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## Indications

- Aldosteronoma.
- Cortisol-secreting adenoma (Cushing syndrome).
- Pheochromocytoma (sporadic or familial).
- Virilizing or feminizing tumors.
- Incidentaloma (>4 cm in size).
- Solitary adrenal metastasis.

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## Essential Steps

1. Optimize the patient's medically (e.g., correct electrolyte abnormalities, control hypertension, preoperative alpha-blockade in pheochromocytoma, stress steroids in Cushing's disease).
2. Position the patient in the full right lateral decubitus position with appropriate padding.
3. Establish pneumoperitoneum and place trocars along subcostal margin.
4. Explore the abdomen.
5. Mobilize the triangular ligament of the liver and elevate the right lobe of the liver.

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6. Dissect the right border of the inferior vena cava.
7. Identify, dissect, secure, and divide the right adrenal vein.
8. Dissect all the right supra-renal tissues, including right adrenal gland and perform en bloc resection of retroperitoneal fat from the superior pole of the right kidney to the diaphragm.

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## Complications

- Tumor rupture with spillage and seeding.
- Injury to right hepatic vein or IVC.
- Bleeding from large raw surface in the retroperitoneum or from accessory lumbar veins.
- Right diaphragmatic injury leading to pneumothorax.
- Injury to renal hilar vessels.
- Missed bowel injury

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## Template Operative Dictation

**Preoperative Diagnosis** List specific pathology indicating surgery (*see indications above*), e.g., *pheochromocytoma of the right adrenal gland*.

**Procedure** Laparoscopic right adrenalectomy.

**Postoperative Diagnosis** List specific intraoperative findings, e.g., *pheochromocytoma of right adrenal gland*.

**Indications** This \_\_\_-year-old *male/female* patient was found to have a right adrenal \_\_\_\_. Preoperative biochemical workup showed evidence of \_\_\_\_ (*list specific hormonal activity if present*). Imaging confirmed a \_\_\_cm right adrenal lesion. The patient underwent preoperative preparation (*see point one of essential steps*) and is now presenting for elective laparoscopic right adrenalectomy. The indications, alternatives, and risks and benefits of the surgery were discussed with the patient and informed consent was obtained.

**Details of Operation** The patient was brought to the operating room and placed on the operating table in the supine position. Timeouts were performed using both pre-induction and pre-precision safety checklist to verify correct patient, procedure, site, and additional critical information prior to beginning the procedure. Intravenous antibiotic and subcutaneous heparin were administered. After induction of general endotracheal anesthesia, a Foley catheter was inserted. The abdomen was prepped in the usual sterile fashion. The patient was then positioned in the full right lateral decubitus position with appropriate padding.

The abdomen was approached under direct vision using optical 10 mm trocar and pneumoperitoneum was induced. The first (10 mm) trocar was placed at the mid-level of the subcostal margin on the right side. Two additional 5-mm trocars were placed at the level of the costal margin, 8–10 cm away to the right and right of the camera port. The third 5-mm trocar was placed to at the level of the mid-axillary or posterior axillary line for the assistant's use. Exploration of the abdominal cavity was carried out followed by mobilization of the triangular ligament of the liver and elevation/rotation of the right hepatic lobe medially using a 5-mm curved tip retractor and hook electrocautery to

allow exposure of the IVC and the adrenal gland in the retroperitoneum.

Dissection of the right border of the IVC was then carried out by incising the peritoneal reflection overlying the suprarenal tissues along the right border of the IVC all the way up to the diaphragm using *hook electrocautery/energy device*. Care was taken not to injure the right hepatic vein. Gentle dissection along the right border of the IVC led to the identification of the right adrenal vein which was then *ligated and divided/secured with an endoscopic stapler with a vascular load, energy device or clip*. The dissection along the right border of the IVC was then carried further posteriorly until reaching the quadratus lumborum muscle and then inferiorly until reaching the right renal hilum with clear identification of the right renal vein. The right suprarenal tissues were then dissected and removed en bloc. Using *electrocautery/energy device*, the retroperitoneal fat of the right suprarenal space was elevated off its superior attachments to the diaphragm, the superior pole of the right kidney and gently dissected off the lateral abdominal wall. The posterior dissection was carried out to the level of the right quadratus lumborum muscle ensuring complete removal of the all the adrenal gland and suprarenal tissue as one block. The arterial supply of the right adrenal gland was controlled and divided using an appropriate energy source, as it was encountered along this dissection. Care was taken not to injure any accessory right renal arteries. Care was also taken to avoid injury to the capsule of the adrenal gland.

Irrigation of the operative bed was then carried with the confirmation of hemostasis. The adrenal gland and all surrounding fat were then placed in a specimen retrieval bag and extracted after enlarging the 10-mm port via a muscle splitting incision. The extraction site was then sutured closed in layers using an 0 PDS/ \_\_\_ stitch. Re-insufflation of the abdominal cavity was then carried out and hemostasis was confirmed. The trocars were removed under direct

vision and the fascia was closed on all trocars sites >10 mm using \_\_\_ suture. The skin was closed with 4-0 Monocryl. The patient tolerated the procedure well. There were no complications and blood loss was minimal. Instrument and

sponge count was correct. A debriefing checklist was completed to share information critical to postoperative care of the patient. The patient was extubated and returned to the post anesthesia care unit in stable condition.