

## **Adrenal Gland Sparing Laparoscopic Radical Nephrectomy of a Large Renal Mass**

Ayman Raees, MRCSI, FRCSC\* Adnan Shaheen, MD, FRCSI\*\*

**Fifty-two year old gentleman presented with three-month history of right upper quadrant abdominal pain. He is diabetic and chronic smoker. Ultrasound revealed 8 cm right renal mass. CT scan of chest, abdomen and pelvis, liver function tests and serum calcium level staging workup revealed large right renal mass with no evidence of distant metastasis. An adrenal gland sparing laparoscopic radical nephrectomy was performed. The patient was discharged home after 72 hours, following an uneventful postoperative course. The tumor was identified as clear cell renal carcinoma, pathological stage T2b N0 Mx, with negative surgical margins.**

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The majority of renal masses are detected incidentally because of advanced imaging modalities. Approximately 90% of renal masses referred to urologists are incidentally detected<sup>1</sup>. The bulk of those are small renal masses that are either followed up with serial imaging, or treated via thermal ablation or surgical resection. Large renal mass of more than 7 cm presents a multifaceted challenge to urologist in the era of minimally invasive and nephron sparing surgery.

While nephron sparing surgery as a treatment option in large renal mass is still a hotly debated topic, minimally invasive surgery is increasingly being offered in such cases<sup>2</sup>. Oncological outcomes have been found to be equivalent to the open surgical approach. Moreover, a trend toward adrenal gland sparing is favored when feasible. This represents a paradigm shift from the classic definition of a radical nephrectomy which included resecting the ipsilateral adrenal gland en bloc.

The aim of this report is to present adrenal sparing laparoscopic radical nephrectomy as a feasible option in large renal masses. To the best of our knowledge, this was the first pure laparoscopic radical nephrectomy of a renal mass of this size in the Kingdom of Bahrain.

### **THE CASE**

Fifty-two year old gentleman suffered for 3 months with vague right upper quadrant abdominal pain. The pain was localized, and aggravated by deep breathing. The patient

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\* Senior Resident

\*\* Consultant

Division of Urology

Bahrain Defence Force Hospital

Kingdom of Bahrain

Email: aaraees@gmail.com

denied having any constitutional symptoms or unintentional weight loss. He was type 2 diabetic, treated with oral hypoglycemic agents. He was chronic heavy smoker.

Ultrasound revealed large right renal mass. Triphasic CT scan of the abdomen and pelvis revealed a large right renal mass, with no evidence of visceral metastasis. CT scan of chest, abdomen and pelvis, liver function tests and serum calcium level ruled out the presence of identifiable distant metastasis.

Adrenal sparing laparoscopic right radical nephrectomy was performed. The specimen size was around 20 cm in length; it was extracted using 15 mm endocatch bag through an extended port site incision.

Postoperatively the patient had uneventful recovery; he was discharged home after 72 hours. Histopathology revealed clear cell conventional Renal Cell Carcinoma, with a pathological stage of T2b N0 Mx. The margins were clear of the disease, and the tumor had no sarcomatoid features, see figures 1 and 2.



**Figure 1: Large Upper Pole Mass Contained within Gerota's Fascia**

The patient was seen in the out-patients clinic ten days postoperatively. He was in excellent clinical condition and did not require an additional prescription for oral analgesia. He would be followed-up regularly with Chest X-ray and CT scan of the abdomen and pelvis every three months for one year.



**Figure 2: CT Abdomen and Pelvis, Coronal View of the Right Upper Pole Renal Mass**

## **DISCUSSION**

Most renal masses are detected incidentally on diagnostic imaging; the majority of these are small renal masses. The treatment options in those cases include active surveillance, thermal ablation or surgical intervention. In our case, the mass was discovered incidentally.

The management of large renal masses, with no clinical signs of distant metastasis, is radical nephrectomy. Laparoscopic radical nephrectomy is currently offered to patients as a treatment option in such cases<sup>3,4</sup>. Laparoscopic procedure offers the advantage of a faster postoperative recovery<sup>5,6</sup>. Long-term oncological outcomes comparing laparoscopic versus open radical nephrectomy were equal<sup>7,8</sup>. Based on this, our patient was offered laparoscopic radical nephrectomy.

The classic definition of radical nephrectomy included an ipsilateral adrenalectomy. This practice has seen a shift towards sparing the adrenal gland in cases where the risk of its involvement with disease is low based on tumor size, Fuhrman grade, tumor location, or radiological evidence of involvement of the gland<sup>9,10</sup>. We spared the adrenal gland in this case, as there was no evidence of direct involvement of the gland by the tumor.

Partial nephrectomy had been described in several reports of renal tumors measuring up to 7 cm in size. A laparoscopic or open partial nephrectomy would have been feasible based on the tumor's location; however, based on the tumor's size, oncological outcomes would have been compromised. Therefore, it was felt that a radical nephrectomy would provide a better long-term oncological control.

## **CONCLUSION**

**A case of an incidentally detected large (8 cm) right renal mass is presented. The patient had an adrenal sparing laparoscopic right radical nephrectomy successfully. The histopathological outcome revealed clear cell renal carcinoma with clear surgical margins. To the best of our knowledge, this was the first pure laparoscopic radical nephrectomy of a renal mass of this size in the Kingdom of Bahrain.**

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