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# Laparoscopic Adrenelectomy

**R.K.Mishra**





# History

The first adrenalectomy via a transperitoneal approach was performed in 1889 and the first laparoscopy was performed in 1912. It was not until 1992, however, that Gagner et al. performed the first laparoscopic adrenalectomy.

Since then, this approach has become the gold standard for benign disorders, as it offers several advantages:

- a minimally-invasive approach to the procedure (which facilitates it);
- a magnified view of the operative field;
- improved control of the vascular pedicles, particularly in obese patients;
- minimal postoperative discomfort due to the absence of large surgical wounds;
- reduced wound morbidity;
- reduced hospital stay.



# Anatomy of Left Adrenal

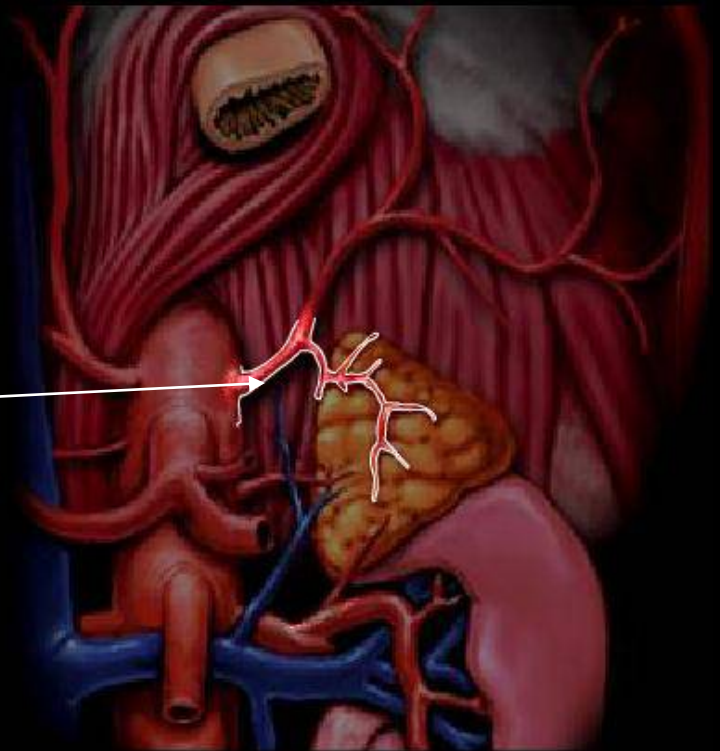


The left adrenal gland is an endocrine organ of variable shape, smaller than the right adrenal gland. This vital organ is located within the renal fossa, at the medial aspect of the upper pole of the left kidney. It is not attached to the kidney.



# Anatomy of Left Adrenal

The left superior pedicle originates in most cases from the left inferior phrenic artery. It divides into short descending branches that enter the upper pole of the left adrenal gland.



