

Laparoscopic Transperitoneal Nephropexy without Using Intracorporeal Knot

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ABSTRACT

Introduction: The downward displacement of the kidney (nephroptosis) when in orthostatic position may lead to incapacitating symptoms especially pain (which is believed to be due to temporary ischemia of the kidney); requiring surgical fixation of this organ to peritoneal muscles and ligaments. Laparoscopic is very efficient in these cases, either transretroperitoneal or retroperitoneal bringing benefits to patients. We reported a successful case in which we performed the renal fixation without using intracorporeal knot. **Report:** A 65-year-old woman with pain in the right lumbar region. Excretory urography revealed a downward displacement of the right kidney when the position is changed from supine to orthostatic, as well as ipsilateral kink in the ureter. Transperitoneal nephropexy was performed with four trocars and suture was performed with a monofilamentary non-absorbable thread with the extremities tied to a polymer clip (Hem-o-lok® - Pilling Weck) to fix the kidney. The operative time was 240 minutes with very little blood loss and after 3 days of hospital stay the patient was discharged. It was observed pain and paresthesia in right inferior member that improved with the use of gabapentin for a month. **Conclusion:** Laparoscopic nephropexy has encouraging outcomes (80-100%), which contrasts a little with the open technique, in spite of the fact that there is no prospective and randomized study comparing the two techniques. The kidney fixation with polymer clips (similar to what is used in the partial laparoscopic nephrectomy) may be a good alternative to avoid complications and failures in the treatment of the renal ptosis.

Key words: laparoscopy, nephroptosis, nephropexy.

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INTRODUCTION

Nephroptosis was first described in Germany by Hahn and the first textbooks have already defined it as a downward displacement of the kidney in a cranio-caudal direction by more than 5cm or by a downward of two vertebral bodies (by urography)¹. In the 70 and 80 decades, many open nephropexy surgeries were performed with a 68.6% success rate², so the procedure was not considered reliable until the advent of laparoscopic urology.

The transperitoneal approach has as its main advantage, a greater workspace and the retroperitoneal approach may be used, with a similar successful rate, depending on the experience of the surgeon with the technique. As well as the choice of the approach, the use of mesh or not depends on the urologist self-confidence on the suture performed.

We describe our technique of laparoscopic nephropexy with the use of the extremities of polypropylene threads tied with a polymer clip that after inserting them in the muscle and in the

intrahepatic peritoneum a second clip is used in the other extremity to tighten it, this technique is used to save time during the laparoscopic partial nephrectomy.

CASE REPORT AND TECHNIQUE

A 65-year-old patient with controlled hypertension without previous history of trauma, lithiasis and weight loss complained about severe pain in the right lumbar, with no association with hydric ingestion and which got worse when she stood up for a long period doing an activity (such as sweep the floor). Because of this pain she went several times to the emergency room of different hospitals. Echography depicted a slight dilation of the right kidney and an abnormal renal mobility when the ultrasound probe was being inserted in the right flank. Excretory urography revealed that the kidney descended more than 5 cm as well as two vertebral bodies of the right kidney when the position is changed from supine (Figure 1) to orthostatic (Figure 2). Based on the

diagnosis of nephroptosis laparoscopic nephropexy was indicated.

The patient was placed in the left half-lateral decubitus position with pads to relieve the pressure over some areas. Two 10mm trocars and two 5mm trocars were used, one at the umbilicus where it was inserted a 30° optical the other 10mm was inserted 12 cm from this one in the middle line. One 5 mm trocar was inserted at the midline between the right

anterosuperior iliac spine and the umbilicus and at last a 5 mm trocar is inserted two fingers below the furcula to move the liver. The right colon and duodenum were repelled to the midline and the kidney with its perirenal fat was identified. The fat was removed from the lateral part (Figure 3) until the capsule could be seen, remaining just slightly close to the hilum. At this moment, the patient was placed in Trendelenburg position in order to be investigated the correct position of the kidney that was going to be fixed. Three 2.0 polypropylene threads were inserted into the lateral border of the kidney and they were temporarily fixed into the lateral abdominal wall. Another suture of the same thread was passed through the upper pole of the kidney and afterwards into the infrahepatic peritoneum which was tied up to the portion that was more proximal to needle with a second polymer clip (Figure 4). Afterwards the remained threads that were



Figure 1 - Excretory urography in supine position showing the initial position of the right kidney.



Figure 2 - Excretory urography in upright position showing severe displacement of the organ.



Figure 3 - Removal of perirenal fat with Hook clamp.

