TESTICULAR TUMOURS

E S S A Y

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بسم الله الرحمن الرحيم

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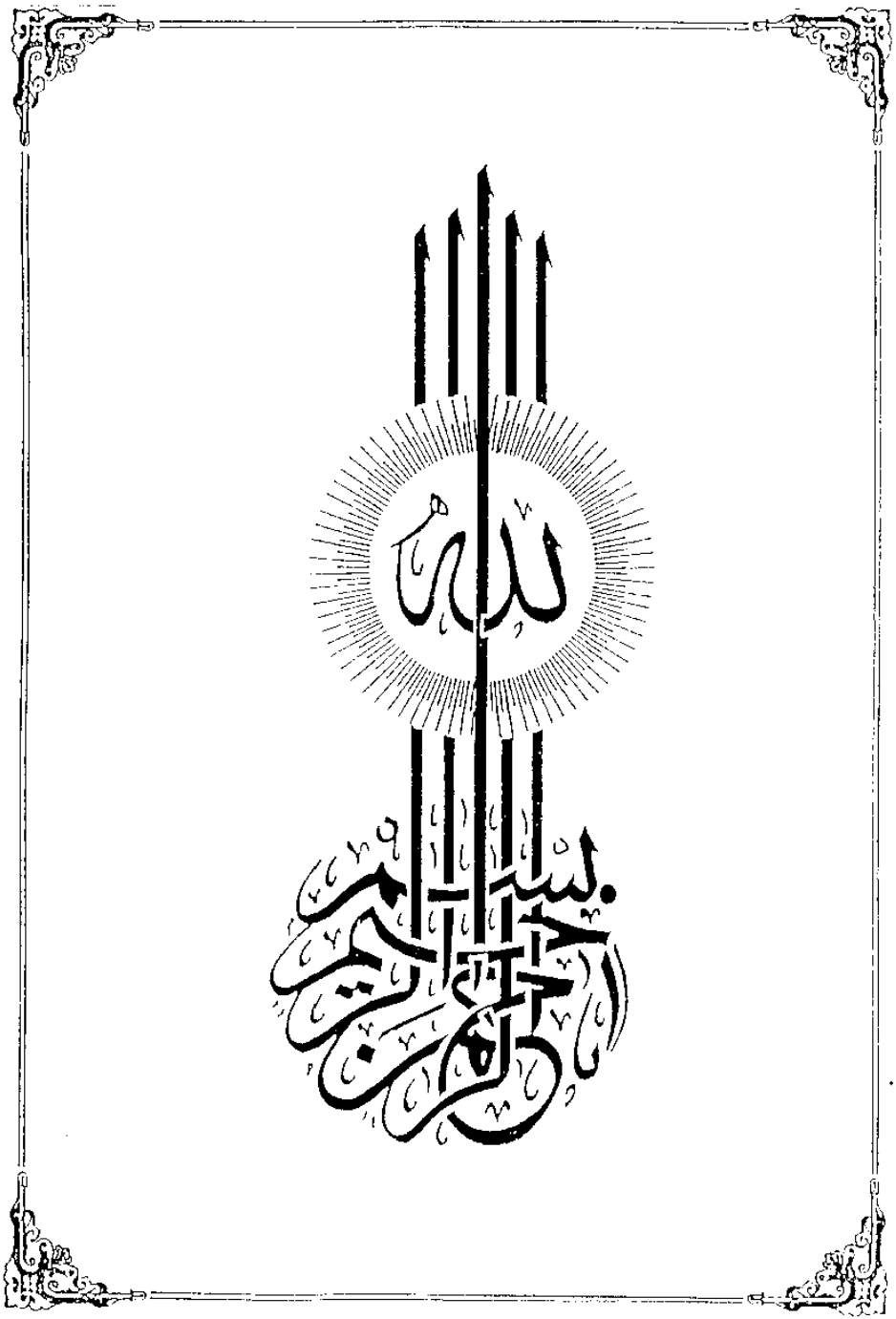

A C K N O W L E D G M E N T

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C O N T E N T S

INTRODUCTION

I N T R O D U C T I O N

The results of treatment of testicular tumours have improved significantly in recent years, partly as a result of development of increasingly accurate methods of staging.

This essay aims at evaluation of different methods of staging and treatment of germ cell tumours of the testis.

REVIEW
OF LITERATURE

ANATOMY OF THE TESTES

The testes, the reproductive glands in the male, are suspended in the scrotum by the spermatic cords, the left testis hanging somewhat lower than its fellow.

The average dimensions of the testis are from 4.0 cm. to 5 cm. in length, 2.5 cm. in breadth, and 3 cm. in the anteroposterior diameter; its weight varies from 10.5 to 14 gms. (Davies, 1962). Each testis is of an ellipsoidal form, compressed laterally, and has an oblique position in the scrotum; the upper extremity is tilted forwards and a little laterally; the lower, backwards and a little medially. The anterior border is convex, and looks forwards and downwards, the posterior border, nearly straight, looks backwards and upwards and to it the spermatic cord is attached.

The anterior border, the medial and lateral surfaces, and the extremities of the testis, are convex, free, smooth and invested by the visceral layer of the tunica vaginalis. The posterior border receives only a partial investment from that membrane. The epididymis lies along the lateral part of the posterior border.

The appendages of the testis and epididymis lie on the upper extremity of the testis. Just beneath the head

of the epididymis, there is a minute, oval, sessile body termed the appendix of the testis; it is the remnant of the upper end of the paramesonephric duct. On the head of the epididymis there is a small, stalked appendage;it is named the appendix of the epididymis, and is usually considered to be a derivative of the mesonephros (Davies, 1962).

The testis is invested by three coats; the tunica vaginalis, tunica albuginea and tunica vasculosa.

