CASE REPORT

Migration of clips to the colon after laparoscopic partial nephrectomy

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SUMMARY

A 78-year-old man was treated with laparoscopic partial nephrectomy for a 4 cm tumour in the lower pole of the left kidney. The patient was discharged 2 days postoperatively. Preoperatively there was no sign of metastasis; the pathology indicated complete removal of the tumour, a renal cell carcinoma. 53 days postoperatively the patient had acute onset of rectal bleeding. A colonoscopy revealed necrosis and three clips on the wall of the colon corresponding to where the descending colon passes over the left kidney. The patient was treated conservatively. Clip migration has been reported previously, but to our knowledge we present the first case of clip migration to the colon after laparoscopic partial nephrectomy. Suggestions to avoid the presented complication are made.

BACKGROUND

Laparoscopy in urology is widely accepted. During the laparoscopic procedures, different surgical materials are used. Migration of surgical materials is rare, but several cases with clip migration to the urinary tract have been reported. We present the first case with surgical clip migration to the colon following partial nephrectomy.

CASE PRESENTATION

A 78-year-old man with comorbidity in the form of scapuloperoneal muscular dystrophy and ischaemic heart disease was referred with a 4 cm tumour in the lower pole of the left kidney without metastasis (figure 1). A hand-assisted laparoscopic partial nephrectomy was performed and the patient was discharged 2 days postoperatively. The suturing of the kidney was done with clip-and-slide technique. The pathology report showed renal cell carcinoma Fuhrman grade 2 pT1a and negative margin.

Twenty-three days later the patient was admitted due to urinary infection and symptoms of constipation. CT scan revealed haematoma surrounding the kidney with no sign of urinary extravasation. The patient was treated with intravenous antibiotics and laxatives and was discharged after 10 days.

Fifty-three days postoperatively, the patient experienced acute onset of rectal bleeding. A subacute colonoscopy revealed a necrosis at the left flexure of the colon with bleeding, but the overview was poor. Biopsies showed necrosis, but a clinical suspicion of a tumour was raised. Another colonoscopy was performed 10 days later. The necrotic area was found again with three clips (figure 2). The clips

were not removed, but left to be passed by the patient. CT scan showed no sign of further complications or recurrence of the renal carcinoma. Biopsies showed necrosis and granulomatous inflammation. The patient was treated conservatively and the rectal bleeding subsided, and the patient was discharged after 5 days to follow-up colonoscopy after 3 months. The follow-up colonoscopy was later abandoned, as the patient was without any symptoms and the planned examination considered unnecessary.

The patient was asked to give his account of the situation, but stated that he had nothing more to add to the description. He did not think that the complication had contributed to his overall morbidity.

OUTCOME AND FOLLOW-UP

The follow-up colonoscopy was later abandoned, as the patient was without any symptoms and the planned examination considered unnecessary.

The patient entered the normal follow-up programme and has not presented any signs of further complications or relapse of the primary disease.

DISCUSSION

Nephron-sparing surgery (NS) is the golden standard in the treatment of T1a kidney tumours.¹

Laparoscopic NS is comparable with open NS according to oncological and functional outcome¹ but is an advanced procedure. The most challenging step in laparoscopic NS is suturing and reconstruction of the collecting system and parenchymal defect in order to minimise the warm ischaemia time.

In our early experience, we used a running barbed suture to close the collecting system fixed outside with clip as a sliding clip technique. The parenchyma is closed with a row of interrupted Vicryl suture fixed with sliding clip technique. A patch with haemostatic agent is placed to seal the resection bed and to cover the clips and suturing material.

Park *et al*, Massoud and Miller *et al* have submitted case reports on surgical clips that migrated to the collecting system or ureter after partial nephrectomy.^{2–4} Brusky and Tran⁵ reported a case of clip migration to the ureter following pyeloplasty. Shin *et al*, Yi *et al*, Mora *et al*, Tugcu *et al*, and Tunnard and Biyani reported clips that migrated to the urine bladder following radical prostatectomy.^{6–10} Wu *et al*¹¹ reported a case of clip migration to the rectum

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Figure 1 Image from the primary CT scan showing the location of the tumour in the lower pole of the left kidney.

after radical prostatectomy. To our knowledge no previous cases of migration/erosion of clip to the colon following partial nephrectomy has been reported.

The mechanism behind clip migration is complex and involves a repairing mechanism following the trauma of surgery and an inflammatory response to a foreign body. A possible mechanism behind the migration/erosion of the clips to the descending colon could be that the serosal surface of the colon is caught by a clip or by the short rigid end of a cut barbed suture on the surface of the kidney. Due to the bowel movement, a small

lesion is made and an inflammatory process is initiated resulting in perforation/erosion to the lumen. The clip is in time released from the absorbed suture and passed with the stool.

To avoid complications as a result of clip erosion and migration, the authors suggest using monofil suture on the base of the resection surface instead of barbed suture as this can hook on to the serosal surface of nearby intestines. Use as few clips as possible, not compromising the safety of the procedure. Moreover, consider using patches of haemostatic agents to cover the clips and resected area in order to avoid direct contact between the intestines and clips in the resection area. This may also be achieved by closing the Gerota's fascia.

Learning points

- ▶ When a patient presents symptoms from neighbouring organs after surgery using clips, migration of said clips should be considered.
- ▶ CT scans are not a reliable tool in the diagnostic process, as the clips are radiopaque.
- ▶ The choice of suture and covering the resection surface and clips with fascia or haemostatic agents may lower the risk of clip migration.

Contributors TPN and HEW were both responsible for the conception and design of the case. PFV contributed to the majority of the drafting and revising of the manuscript. We were all equally responsible with the analysis and interpretation of the case. We all approve the final manuscript and agree to be held accountable for the content and integrity of the work.

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Figure 2 Still photo from acute colonoscopy performed during admission for rectal bleeding. The photo shows necrosis of the mucosa and three visible clips migrating through the intestine.

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