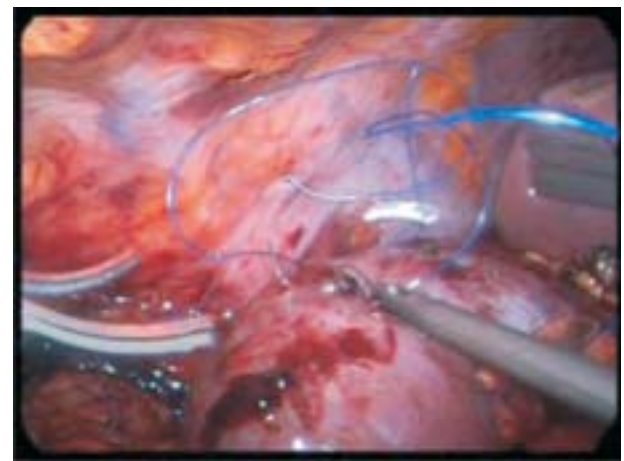


Figure 4 - Insertion of the threads through the convex border of the kidney and its fixation to the lateral of the abdominal wall.

inside the cavity were passed longitudinally through the psoas muscle (Figure 5) avoiding the genitofemoral nerve, and they were tied as the previous one. The fixation was tested with the operative table placed in anti-Trendleburg position, the hemostasis was checked and a laminar drain was left in the abdominal cavity.

The operative time was 240 minutes without complications, and an estimated blood loss of 200 ml. On the first postoperative day the oral diet was started and the drain was withdrawn, patient was discharged from hospital on the third postoperative day. It was observed pain and paresthesia since the immediate postoperative period, tramadol was used to relieve the pain. Computed tomography was performed before hospital discharge to evaluate the presence of a hematoma in the psoas muscle which was not observed. Ten days after the surgery 300 mg of gabapentin (anticonvulsant or analgesic for neuropathic pain) started to be administrated for a month and the patient is asymptomatic after 3 months of surgery. Excretory urography depicted the right kidney fixed at L2 level similar to the contralateral kidney. (Figure 6).

COMMENTS

Open nephropexy which used to be performed indiscriminately in the 70 and 80, has been abandoned for many years as the outcomes were not highly satisfactory (in the greatest eight casuistic it was performed with a 68.6% success rate², with 4 to 336 months of follow-up). Add to this fact, the majority of the urologists were not satisfied with the idea to perform lobotomy in a procedure that did not have a good rate of success.

Fornara³ started in 1997 to perform the procedure via laparoscopic approach (23 patients only one man and 22 women), with 91% of success rate and follow-up period of 12 to 27 months. McDougall (2000)⁴ and later Strohmeier⁵ showed 80% to 76% of success rate, respectively. Some authors as Hubner and cols.⁶ used TVT® to fix the kidney to the posterior abdominal wall with mesh stapler.

Our option was to perform the procedure without using the mesh, as we do not believe that this is the most important factor of fixation, and do believe that a suture well inserted and tied associated with severe fibrosis which is natural after the perirenal fat is removed. The greatest casuistic of laparoscopic retroperitoneal nephropexy did not use mesh in 51



Figure 5 - Needle longitudinally passed through the iliopsoas muscle, in order to avoid the cutaneous branch of the genitofemoral nerve.



Figure 6 - Postoperative excretory urography depicting a well positioned right kidney without the previous ureteral kink.

procedures, with a success rate of 91% improvement in pain and 77% in quality of life, with a mean follow-up time of 98 months.

In spite of Gozen postoperatively routinely leave the patients in bed rest for 5 to 8 days, we left only two days due to the fact that computed tomography did not depicted hematomas or fluid collection. The operative time was 240 minutes because we faced problems with supply of gas (for

40 minutes), and as this was the first procedure of this type performed in our Institution.

The idea of not using knot tying initially was due to the necessity of saving time and later we realize that it was possible to better adjust the suture. As we did not have the Lapra-Ty® clip we used Hem-o-lock polymer clip based on previous history of its use in partial nephrectomy⁸.

At first it was thought that the pain and intense paresthesia in dermatome innervated by the cutaneous branch of the genitofemoral nerve was caused by the incarceration of nerve due to the suture; however, as over the period of time the patient only presented paresthesia, following a neurologist orientation the administration of an anticonvulsivant (gabapentin) was initiated as it would act in the neuropathic pain mechanism. In fact the patient was completely recovered after one month of postoperative, confirming praxis of the nerve. If within a month there has not been improvement of the patient's condition, it would be proposed a new surgery to untie the knots.

CONCLUSION

Laparoscopic transperitoneal nephropexy is feasible, even without using the knot, with careful attention to the genitofemoral nerve which passes over the iliopsoas muscle. However, when symptom of injury in the nerve exists, it could be praxis, and initially the choice is the clinical treatment of the patient.

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