DIAGNOSIS OF SUBCLINICAL VARICOCELE WITH THE STUDY OF SPERM CELL PRECURSORS IN SEMENOGRAM

Thesis submitted for partial fulfillment of Master Degree In Dermatology & Venereology

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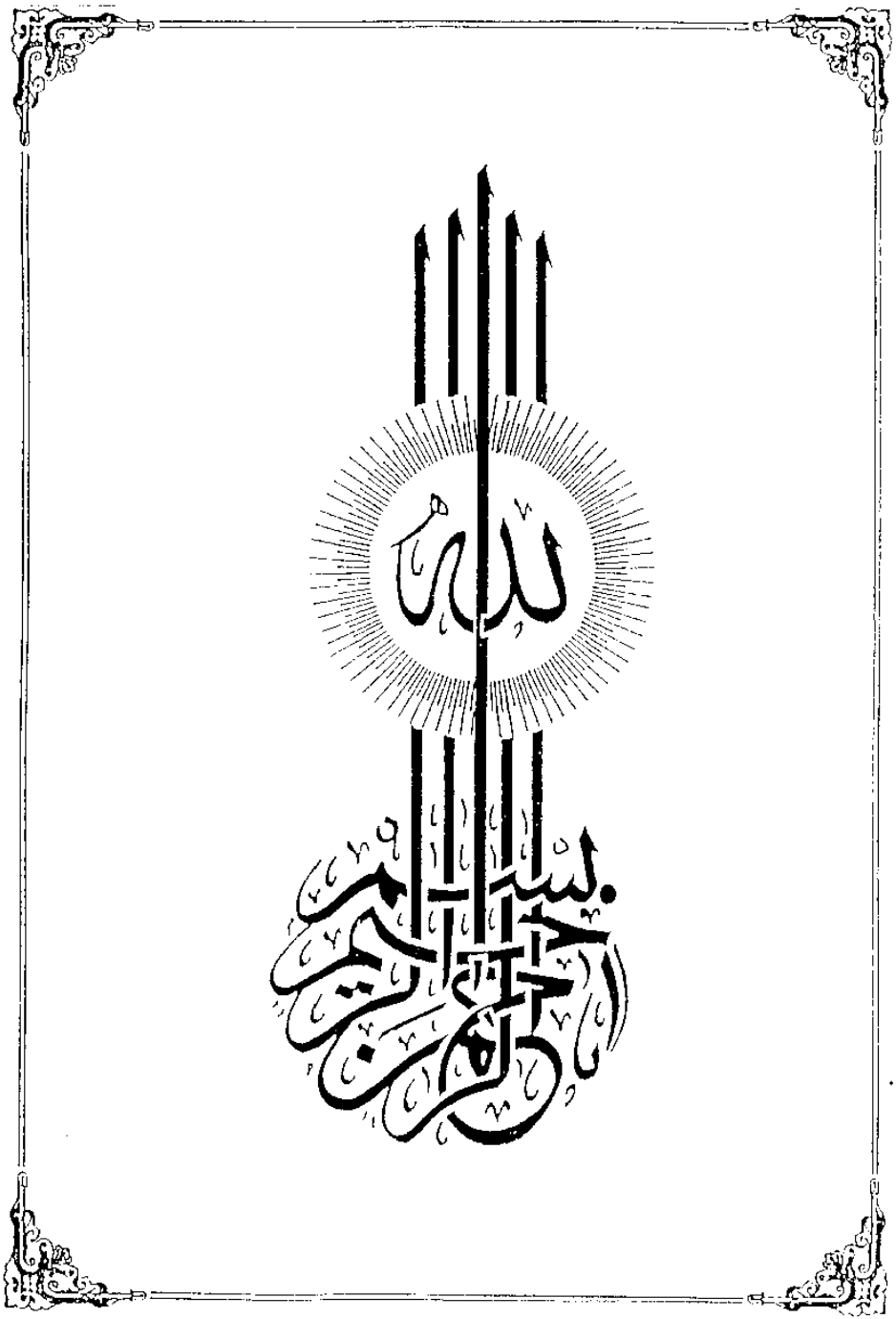

