was inserted in the transplanted kidney. Modified Lich–Gregoir ureterovesical anastomosis was performed. Prior to the abdominal closure, it was discovered that proximal end of the stent had pierced the renal parenchyma and extruded on the external surface of the transplanted kidney. We contemplated removing the stent and reinserting it but decided against that due to various reasons. The stent was left as such. The patient was managed conservatively with satisfactory outcome in the postoperative period. To the best of our knowledge, this is first such report of conservative management of stent extrusion in transplanted kidney in the literature.

BACKGROUND

Ureteral stents are integral part of genitourinary surgery and renal transplantation.^{1,2} Despite their benefits,³ they do cause complications.^{4–9} Stent extrusion is a rare complication following double J (DJ) stent insertion.⁹ It has not been reported previously in a transplanted kidney to the best of our knowledge. Here we present first such report in the literature.

CASE PRESENTATION

A 40-year-old man underwent deceased donor renal transplant. The deceased donor kidney was of normal adult size and had no apparent abnormality. The graft was obtained from a 56-year-old donor (donation after cardiac death).

The kidney perfused well after vascular anastomosis but did not produce urine on the table.

An open-ended DJ stent (Universal soft ureteral stent set, USI–512, 4.7 French/12 cm DJ stent, 0.035 inches/145 cm guide wire; Cook Ireland, Limerick, Ireland) was inserted in the transplanted kidney prior to modified Lich–Gregoir ureterovesical anastomosis. Soft end of the guide wire was inserted gently inside the stent; no undue pressure was exerted while deploying the stent. Just before abdominal closure, it was discovered that the proximal end of the stent had pierced the renal parenchyma and was lying outside, on the surface of kidney (figure 1).

Various options were discussed at that point in time. The first option was to remove the stent and close the abdomen. It was felt that if the stent was removed then the tract through which it was

Figure 1 Stent extrusion on the polar aspect of the transplanted kidney.

extruding would lose the tamponade effect caused by the stent itself and may start bleeding. This may lead to collection or infection or increased morbidity in the postoperative period. Also, leaving the anastomosis without any stent may cause urine leak or ureteric stenosis. Second option was reopening the ureterovesical anastomosis and reinserting the stent but that would have led to increased operative and anaesthesia time. Third option was removal of the stent and retrograde reinsertion at the end of the operation (with the help of urologists). That would have meant prolonged anaesthesia time, arrangement of more resources and personnel, and the risk that retrograde reinsertion may fail. Fourth option was removing the stent with cystoscope at the end of the operation and reinsertion as explained earlier with all its consequences.

Use of tissue sealant for the tract following the stent removal was also contemplated but dismissed due to the fear that tissue sealant may seep through the tract and block the pelvicalyceal system.

Finally, the stent was left as such and the abdomen was closed (figure 2). The warm ischaemia time was approximately 22 min, while the cold ischaemia time was approximately 7 hours and 30 min.

INVESTIGATIONS

Doppler ultrasound scan in the postoperative period did not demonstrate significant fluid collection around the transplanted kidney, nor did the patient report any discomfort. The stent was removed at 4 weeks following which another ultrasound scan was performed which was normal.

TREATMENT

The patient was managed conservatively. Immunosuppression was managed with tacrolimus and

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Figure 2 Kidney transplanted with stent extrusion.

mycophenolate mofetil in the postoperative period. Oral levofloxacin was given to the patient in the postoperative period for 2 weeks.

OUTCOME AND FOLLOW-UP

The patient is doing well as per the latest follow-up.

DISCUSSION

Lee and Smith¹ emphasised the importance of ureteric stents serving as a mould or scaffold around which epithelialisation and smooth muscle growth occurs in organised fashion. They did, however, state that stent insertion should be decided on individual basis. Regan *et al*³ also performed routine stent insertion and stated that stents caused less symptoms or complications and prevented morbidity. Pappas *et al*² did not perform routine stent insertion and experienced ureteric obstruction in 15 of the 932 patients only, which they could manage successfully.

At our centre, routine stent insertion is practised, also due to the fact that it is a tertiary teaching and training centre for transplant.

Shivde *et al*⁹ described a case of stent extrusion through the proximal ureter in a patient who was lost to follow-up and readmitted after 2 years with recurrent stone formation. Stent extrusion in their patient may have happened because the stent perhaps became brittle after encrustations and pierced the ureter.

In our patient, the mechanism of stent extrusion was entirely different. Soft end of the guide wire pierced the renal parenchyma

Learning points

- ▶ Conservative management is a viable option in case of stent extrusion.
- ▶ Close observation and infection prophylaxis are mandatory.
- ▶ Early stent removal and regular follow-up are necessary.

despite gentle insertion. This might have happened because the kidney is swollen and oedematous at the time of transplant due to ischaemia-reperfusion injury and perhaps more prone to such complications.

One might argue that using closed-end stents could prevent such complications but we believe that similar situation can happen with closed-end stent as well.

Contributors RJS is the principal author, drafted the initial manuscript and edited subsequent drafts. AH and AS are coauthors for this study, conceptualised the manuscript along with evaluation, and revised and edited the manuscript. RJS performed data collection. All authors edited the manuscript and approved the final submitted version. All the authors participated in planning, conception and design, acquisition of data and reporting the data related to this manuscript.

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