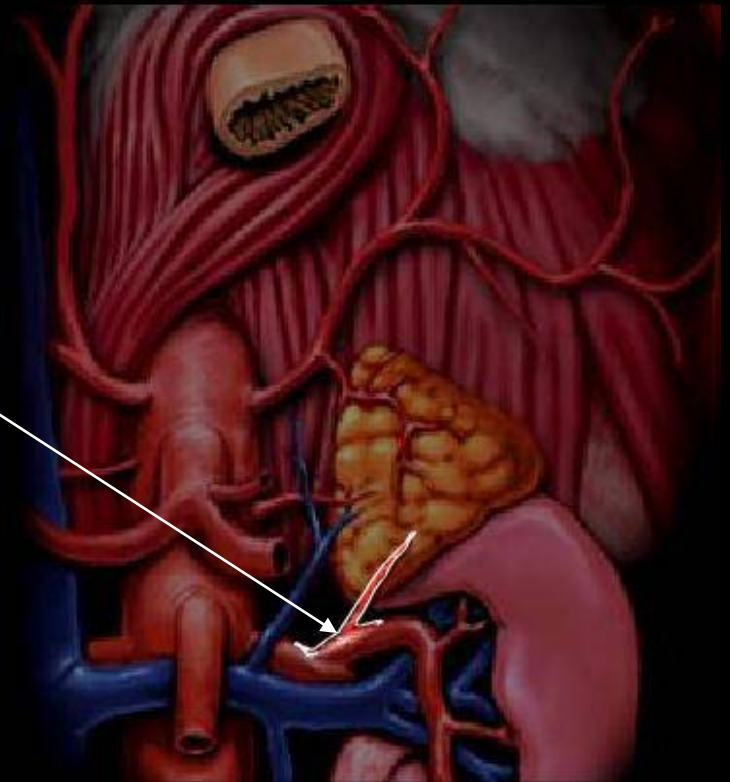
# Anatomy of Left Adrenal

The left middle pedicle is situated behind the accessory adrenal vein and originates directly from the aorta in most cases. It divides into short branches that enter the central part of the adrenal gland.



# Anatomy of Left Adrenal

The left inferior pedicle is located in an anterior inferior position relative to the left adrenal gland. It usually originates from the left renal artery and divides into short branches that enter the inferior part of the adrenal gland.



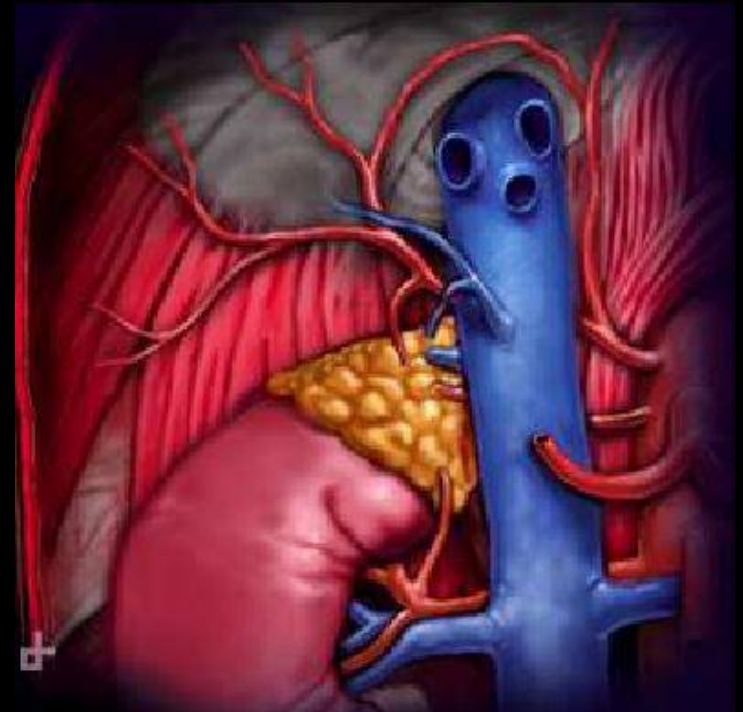
# Anatomy of Left Adrenal

The left adrenal gland is essentially drained by the main adrenal vein, which joins with the left inferior phrenic veins to drain into the left renal vein.



# Right Adrenal Gland

The right adrenal gland, which is larger than the left one, is an endocrine organ with a variable shape. It is located at the medial aspect of the upper pole of the right kidney, behind the vena cava in a very deep and high position (retroperitoneal position). Although located in the right renal fossa, it is not attached to the kidney.





