

Проблемы лапароскопической однопортовой радикальной нефрэктомии: клинический случай

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Почечно-клеточный рак составляет около 2 % всех злокачественных опухолей в мире, а также смертей от них. В Малайзии заболеваемость почечно-клеточным раком достигает 1,9 на 100 тыс. населения, причем его распространенность среди мужчин значительно выше (в 2006 г. соотношение мужчин и женщин было 2,75:1). Установлено, что радикальная нефрэктомия обеспечивает наилучшие шансы на излечение и длительную выживаемость. Используемые в течение долгих лет открытые хирургические вмешательства в последнее время были заменены на лапароскопические однопортовые операции. У данного метода есть свои преимущества, трудности, а также показания к применению. В этой статье мы описываем случай успешной лапароскопической однопортовой операции у пациента с почечно-клеточным раком, осложненным раком предстательной железы.

Ключевые слова: почечно-клеточный рак, опухоль почки, нефрэктомия, лапароскопическая однопортовая нефрэктомия

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Laparoscopic single port radical nephrectomy challenges: a case presentation

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Renal cell carcinoma accounts 2 % of global cancer diagnoses and death. In Malaysia, its occurrence is found in 1.9 in 100,000 patients and more predominantly in male with ratio male to female of 2.75:1 in 2006. Radical nephrectomy has been proven to give the best chance of cure and long term survival. Throughout the years, conventional open surgery has evolved to single port laparoscopic surgery. It has its own advantages, difficulties and cases selections criteria. We report a successful case of Laparoscopic single port surgery in a renal cell carcinoma patient with underlying prostate carcinoma.

Key words: renal cell carcinoma, renal tumour, nephrectomy, single port laparoscopic nephrectomy

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Background

Renal cell carcinoma accounts 2 % of global cancer diagnoses and death [1]. In Malaysia its occurrence is found in 1.9 in 100,000 patients and more predominantly in male with ratio male to female of 2.75:1 in 2006 [2]. Radical nephrectomy has been proven to give the best chance

of cure and long term survival [3]. Throughout the years, surgical approach has evolved. Conventional transperitoneal and retroperitoneal approach to laparoscopic methods has been introduced. Since the first Laparoscopic Nephrectomy performed by R.V. Clayman et al. in 1991 it has since become the gold standard for renal cell carcinoma resection [4].

Despite its good operative view and outcome post operatively, further evolution of surgery happened. In 2007 J.D. Raman et al. reported its first Laparo-endoscopic single-site surgery (LESS) Radical Nephrectomy [5]. In 2008 J.D. Raman et al. compared renal mass done via Laparoscopic single site with median tumour size of 5.5 cm ranging between 3–7 cm [6]. Laparoscopic single site surgery has its difficulties and should be performed by specially trained surgeons due to its limited access.

Case report

The patient is a 60 years old Chinese gentleman with underlying prostate carcinoma in March 2020. He has no evidence of distant metastases and underwent open prostatectomy with bilateral iliac lymphadenectomy. During follow up his prostate serum antigen level raised from 1.2 ng/ml to 2.9 ng/ml. Six month postoperatively he went for a PSMA scan and showed bone metastases at L1 and left ilium. It also showed a left renal mass suggestive of primary renal malignancy. He was started on hormonal injection and prostate serum antigen reduced to less than 0.1 ng/ml. Clinical examination showed a well healed lower midline laparotomy scar. Kidneys were not ballotable with normal blood investigation results. CT renal 4 phase done and showed a left lower pole renal mass measuring $5.4 \times 4.3 \times 4.1$ cm (Fig. 1). He was counseled for Radical Nephrectomy and agreed for Laparoscopic single port surgery for his renal cell carcinoma and bilateral orchidectomy for his metastatic prostate carcinoma.



Fig. 1. Axial CT scan imaging with renal tumor



Fig. 3. Postoperative scar and drain site

A 4 cm umbilical incision made and Alexis O wound protector placed and the S port placed on the Alexis (Fig. 2). We used standard laparoscopic instruments with additional Articulating grasper. The surgery took 2 hours and 40 minutes with estimated blood loss of 50 cc. There were no intraoperative complications. He was discharged well at postoperative day 3 (Fig. 3). Histopathology results confirmed left renal cell carcinoma weighing 604 grams with kidney size $21 \times 9 \times 80$ cm with tumour size $5.4 \times 4.3 \times 4.1$ cm ad clear margins with staging of T1aN0M0 (Fig. 4). Patient was reviewed in the clinic and showed no signs of early or late complications. Consent from patient obtained.



