CASE REPORT

Renal Autotransplantation After an Iatrogenic Left Ureteric Injury

E N Neo, MBBS, Z Zulkifli, MS, S Sritharan, FRCS, B C Lee, MS, J Nazri, MS

Urology Unit, Department of Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia Hospital, Kuala Lumpur

SUMMARY

We report a case of renal autotransplantation performed successfully for an iatrogenic ureteric injury with loss of 9 cm of ureteric length. The surgical options available for management of ureteric injuries are discussed, varying from a simple re-anastomosis to the more complex renal autotransplantation.

KEY WORDS:
Renal autotransplantation, Ureteric injury, Iatrogenic

INTRODUCTION

Iatrogenic ureteric injuries may occur despite meticulous dissection during surgery. The incidence is 0.05–30%, depending on the experience of the surgeon and the technical difficulty of the procedure[1]. The majority of injuries are seen in gynaecological surgery, especially with minimally invasive procedures.

CASE REPORT

A twenty seven year old Chinese lady initially presented with recurrence of a left sided mesenteric cyst despite multiple attempts at aspiration. She subsequently underwent excision of the cyst laparoscopically. She was discharged well on day 3 post-operatively.

However, histopathological report of the specimen showed presence of 9cm of ureteric tissue and injury to the left ureter was suspected. Imaging with ultrasound and CT scan showed a multiloculated collection at the left perinephric region with small amounts of fluid at the subphrenic region and Pouch of Douglas. A pool of contrast was also demonstrated at the middle third of the left ureter (at the level of the iliac crest) which was most likely the level of transection. An 8 Fr pigtail catheter was inserted under ultrasound guidance into the urinoma. Fluid from the collection was confirmed as urine by laboratory parameters. Cystoscopy and retrograde pyelogram, as well as intravenous pyelogram (Fig. 1), confirmed transection and inadvertent excision of the ureter from the level of L4 to the vesico-ureteric orifice, with an estimated loss of 8-10 cm in ureteric length.

Left nephrectomy and renal autotransplantation into the right iliac fossa with ureteroneocystostomy was performed uneventfully, two weeks after the initial gynaecological surgery. Ultrasound Doppler was used to confirm good arterial and venous flow of the transplanted kidney. She was well and discharged home on day 8 post-operatively. Follow up at five months with Doppler ultrasound revealed good perfusion of the transplanted kidney with no hydronephrosis or hydroureter.

Fig. 1: Intravenous pyelogram demonstrating leakage of contrast from the transected left ureter at the level of L4 vertebra

DISCUSSION

Ureteric discontinuity may result from several situations, ranging from external trauma, iatrogenic injuries or even during resection of gynaecological or colorectal carcinoma with ureteric involvement which necessitate complete extirpation. External ureteric injuries are rare given its mobility, narrow diameter and protected retroperitoneal position. The majority of ureteric injuries are iatrogenic with gynaecological procedures accounting for more than 50% of cases, with the remainder occurring in urological (30%), colorectal and vascular surgery (5-15%)[1].

In addition to the mechanism of injury, the management of

This article was accepted: 8 February 2007
Corresponding Author: E N Neo, Department of Surgery, Faculty of Medicine, Hospital Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 56000, Cheras Kuala Lumpur

ureteric injury depends on the location, extent and nature of injury. Typically, gynaecological ureteric injuries occur in the distal third of the ureter. The diagnosis is typically delayed which may lead to urinoma, infection, leak and in the worst case scenario, loss of the renal unit[1]. The initial clue to an iatrogenic ureteric injury may be the presentation of a ureterovaginal fistula.

In uncomplicated ureteric injuries, an end-to-end and tension free anastomosis provides a good outcome. This is commonly performed when the ureteric transection is recognized at the time. However, if there is loss of ureteric length and any doubt as to the vascularity of the ureter due to the inability to mobilise adequate length for primary anastomosis, several different surgical approaches can be employed. The psoas hitch with ureteric reimplantation is typically used in injuries involving the distal third of the ureter. In cases where the defect is too large to be bridged by the psoas hitch procedure, use of the pedicle flap of bladder wall (Boari flap) is a viable option. Transuretero-ureterostomy has been described as a good option for mid-ureteric injuries, where the ureter is too short despite use of the psoas hitch and Boari flap. A disadvantage is the potential compromise to the contralateral ureter due to kinking, stricture formation or leakage of urine which may necessitate surgery to salvage both renal units[2]. An alternative method is the use of a segment of ileum as ureteric replacement. This particular method has its own problems of electrolyte and acid-base disturbances as well as hyperchloraemic acidosis. In addition, potential complications of vesico-ileal reflux with recurrent urinary tract infections, mucus production and stone formation have to be considered.

Renal autotransplantation is a viable option for complex ureteric injuries and an alternative to the above mentioned methods. This is especially when there is a significant loss of ureteric length and the kidney is to be salvaged. It is, however, not without its complications. Renal vein thrombosis, with a reported incidence of 0.5 - 4%, is one of the most frequent events affecting graft survival during the first month[3]. Patients should, therefore, be counselled regarding the possibility of renal vein thrombosis leading to graft loss which ultimately requires nephrectomy. The decision for renal autotransplantation should be made on a case-to-case basis and based on the length and location of ureteric injury, patient preference and surgeon experience. Excellent results have been reported with renal autotransplantation for ureteric replacement at success rates of 75 - 92%[4,5].

CONCLUSION

Iatrogenic ureteric injuries are relatively rare but when it occurs in younger patients, loss of a kidney can be emotionally devastating. Renal autotransplantation in the setting of significant loss of ureteric length provides an alternative to nephrectomy.

REFERENCES

1. Brandes S, Coburn M, Armenakas N, McAninch J. Diagnosis and management of ureteric injury: an evidence-based analysis. BJU Int 2004; 94: 277-89.
2. Perumalla C, Nicol DL. Renal autotransplantation for the management of complex ureteric defects. Aust N Z J Surg 1998; 68: 376-79.
3. Giustacchini P, Pisanti F, Citterio F, De Gaetano AM, Castagneto M, Nanni G. Renal vein thrombosis after renal transplantation: an important cause of graft loss. Transplantation Proc 2002; 34: 2126-127.
4. Novick AC, Jackson CL, Straffon RA. The role of renal autotransplantation in complex urological reconstruction. J Urol 1990; 143(3): 452-57.
5. Webster JC, Lemoine J, Seigne J, Lockhart J, Bowers V. Renal autotransplantation for managing a short upper ureter or after ex vivo complex renovascular reconstruction. BJU Int 2005; 96: 871-74.