

## SUPRARENAL GLAND AND URETER

DESCRIBE SUPRARENAL GLANDS UNDER FOLLOWING HEADINGS: (a)LOCATION AND GROSS FEATURES,(b)RELATIONS,(c)BLOOD SUPPLY,(d)DEVELOPMENT.(LE) SUPRARENAL GLANDS(RIGHT & LEFT)-RELATIONS,BLOOD SUPPLY,DEVELOPMENT,APPLIED ANATOMY.(SE)

Suprarenal glands are endocrine glands.

### Situation:

Situated retroperitoneally in the posterior abdominal wall on either side of the vertebral column over the upper pole corresponding kidney.

### Gross feature:

Each gland is invested by inner true and outer false capsule.

### Size:

Height-50mm

Breadth-30mm

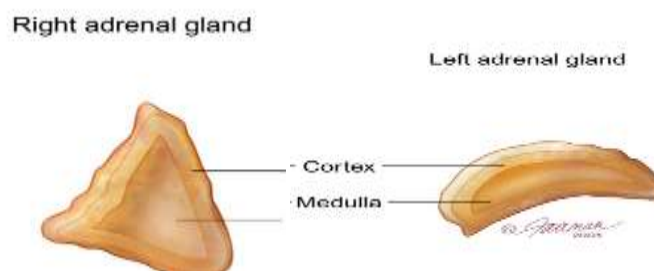
Thickness-10mm

Weight-5gms.

### Shape:

Right gland-pyramidal shape.

Left gland-Semilunar in shape.



### Relations:

#### Right suprarenal gland:

##### Anterior surface:

Medial area is non peritoneal, related to inferior vena cava.

Lateral area is divided into upper and lower part.

Upper part is nonperitoneal, related to bare area of liver.

Lower part is covered with peritoneum, related to superior duodenal flexure.

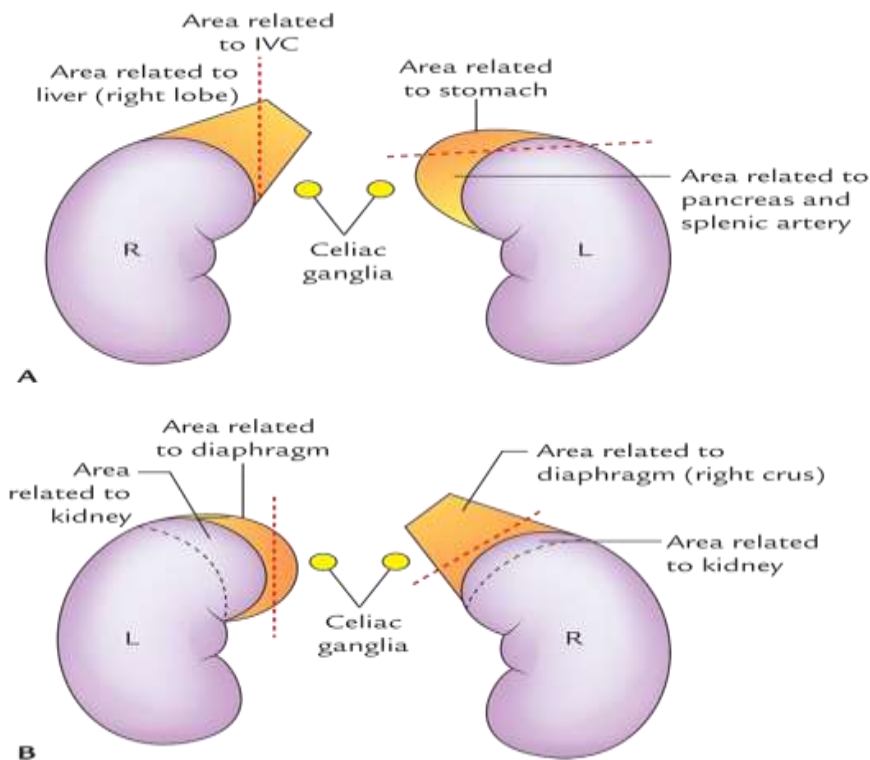
##### Posterior surface:

Upper area: convex, comes in contact with diaphragm.

