CLINICO PATHOLOGICAL FEATURES AND MANGEMENT OF SUPRA RENAL TUMOURS

ESSAY

Submitted in Partial Fulfillment of Master Degree in General Surgery

By

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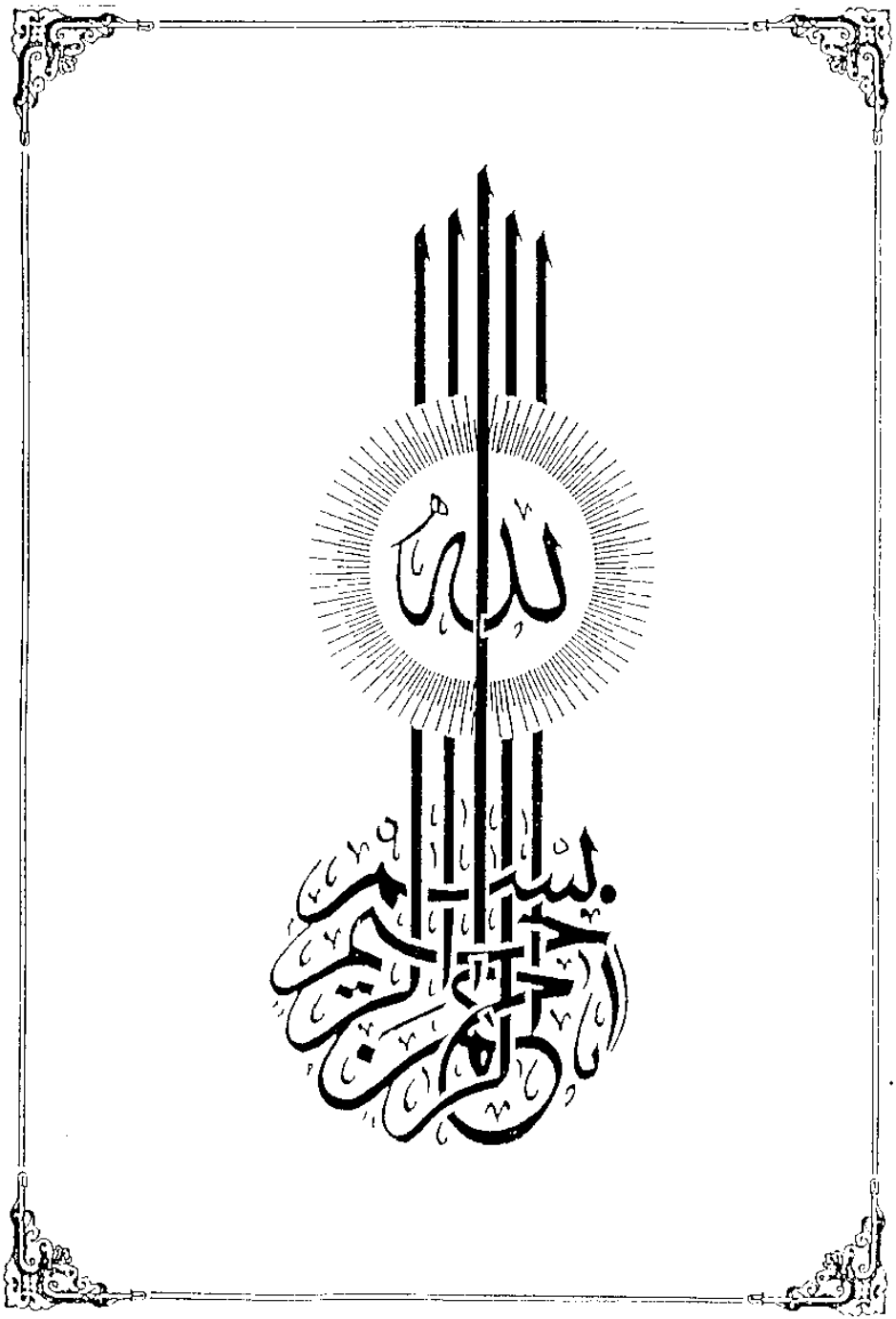

Preface

" The patient is the center of the Medical Universe; around which all our works resolve , and towards which all our efforts trend "

J.B. Murphy

1857 - 1916

ACKNOWLEDGEMENT

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INTRODUCTION

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The surgeon must have a working knowledge of adrenal pathophysiology and the essential clinical and laboratory evaluations of the patient, help to differentiate between the non- surgical and surgical adrenal diseases and point the way to appropriate surgical procedure . (O'Neal 1968) .