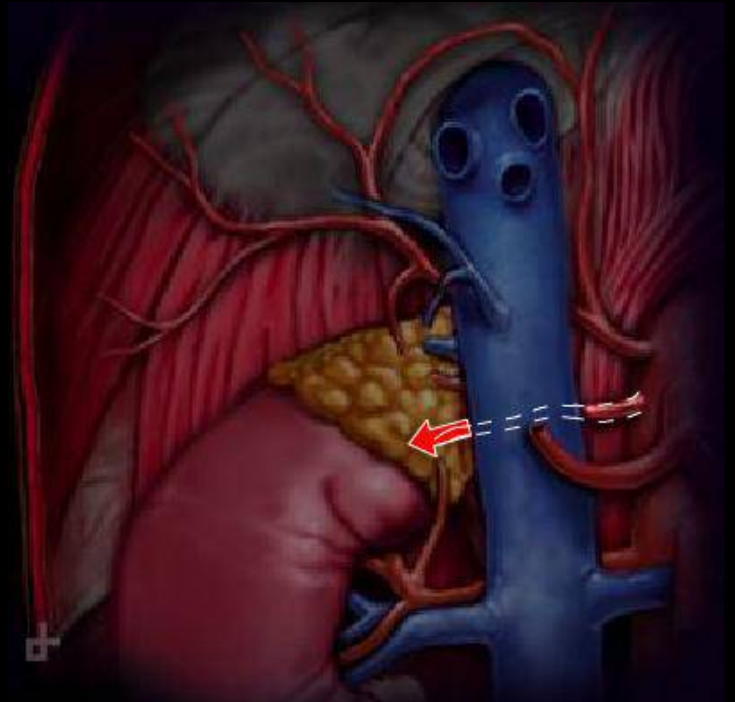
# Anatomy of Right Adrenal Gland

The right superior pedicle originates in most cases from the right inferior phrenic artery. It divides into short descending branches that enter the upper pole of the right adrenal gland.



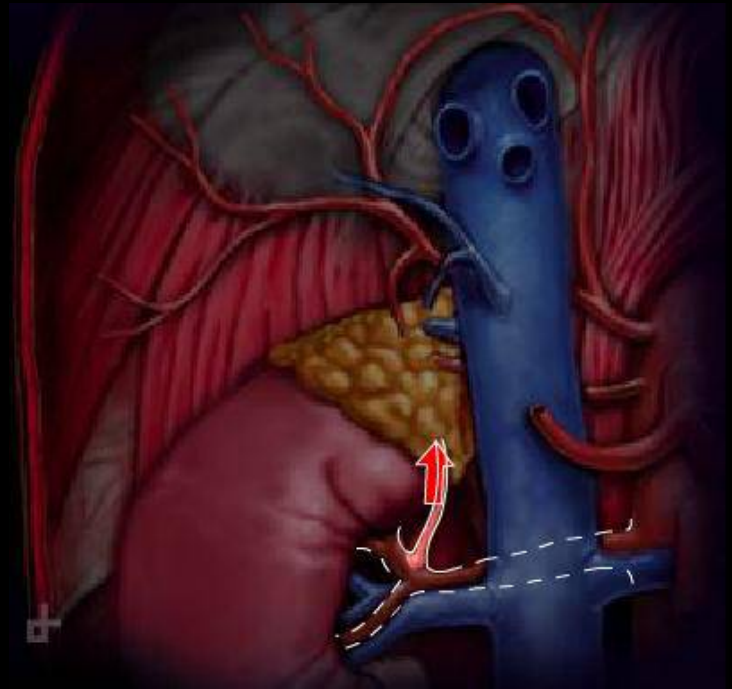
# Anatomy of Right Adrenal Gland

The right middle pedicle originates directly from the aorta. It divides into short branches that enter the central part of the adrenal gland.



# Anatomy of Right Adrenal Gland

The right inferior pedicle is located in an anterior inferior position relative to the gland. It usually originates from the right renal artery and divides into short branches that enter the inferior pole of the adrenal gland.



# Anatomy of Right Adrenal Gland

The main adrenal vein originates from the right adrenal gland. It drains into the posterior lateral aspect of the inferior vena cava after a short horizontal course.



# Anatomy of Right Adrenal Gland

In 4% to 10% of the cases, an accessory adrenal vein that originates from the gland is present. It drains into the right hepatic vein. Significant hemorrhage can occur if this vein is not controlled appropriately. The accessory right adrenal vein can also drain into the inferior phrenic vein.





# Indications

## Indications

- small hormone-secreting tumors;
- Conn's syndrome;
- Cushing's syndrome;
- small virilizing adenoma;
- incidentalomas >5 cm.