Fig. 4. Intraoperative pathology specimen

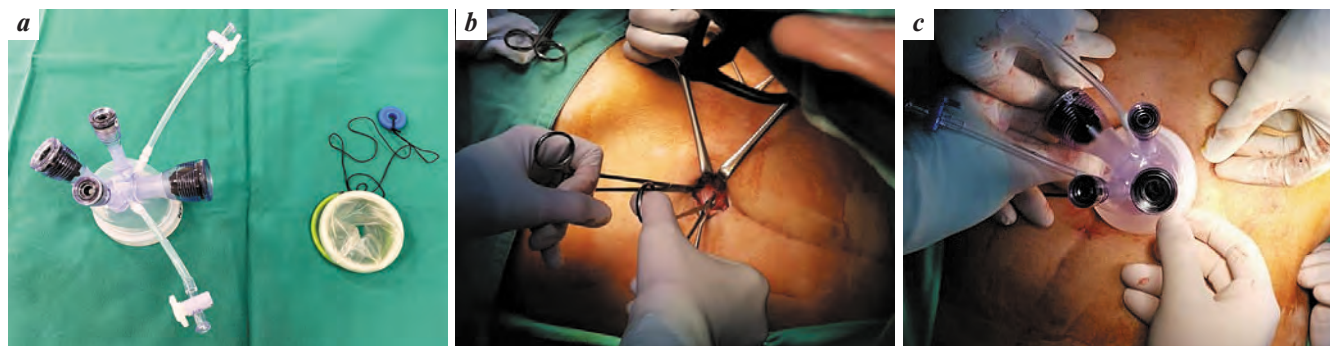


Fig. 2. a – instrument for single port laparoscopic surgery; b – incision for single port laparoscopic surgery; c – intraoperative single port laparoscopic surgery



Fig. 5. Anatomical relation of renal artery and veins: a — renal artery cranial to the renal vein; b — renal artery and renal vein at the same level; c — renal artery inferior to the renal vein

Discussion

Identifying the anatomical location for renal artery and vein is very important. K. Matsumoto et al. classified the renal vessels into 3 groups according to its anatomical relation (Fig. 5a) renal artery cranial to the renal vein, (Fig. 5b) renal artery and renal vein at the same level and (Fig. 5c) renal artery inferior to the renal vein. According to K. Matsumoto et al., preoperative CT findings shows the renal artery was located cranial to the renal vein in 21 %, while it was at the same level in 54 % and the renal vein was cranial in 25 %. From this study, type (a) was found to have longer operative time as compared to type (b). This is because invariably the artery is covered by renal vein and obscuring vision of renal artery for transection [7].

This surgery can be divided into steps to assist surgeon accomplish checkpoints during the surgery to ensure timing are within limits. Initial step is to enter peritoneal cavity and create pneumoperitoneum. Following step is for mobilization of bowel away from Gerota's fascia and dissection of the perinephric fat of the lower pole of the kidney. Next step is to dissect between the kidney and the psoas muscle to expose the renal hilum for dissection of renal artery and vein. Finally, the resected specimen freed from all attachments and the ureters divided and transected. Specimen removed from the port site and drain tube placed.

Each of the steps has its own difficulties during surgery. During this surgery the initial step to enter peritoneum was difficult especially with patients with previous surgery. Risk of injury due to adhesions can happen and need to be extra cautious. During mobilization, due to its ergonomics it is more challenging due to small space and collisions of instruments. To reduce this issue, we used an Articulated grasper to assist

dissection during surgery. Camera angle needs to be changed frequently to ensure good vision. Hence, laparoscopic camera needs to be interchanged between the ports to achieve this. It is essential to have good coordination between the surgeon and the camera assistant. This patient has a lower pole tumor which requires lower pole dissection to be more inferior and with its limited space it was very challenging for a 5.5cm tumor. During dissection at the hilum identifying and dissection of renal artery and vein was challenging because of the ergonomics of single port and placement of Hem 'o' lock clip but was done without any complications. Renal vessels was classified as type (a) according to K. Matsumoto et al. and took slightly longer time for dissection and transection of renal vessels. Final step we used a laparoscopic endopouch to retrieve the specimen. This step was easily achieved and removing the specimen with the bag was successful as the incision made fitted nicely.

Single port laparoscopic surgery gives a very good and satisfactory cosmetic outcome. A. Kurien et al., found that single port surgery was superior with respect to the pain score and length of hospital stay [8]. Despite its difficulties of this surgery and only well trained surgeons should embark in this, it remains a good option for patient with good patient selection.

Conclusion

Radical nephrectomy is a common surgical procedure for renal cell carcinoma. Surgical option for laparoscopic single port surgery can be an option if the tumor is suitable with a good patient selection criteria. It has been proven to give good outcome in terms of cosmesis and recovery postoperatively.

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