With the continuing progress in the biochemical , radiographic and radio-isotopic techniques in research ; adjuvant with the progress in anaesthesiology and the advent of life reserving substitution therapy , the safe removal of adrenal becomes feasible. (Dluhy et al., 1978 - Baird 1981) .

Developement of Adrenal Gland

The suprarenal is derived from 2 source;the cortex is derived from mesoderm of the intermediate cell mass , while the medulla is formed by migration of the primordial stem cells (sympathogonia) from the ectodermal neural crest to occupy a place behind the aorta . These sympathogonia may differentiate into ganglion cells , neuroblasts or chromaffin cells. Chromaffir cells are found mainly in the adrenal medulla which may be considered as a sympathetic ganglion which lacks post sympathetic fibres . They appear also , in the sympathetic ganglia and paraganglia , which are widely dispersed along the sympathetic chain, in the retroperitoneal tissue and organ of Zuckerkandl located anterior to the aortic bifurcation. Paraganglia vary from few cells to masses as large as 7 cm. long and 5 mm . wide , and are similar in structure , function and innervation to the adrenal medulla. (O' Neal 1968- Hume and Harrison. 1974 - Dluhy et al. , 1978 - Last 1981) .

On the other hand , accessory cortical tissue may be found in the liver , pancreas ,mesentery , spleen, retroperitoneal tissue inferior to the kidneys, para-aortic and the gonads . They respond to the same tropic influence as the normal adrenal gland. (Graham 1953) .

Anatomy Of The Suprarenal Gland

The adrenals are caplike structures perched on the superio-anteriomedial aspect of the superior pole of each kidney , surrounded by fatty tissue within Gerota's fascia, but separated from the kidneys by perinephric fat. (Paloyan and lawrance 1976 - Snell 1981) .

The surface of the gland appears glistening and is bright golden color. The base is thicker and broader while the apex is thin and narrow along the diaphragm. (Hume and Harrison 1974) .

Each gland weighs 4-12 gm. in adults (avarage near 7 gm.) and is 30 % heaviear in males (O'Neal 1968 - Paloyan and Lawrance 1976) .

The right adrenal gland is roughly pyramidal , laying on the right posterior parietal wall, at the level of the first lumbar vertebra. It is wedged between the inferior vena cava anteromedially and the right crus of the diaphragm posteromedially.

The superior portion is covered by the bare area of the right lobe of the liver and the lower portion is covered by peritoneum. However, short fibrous ligaments

