SKILL AND TALENT

Trans-umbilical single-port radical nephrectomy with concomitant cholecystectomy

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KEYWORDS
Cholecystectomy; Nephrectomy; Single-port surgery; Laparoendoscopic single site surgery

Abstract
Objectives: Occasionally, the development of laparoscopic procedures allows the performance of combined surgeries. Currently, some of these can be carried out by trans-umbilical single-port laparoscopy.

Materials and methods: We report a patient with renal tumor of 4.5 cm and cholelithiasis who underwent to trans-umbilical single port-right radical nephrectomy with concomitant cholecystectomy. This is the first case reported in Spain that this combined procedure is performed using umbilical single port surgery.

Results: No complications (intra or postoperative) have been described in this case, achieving proper control of tumor pathology and an excellent cosmetic outcome.

Conclusion: In those cases in which multidisciplinary approach is required, surgery can be performed by trans-umbilical single-port laparoscopy as consequence of its reduced postoperative morbidity and better cosmetic results.

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PALABRAS CLAVE
Colecistectomía; Nefrectomía; Puerto único; Laparoendoscopic single site surgery

Resumen
Objetivos: La evolución de los procedimientos laparoscópicos hace que sea necesario en ocasiones, la realización de cirugías combinadas con otras especialidades. Actualmente, algunas de estas intervenciones se pueden realizar mediante cirugía por puerto único umbilical.

Material y métodos: Presentamos el caso de un paciente con tumoração renal de 4.5 cm y colelitiasis al que realizamos colecistectomía y nefrectomía radical derecha por puerto único

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Introduction

The application of minimally invasive techniques in urology continues forward looking for lower morbidity and better cosmetic results. Within this field, Laparoendoscopic single site surgery (LESS) or single-port surgery is the one that is currently being developed.¹

Sometimes it is necessary to perform surgery on the same surgery involving different organs outside the field of urology, which surgical specialties general surgery or gynecology handle.²

Presentamos la realización de colecistectomía y nefrectomía radical por puerto único umbilical en un mismo acto quirúrgico que solamente requirió una ligera modificación de la posición del paciente de decúbito supino a decúbito lateral para su realización.

Casuistry

We report the case of a 56-year-old patient in whom, during admission for acute pancreatitis, the presence of a 4.5-cm renal tumor of mesorenal location and the presence of cholelithiasis are observed in helical CT (Fig. 1).

Once the pancreatitis symptoms are overcome, cholecystectomy and umbilical single-port radical nephrectomy are decided.

Surgical technique

Under general anesthesia, the patient is placed in supine, 4-cm umbilical incision is made, and the TriPort® system (Olympus) is introduced. As a camera, we used a 5-mm flexible handle video laparoscope, which enables the surgeon and his assistant to position their hands at two different levels. During surgery, a curved clamp was placed on the left hand and a straight clamp on the right, thus, allowing for triangulation. First, we performed cholecystectomy according to the usual laparoscopic technique using 2 clamps, removing the piece with a bag without retractor ring.

Then we made the right radical nephrectomy. To assist in the cranial dislocation of the lower renal pole we used a 2.3-mm Alligator Gposer® (Stryker), which will later be used for liver removal when releasing the upper renal pole. We clipped the renal artery and vein with Hem-o-lok® (Teleflex Medical). Extraction with bag without retractor ring.

Results

The operative time was 205 min, with approximately 250 ml bleeding, the postoperative period had no complications, being discharged after 3 days. The pathological anatomies of the surgical specimens gave us the result of:

Right kidney: 4.5-cm clear cell carcinoma that focally infiltrates the perirenal adipose tissue; Fuhrman grade II; respects the surgical margins; pT3a, and 1.5-cm angiomyolipoma.

Gallbladder: Chronic cholecystitis, cholelithiasis, and cholesterolosis.

During the check-up at 3 and 6 months, the patient remained asymptomatic both at the gastrointestinal and urological level (Fig. 2).

Discussion

In certain cases, it is necessary to perform surgeries that can affect various intraabdominal organs requiring collaboration between urologists, general surgeons, and gynecologists using a multidisciplinary approach. Performing multiple surgeries using the same incision has been used in open surgery in multiple combinations. With the further development of laparoscopic surgery, which provides
the patient with lower postoperative morbidity and better cosmetic result, these combined surgeries began to be performed laparoscopically. With the emergence of single-port surgery, most of the surgeries that before we performed by means of classic laparoscopy, now can be performed with a single input port.

The specialty of general surgery already has extensive experience in performing single-port cholecystectomies and gradually LESS surgery in urology is expanding in Spain. It possibly influences the degree of extension of this technique in the field of general surgery, which in this case have 2 interventions such as cholecystectomy and appendectomy where the complication rate is low, and this allows them to perform a learning curve faster than the one that we urologists can have. In Spain there are groups that have reported their experience in oncologic surgery, as well as in live donor transplant with a high level and showing the possibilities offered by this type of approach. We believe it is necessary to advance in the use of clinical simulation to have effective training models to perform an initial learning curve.

However, not everything is advantageous in this type of surgery, as there is a loss of triangulation, a frequent crash of instruments and difficulties due to the proximity of the hands, which currently cannot be avoided and which generate an increase in the technical difficulty of this surgery. We would like to advise the use of systems which include a 15-mm port because, this way, we can introduce an extraction bag with retractor ring which greatly facilitates the removal of the piece reducing surgical time. Nevertheless, we consider that it is a feasible and reproducible technique in urologists with laparoscopic skill and experience, making it possible to apply it in regional hospitals like ours. We hope that in the future there are new technological advances to overcome the difficulties inherent to this surgery, allowing for more rapid expansion.

Conclusion

Single-port umbilical surgery makes it possible to perform surgical approaches of different intraabdominal organs with a simple change of position, providing the advantages of a single, small incision, such as decreased postoperative pain and better cosmetic result. The application of this technique can be performed in 2nd care level hospitals like ours, single-port surgery being both reproducible and economically affordable.

Conflict of interest

The authors declare that they have no conflict of interest.

References