Lower area: concave, related to upper end of right kidney.

Lateral border is overlapped by the liver.

Medial border : related below with the right coeliac ganglion, and above with the inferior phrenic artery.



### Left suprarenal gland:

Lower end is rounded, presents hilum in its anterior surface.

Upper end is narrow, related with medial end of spleen.

Anterior surface:

Upper area-covered with peritoneum of lesser sac, related with posterior surface of the cardiac end of stomach.

Lower area-nonperitoneal, overlapped by the body of pancreas and crossed by splenic artery.

Posterior surface:

Lateral area-related with the upper part of medial border and adjoining anterior surface of left kidney.

Medial area

left crus of diaphragm.

Lateral border

concave, overlaps the left kidney.

Medial border

convex, related to coeliac ganglion below, left inferior phrenic left gastric arteries above.

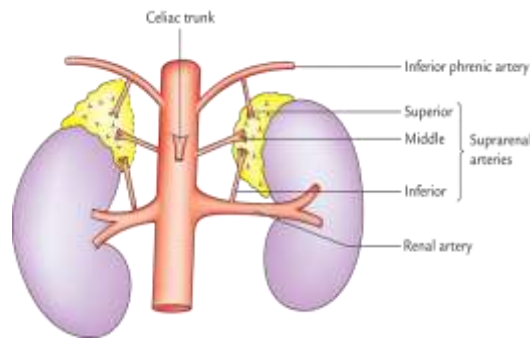
### Blood supply

#### Arterial supply:

Superior suprarenal artery, branch of inferior phrenic artery,

Middle suprarenal artery, branch of abdominal aorta, and

Inferior suprarenal artery, branch of renal artery.



### **Venous drainage:**

#### **Veins:**

A single vein emerges from the hilum of each gland and drains into the inferior vena cava on the right and into the left renal vein on the left.

#### **Development:**

The cortex of the gland develops from the mesoderm.

The medulla from the neuroectoderm.

#### **Cortex:**

Develops from a suprarenal ridge, which is produced by the proliferation of coelomic mesothelium.

At first the cells present acidophilic cytoplasm & form the foetal cortex.

Later a fresh growth of cells consisting of basophilic cytoplasm covers the foetal cortex, and persists as definitive cortex

Within 2 or 3 weeks after birth, foetal cortex disappears into 3 zones of cells.

#### **Medulla:**

Developed from neuroectoderm, derived from neural crest epithelium.

The cells migrate ventrally, invade the suprarenal ridge and form the chromaffin cells of the medulla.

### **Applied anatomy:**

#### **Addison's disease:**

Results from deficiency of mineralocorticoids.

Characterised by increased skin pigmentation, muscular weakness, weight loss and hypotension.

Caused by autoimmune or tuberculosis destruction of both glands.

#### **Conn's syndrome:**

Results from adrenal hyperplasia with excessive mineralocorticoid secretion.

Characterised by hypertension and hypokalemia.

#### **Cushing's syndrome:**

Adrenal hyperplasia with excessive secretion of glucocorticoids.

Manifested by truncal obesity, hypertension.

#### **Pheochromocytoma:**

Tumour of medulla.

Produces paroxysmal hypertension due to hyper secretion of catecholamine

## **LAYERS OF SUPRARENAL CORTEX AND HORMONES SECRETED BY EACH LAYER(SA).**

The cells of the suprarenal cortex are arranged in 3 zones. from outside inwards these are

Zona glomerulosa.

Zona fasciculata.

Zona reticularis.

Hormones secreted by them are:

Zona glomerulosa produces mineralocorticoids that affect electrolyte and water balance of the body.

Zona fasciculata produces glucocorticoids.

Zona reticularis produces sex hormones.

## **BLOOD SUPPLY OF SUPRARENAL GLAND(ARTERIAL SUPPLY AND VENOUS DRAINAGE)(SA).**

### **Arterial supply**

Superior suprarenal artery, branch of inferior phrenic artery,

Middle suprarenal artery, branch of abdominal aorta, and

Inferior suprarenal artery, branch of renal artery,

### **Venous drainage**

A single vein emerges from the hilum of each gland and drains into the inferior vena cava on the right and into the left renal vein on the left.