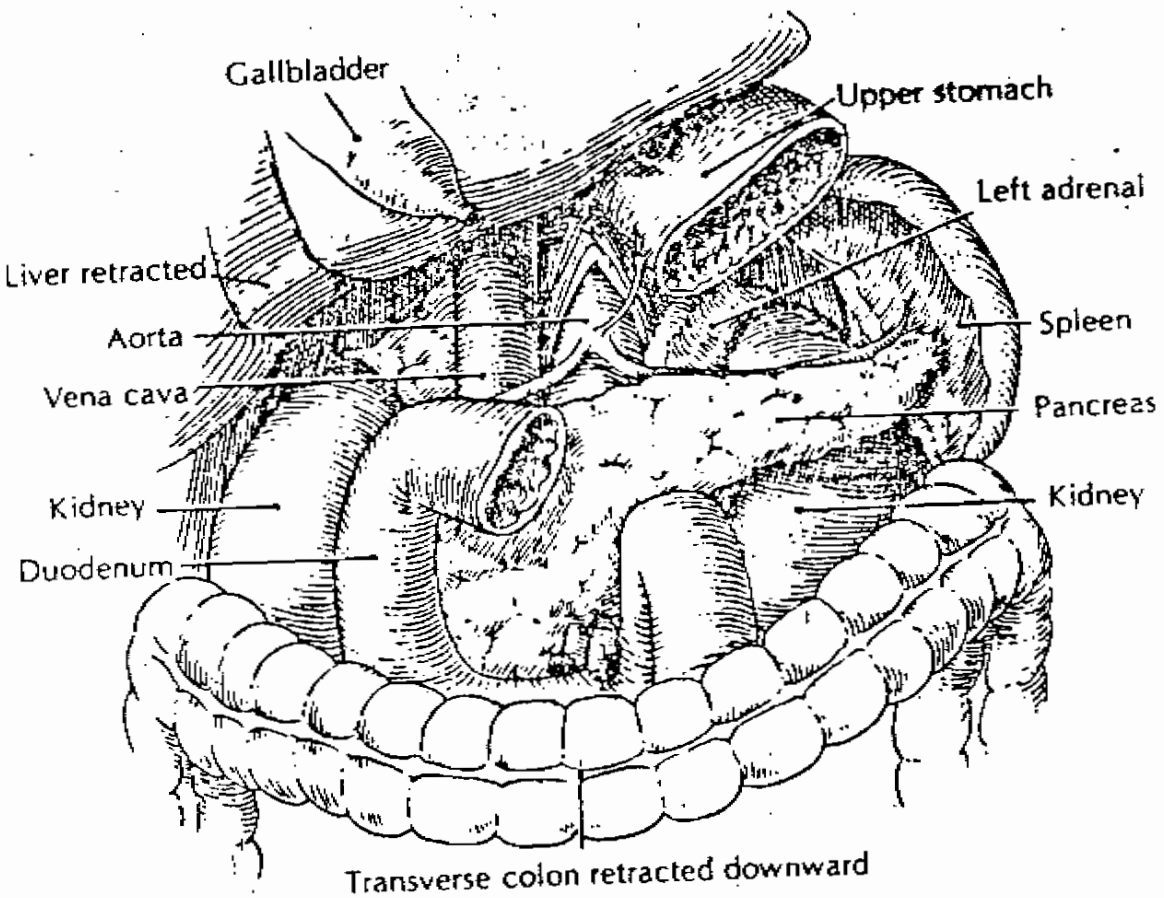

Fig. I.

Anatomical Relationship of the Suprarenal Gland

fix the gland to the right diaphragmatic crus and to the vena cava , and it is further held by the sympathetic nerves. (O'Neal 1968) .

The left adrenal gland is crescentic in shape, more flattened and larger than the right gland. Its lower pole is covered in front by tail of the pancreas, the rest of the gland is covered with peritoneum of the omental bursa and forms part of the stomach bed. Also the splenic vessels are anterior to the lower portion of the left suprarenal gland . The lateral portion of the gland is easily mobilized because short fibrous ligaments fix it in place medially to the periaortic tissue and lift crus of the diaphragm. (O'Neal 1968 - Last 1981) .(Fig. 1)

The blood supply of the suprarenal is quite variable, from side to side and from patient to patient and it is relatively independent of renal circulation with occasional supply on the left from splenic artery . It is a very rich supply . (Glenn 1983) .

The upper parts of the gland is supplied by a branch of the inferior phrenic artery which forms an arch over the superior border of each gland. A direct branch from the aorta supplies the medial side of the gland , while , inferomedially , small branches from the renal artery