# Contraindication

## Contraindications

### patient related:

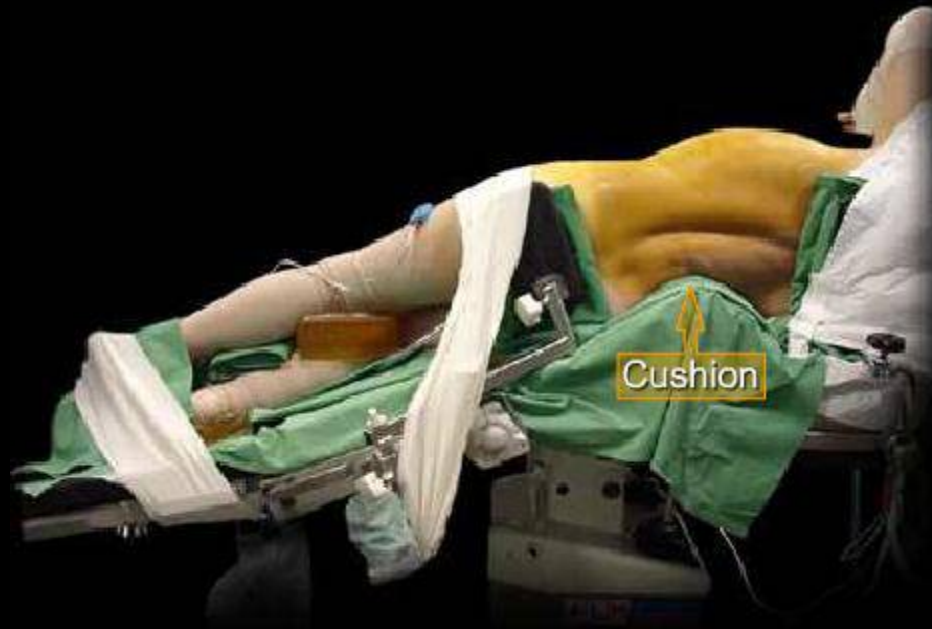
- surgical history (major risks of adhesions making the transperitoneal approach impossible)
- surgical history of the kidney or liver (risky dissections).

### adrenal gland related:

- large gland (from 8 to 10 cm);
- carcinoma or suspicion of carcinoma of the adrenal gland;
- feminizing tumor of the adrenal gland (often malignant).



# Patient Position



The patient is placed in right lateral decubitus, flexed at the waist.

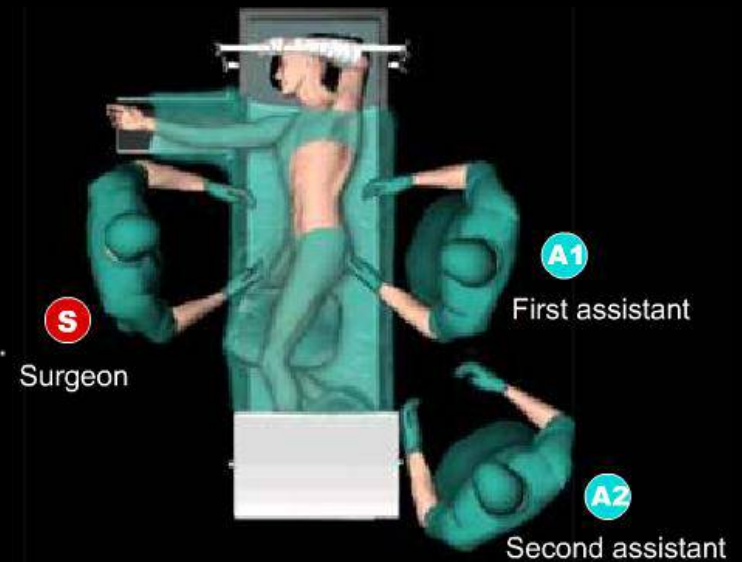
A cushion is placed under the contralateral lumbar fossa, which opens the operative field, thereby facilitating trocar placement.





# O.T. Setup

The surgeon stands on the abdominal side of the patient.  
Two assistants stand on the other side of the patient.  
Two video monitors are used.



# Port Position

