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Laparoscopic radical nephrectomy for large renal mass with level I renal vein thrombus

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Introduction and Objectives: Venous involvement develops in 5% to 10% of patients with renal cell carcinoma and is generally considered a relative contraindication to laparoscopic radical nephrectomy. Recent reports have suggested that laparoscopy is feasible option of treatment. However, the procedure may be technically difficult in patients with large renal tumors and in the presence of renal vein thrombus. In this video we present the step by step technique of Laparoscopic radical nephrectomy of a large renal tumour with renal vein thrombus.

Methods: We present a 62 years old male who presented with accidentally discovered right renal mass with renal invasion. Her body mass index was 39 kg/m². Triphasic Computed tomography of the abdomen with renal angiogram revealed an enhanced right renal lower polar mass that measured 10 x 9 X 7 cm compressing the lower and middle calyces with renal vein invasion and patent IVC. Invading renal vein showing dilated lumen distended with enhancing tumoral tissue. The RENAL nephrometry score was 10. The patient had no associated co-morbidities. Laparoscopic radical nephrectomy was done using the four conventional ports 1st one was 10 mm inserted at para rectal line opposite to umbilicus for 30 degree laparoscopy, 5 mm port at mid clavicular line 4 finger breadth below the 1st port, 12 mm port at mid clavicular line 4 finer breadth above the 1st port and the 4th one was inserted at midline just below xiphisternum for usage of needle holder as liver retractor. Dissection started by incision of the posterior peritoneum that was followed medial reflection of the right ascending colon and the duodenum. Then the lower pole of the kidney was mobilized. Dissection of IVC was started at level of lower pole and continued upwards along the medial aspect of the kidney by combining both sharp and blunt dissection. The main renal vein was located upwards behind the liver. Two renal arteries were found being located posterior and below the renal vein, they were dissected then clipped by the Hem-O-Lock and divided by LigaSure™. Then the main renal vein was dissected to be free of surrounding, vascular tape was used for milking of renal thrombus toward the kidney and away from IVC gate, until there was a good stump for usage of Endo GIA vascular stapler (Echelon Flex 35 ETHICON) for division of renal vein including the thrombus. Then the ureter was divided by LigaSure™. En-block dissection of the kidney with the tumor was done using both sharp and blunt dissection. The specimen was entrapped in custom-made bag and the site of insertion of the 5-mm port was extended through which the specimen was extracted.

Results: The operative time was 83 minutes. Blood loss was 100 c.c. There were no intraoperative or postoperative complications. The skin incision after retrieval of the specimen was 6 cm. Hospital stay was 2 days. Visual analogue pain scale at discharge was 2. Histopathology confirmed the diagnosis of clear cell renal cell carcinoma PT2bG3, occluded renal vein by tumor thrombus with free safety margins. The specimen size measured 17x12x7 cm while tumor size measured 11x10.5x5 cm

Conclusions: Laparoscopic radical nephrectomy is feasible and safe option for treatment of large renal tumors with renal vein thrombus. Although technically difficult, the procedure has low morbidity and high patient satisfaction.

Recent Publications

1. Abouelkhair, Ahmed & Abdel-Karim, Aly & Eid, Ahmed & Mahfouz, Wally. (2020). PD11-06 EVALUATION OF LAPAROENDOSCOPIC SINGLE SITE SURGERY VERSUS MINILAPAROSCOPY IN RADICAL NEPHRECTOMY: PROSPECTIVE RANDOMIZED COMPARATIVE STUDY. The Journal of Urology. 203. e255-e256. 10.1097/JU.0000000000000845.06.

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2. Abouelkhair, Ahmed & Hussein, Alaa. (2019). Molecular Characterization of Different Salmonella Enterica Serotypes Isolated From Frozen Meat in Minoufiya Governorate. Journal of Current Veterinary Research. 1. 63-68. 10.21608/jcvr.2019.57045.

Biography

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