Case Report

Genito-femoral nerve entrapment: a complication of stapling the ureter during laparoscopic live donor nephrectomy

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Keywords: complications; laparoscopic nephrectomy; renal transplantation

Introduction

Laparoscopic live donor nephrectomy is becoming increasingly popular and has been shown to be a safe and successful technique [1,2]. The reported complications of this new technique have included transient thigh paraesthesia [3], although significant neurological injury has not yet been reported. Nerve injury is reported to have an incidence of 2% in laparoscopic hernia repair [4], usually involving the femoral branch of the genitofemoral nerve and the lateral cutaneous nerve of the thigh. There has been a recent report of damage to the ilioinguinal nerve using a 5 mm tacking device [4]. The case presented involves a tacking injury to the genitofemoral nerve occurring during laparoscopic donor nephrectomy.

Case

A 53-year-old lady was admitted for laparoscopic donor nephrectomy for transplantation to her sister. She was otherwise well and had no significant past medical history other than a colposuspension 6 years previously. At laparoscopy she was found to have some adhesions to the lower pole of the spleen, and unexpectedly complex renal venous anatomy and a small left lower renal artery that were not apparent on spiral CT. The kidney and its vasculature were dissected and the gonadal vessels and ureter were mobilized en bloc and divided just below the pelvic brim using a laparoscopic gastrointestinal anastomosis instrument.

The patient made a good recovery postoperatively and was discharged home on the 4th postoperative day. At the routine 6 week follow-up appointment she complained of left iliac fossa pain which radiated to her left groin. This had been present since the operation and was described as a throbbing pain with occasional exacerbations of shooting pain, often triggered by lying supine. It was not associated with any change in bladder or bowel habit and there was no systemic upset. There were no abnormalities detected on thorough physical examination and ultrasound scan of the abdomen and pelvis was unremarkable. The pain persisted and she was admitted for laparoscopic exploration of the donor site.

At laparoscopy, she was found to have a localized area of fibrous adhesions at the level of the pelvic brim around the gonadal vessels and ureteric stump. Further dissection of this area revealed the staple line across the ureteric stump, and the genitofemoral nerve (identified from its direct course out of the middle of the psoas muscle) was found to be caught up in the fibrous process. The staple line and several metal ligac clips were removed from the area and all the fibrous adhesions taken down. The gonadal vessels and ureteric stump were then re-secured using ligac clips and an absorbable laparoclip respectively.

Post-operatively, her pain had resolved completely but she had an area of paraesthesia on the upper lateral aspect of the left thigh in the distribution of the 2nd and 3rd lumbar dermatomes. This was attributed to a neuropraxia injury to the lateral cutaneous nerve of the thigh as extensive exploration and adhesiolysis had been performed around this area. The paraesthesia resolved over the next 24-48 h and the patient was discharged home for routine follow-up in outpatients.

Discussion

The first laparoscopic donor nephrectomy was performed in 1995 [5] and since then, enthusiasm for this technique has been growing. A number of series have compared the outcome of laparoscopically assisted donor nephrectomy with historical control groups of donors undergoing traditional open nephrectomy. All of these studies have suggested that the laparoscopic
operation is associated with a shorter in-patient stay, less post-operative pain and improved donor recovery times [1,2]. The outcome in the recipient must also be considered and it is clearly important that any new surgical technique does not transfer morbidity from the donor to the recipient. In this context there has been some concern about higher rates of ureteric complications after laparoscopic donor nephrectomy [6]. These have been attributed to the use of a blunt laparoscopic dissection technique, which if performed too close to the ureter, will lead to disruption of its delicate blood supply. In response to this, it has been suggested that a good margin of peri-ureteric tissue is dissected and this can be achieved by dividing the distal ureter and gonadal vein en bloc using a linear gastrointestinal stapling device [6]. This technical modification led to a sharp reduction in ureteric complications and was adopted in our centre. Whilst this method undoubtedly ensures that a margin of peri-ureteric tissue is dissected, there is a danger that other structures will be mobilized as well. In the case described here, the genitofemoral nerve was picked up during ureteric stapling and this led to a distressing degree of postoperative discomfort. The important principle during laparoscopic dissection of the ureter is to leave all the tissue lateral to the gonadal vein undisturbed. This can be achieved by following the gonadal vein from the renal vein to the pelvis where both structures can be divided with simple clips. We suggest avoiding the use of a stapling device as this can be difficult to position and has the potential to damage other important anatomical structures.

References

Received for publication: 8.3.01
Accepted in revised form: 20.4.01