VIDEO ABSTRACT

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Robotic adrenalectomy for a 3 cm sized left adrenal mass suggesting Cushing's syndrome

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In this video, a case of Cushing's syndrome due to 3 cm sized left adrenal mass treated by left robotic adrenalectomy (RA) is presented. A 33-year old female patient who was diagnosed with Cushing's syndrome at another center due to the presence of a 3 cm sized left adrenal mass lesion was referred to our institution for robotic surgery. Preoperative pituitary magnetic resonance imaging (MRI) was within normal limits. Abdominal ultrasound and MRI showed a 3 cm sized left adrenal lesion. Serum cortisol level was elevated and ACTH level was decreased. Serum adrenalin and noradrenalin levels were within normal limits. Before admission, the patient had a 6 month history of obesity, impaired glucose intolerance, menstrual dysfunction, hirsutism, acne, abdominal striae and depression. Her body mass index was 34.6 kg/m². A transperitoneal RA was performed using the da Vinci-S four-arm surgical robot (Intuitive Surgical, Sunnyvale, CA, USA).

Surgical technique

While the patient is under general anesthesia and in a 45° left flank position, a 12-mm port is inserted initially above and lateral to the umbilicus at the lateral border of the abdominal rectus muscle, us-

ing the Hasson technique. After this, the remaining trocars are inserted under visual guidance. Overall, five abdominal trocars are placed, including the fourth robotic arm. Robotic instruments including a 30° down scope (camera arm), Hot Shears (monopolar curved scissors) for the right hand (1st arm), Maryland bipolar forceps for the left hand (2nd arm) and ProGrasp forceps for the 4th arm are used. Although the use of the 4th arm is not necessary in all cases, its use facilitates the procedure by providing the advantage of additional assistance and tissue handling. Intra-abdominal CO₂ pressure is set to 15 mmHg. Initially, a white line of Toldt is incised, the descending colon is taken down and then the kidney is identified. Thereafter, Gerota's fascia is opened and the renal vein is isolated. Location of the adrenal gland is identified and fat tissue overlying the adrenal gland is removed, thus exposing the adrenal mass. All of the borders of the adrenal mass are meticulously dissected. The artery and vein of the adrenal gland are identified. Small sized arteries can be cauterized by Maryland bipolar forceps and cut with monopolar curved scissors. However, endoclip application (Weck Hem-o-Lok clips, Teleflex Medical) is required in order to ligate the larger sized adrenal vein. A vessel sealing device might be useful in dissecting the adrenal borders

in order to prevent unnecessary bleeding. Due to the lack of tactile sensation in robotic surgery, it is important to apply minimal traction or minimal pressure on the adrenal mass in order to prevent capsular perforation and bleeding. Following completion of adrenalectomy, the excised specimen is inspected in the abdomen before it is placed in an endobag. The specimen is also inspected for clean borders and margins in addition to possible capsular perforation. Console time was 1.5 hours and estimated blood

loss was 50 cc. Postoperative care was uneventful and the patient was discharged 3 days post-operation. The pathology report revealed a primary pigmented nodular adrenal cortical hyperplasia with an adenoma size of 3x3x2 cm and an adrenal gland size of 6x3x3 cm.

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