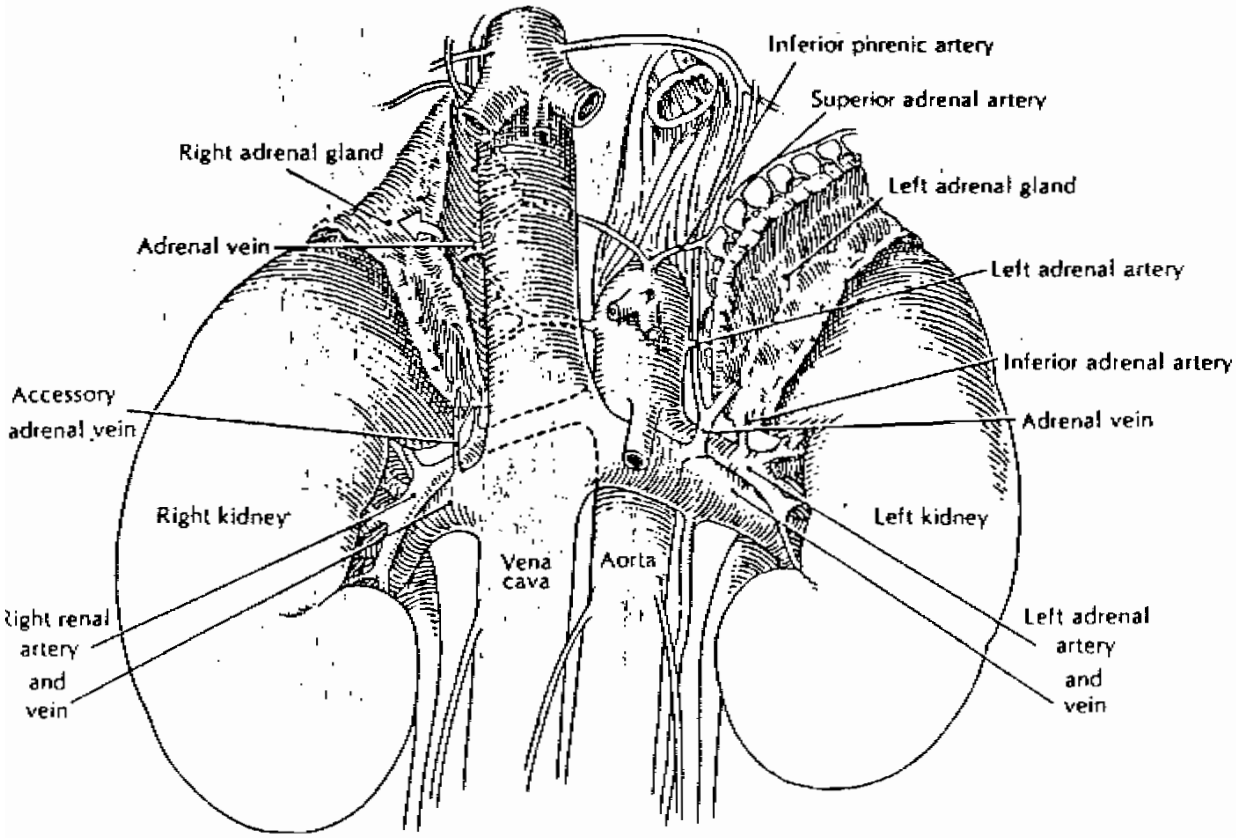

Fig. 2.

Anatomy and Blood Supply of The Suprarenal Glands

penetrate the gland . However the most vascular area is the quadrilateral space above the renal pedicle (O'Neal 1968) .

As many as 50-60 small arterioles , form a capsular plexus on the gland surface , from which branches penetrate the cortex as medullary arterioles, while others penetrate into the cortical capillary system . This supply is supplemented from intercostal and spermatic or ovarian arteries (Paloyan & lawrance 1976) .

Veins are relatively constant. On the right side the short hilar vein arises above the mid-point of the gland,then passing superiomedially to enter the posterior aspect of the inferior vena cava , about 2 cm. below the level of the hepatic veins . The right vein is usually 5mm. long. An additional vein may arise from inferomedial pole of the right gland to enter the renal vein or the vena cava near the renal vein.

On the left side , the hilar vein , enters the left renal vein either separately or jointly with inferior phrenic vein . On each side, the adrenal vein usually receives a tributary from the renal capsule. (Fig. 2)

The lymphatic channels follow blood vessels of gland , predominently the suprarenal vein from a subcapsular

plexus and a separate medullary plexus , to end in the upper lumbar and lateral aortic lymph nodes. (Paloyan and lawrance 1976) .

From coeliac , renal , aorticorenal and adrenal ganglia; sypsmpathetic postganglionic fibres penetrate the gland to ramify profusely around the medullary secretory chromaffin cells. There appear to only a vasomotor supply to the cortex (Paloyan and lawrance 1976 - Dluhy et al. 1978 .) .