- Tunica Vaginalis:

Is the lower part of the processus vaginalis of the peritoneum, which, in foetus, preceded the descent of the testis from the abdomen into scrotum.

After the testis has reached the scrotum the upper part of processus vaginalis, viz. from deep inguinal ring to within a short distance of the testis, contracts and undergoes obliteratin. The lower part remain's as closed sac, which invests the surface of the testis, and is reflected on to the internal surface of the scrotum; hence it may be described as consisting of a visceral and parietal layer.

The visceral layer of tunica vaginalis cover's the lateral and medial and anterior border of the testis,but

leaves most of the posterior border uncovered. At medial side of posterior border it is reflected forward's to be continuous with the parietal layer. At the lateral side of posterior border it is reflected on to the medial aspect of the epididymis, lining the sinus of the epididymis and then cover its lateral aspect as for as its posterior border, where it is reflected forward's to become continuous with the parietal layer. The continuity between the visceral and parietal layers is established also at the upper and lower poles of the testis, but at the upper pole the visceral layer cover's the upper surface of the head of epididymis before being reflected.

The parietal layer is more extensive than visceral; it reaches below the testis and extend upwards for some distance infront and on medial side of spermatic cord . The inner surface of the tunica vaginalis is smooth, and covered with a layer of mesothelial cells. The potential space between visceral and parietal layers constitutes the cavity of the tunica vaginalis.

- Tunica Albuginea Forms a Fibrous Covering for the Testis:

It is a dense membrane, of a bluish-white colour , composed of interlacing bundles of white fibrous tissue.

It is covered with visceral layer of tunica vaginalis, except at, head and tail of the epididymis, and along the posterior border of the testis, where the testicular vessels and nerves enter the gland. It is applied to the tunica vasculosa, and at the posterior border of the testis, is projected into the interior of the gland, forming an incomplete, vertical septum, called mediastinum testis. This extends from the upper to near the lower end of the gland, and is wider above than below. From its front and sides; numerous imperfect septa (septula testis) are given off and radiate towards, the surface of the testis, where they are attached to the deep aspect of tunica albuginea. They divide the testis incompletely into a number of cone-shaped lobules. The bases of the Lobules are at the surface of the testis, and their apices converge to the mediastinum. The mediastinum contains the vessels and ducts of the testis in their passage to and from the substance of the gland.

- Tunica Vasculosa:

Is the vascular layer of the testis, consisting of a plexus of blood vessels held together by delicate areolar tissue. It lines the tunica albuginea and cloths the septa and therefore forms an investment to all the lobules of the testis.

Testicular Artery:

The testicular arteries are long, slender vessels , which arise from the front of the aorta little below the renal arteries and are distributed to the testes. Each passes obiquely downwards and laterally behind the peritoneum, resting on the psoas major, the right artery lies in fron of the inferior vena cava and behind the horizontal portion of the duodenum, the right colic and ileocolic arteries, the root of the mesentery, and the terminal-part of the ileum, the left artery passes behind the inferior mesenteric vein the left colic artery, and the lower part of the descending colon. Each artery passes in front of the genitofemoral nerve, the ureter and the lower part of the external iliac on its way to reach the deep inguinal ring, where it enter the spermatic cord, accompanied by the other constituents of the spermatic cord. It traverses the inguinal canal and enters the scrotum. At the upper and of the posterior border of the testis it divides into two branches which pass on the medial and lateral surfaces and after piercing the tunica albuginea and in the tunica vasculosa. From the latter, terminal branches pass into the substance of the testis at various points over the free surface. Some of these vessels pass into the mediastinum testis and then loop back again before reaching their distribution (Davies, 1962).

Testicular Vein:

The testicular veins emerge from the back of the testis, and receive tributaries from the epididymis they unit and form a convoluted plexus, called the pampiniform plexus, which constitutes the chief mass of the spermatic cord and ascends along the cord, in front of the ductus deferens. Below the superficial inguinal ring the veins of the plexus unite to form three or four veins, which pass along the inguinal canal and entering the abdomen through the deep inguinal ring, coalescs to form two veins, which run upwards infront of the psoas major and the ureter.

Coarse of Testicular Veins in the Pelvis and Abdomen:

Behind the peritoneum, lying one on each side of testicular artery. These two veins join to form a single vessel, which on the right side opens into the inferior vena cava at an acute angle a little below the level of the renal vein, on the left side it opens into the left renal vein at a right angle. The testicular veins are provided with valves. The left vein passes behind the lower part of the descending colon and is crossed by the left colic vessels, the right passes behind the terminal part of the ileum and the horizontal part of the duodenum and is crossed by the root of the mesentory, the ileocolic and the right colic vessels (Last, 1978).

Lymph Drainage:

The lymphatics draining the testis consists of two sets, one is superficial on the surface of tunica vaginalis and the other is deep in the epididymis and testis,they become arranged in four to eight collecting trunks which run up on the surface of the spermatic veins. They curve medially across the ureter and end on the lateral para-aortic lymph nodes which extend from the renal vein to the bifurcation of the aorta.Some of the lymphatics end on the medial preaortic nodes, and some may cross the midline,on the right side some lymphatics occasionally end in the node placed in the angle between the vena cava and the left renal vein. On both sides, some of the channels on the spermatic vessels after they reach the vesical peritoneum turning laterally to end in the nodes lying on the external iliac vein. The lymphatics of the epididymis follow this latter course (Ackerman and Delregato, 1979).

The lymphatics from the medial side of the testis may run up with the artery to the vas and drain into a lymph node placed at the bifuraction of the common iliac artery. Some lymphatics drain to the internal iliac lymph nodes of the same side by way of the vas lymphatics(Rains and Richie, 1975).