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Introduction and aim of the work

INTRODUCTION AND AIM OF THE WORK

Varicocele is an abnormal dilatation of the veins of the pampiniform plexus in the spermatic cord **(Howards, 1984).** The varicocele and its association with infertility has been recognized for centuries. Celsius in the 1st century AD, first described dilatation of the scrotal veins and noted an association between varicocele and testicular atrophy **(Nagler et al., 1997).** The first notion that varicoceles were related to infertility, appeared in **1856** when **Curling** reported that the testicle exhibited a decrease in the "secreting powers of the gland" when varicocele was present. **In 1885, Barwell** observed that the ipsilateral testis in patients with left-sided varicoceles was small and soft and noted that the placement of a wire loop around the dilated scrotal veins was followed by the return of a normal-feeling testis. Four years later, **Bennett (1889)**, operated on a patient with bilateral varicocele and found an objective improvement in his semen quality after surgery.

The first report of success in treating varicoceles was that of **Macomber & Sanders in 1929**, who treated a case of an oligospermic subfertile patient who underwent varicocelectomy and became normospermic and fertile. **Tulloch's in 1952,** described a varicocelectomy in a patient with bilateral varicocele and azoospermia. The patient became normospermic and his

wife conceived. Since then, numerous studies on varicocele, its diagnosis and surgical correction have appeared in the literature.

Correction of varicocele by ligation of the internal spermatic vein has become an accepted treatment for male subfertility. The results obtained in a large series of varicocele operations suggest that conceptions occur where even small varicoceles are ligated. It would therefore be desirable to diagnose minor degrees of varicoceles even though the pathogenesis of the associated infertility remains obscure. **(Hirsh et al., 1980).**

It is well known that varicocele may cause premature shedding of the sperm cell precursors. This triggered us to try to add a diagnostic aid to varicocele through studying the number of sperm cell precursors in routine semenogram. This method if proven to be of diagnostic aid will be simple, feasible, and non-invasive, but needs a trained investigator to differentiate the spermatogenic cells from other round cells in the seminal fluid.

Review of literature

REVIEW OF LITERATIURE

Anatomy of the testicular arterial and venous systems:

Glover et al. (1990), stated that each testicle is furnished by three arteries; the internal spermatic artery, the artery of ductus deferens and the cremasteric artery. The internal spermatic artery (testicular artery) arises from the aorta just below the origin of the renal artery and it enters the scrotum through the inguinal canal. Shortly after that, it begins to coil and pass under the head of the epididymis to take a superficial course under the tunica albuginea. Together with the superficial testicular veins. these form the tunica vasculosa of the testis. At the inferior pole of the testis, the testicular artery dives into the testicular parenchyma as a series of centripetal arteries which turn and end centrifugally as they approach the center of the testis.

The artery of the ductus deferens arises from one of the branches supplied to the bladder by the superior vesical artery. It accompanies the ductus deferens to the testis, where it anastomoses with the testicular artery. The cremasteric artery arises from the inferior epigastric artery. It supplies the cremaster and other coverings of the cord and anastomoses with the testicular artery **(Dyson & Bannister, 1980).**

The venous drainage of the testis takes place via a superficial or anterior network of veins and a deep or posterior network of veins anastomosing with it. The superficial venous network consists of the superficial and deep inferior epigastric veins, superficial internal circumflex and scrotal tributaries of the superficial and deep external and internal pudendal veins. This group drains into the femoral and iliac veins. The deep group of veins consists of the external spermatic vein, the ductus deferens vein and the internal spermatic vein. The superficial system veins communicate with each other and with the deep system through the cremasteric branches of the external spermatic vein at the level of the external inguinal ring **(Lich & Howerton, 1979; Ludwig, 1982 and Widlus & Mitchell, 1990).**

The pampiniform plexus drains the venous blood from the testis. The cremasteric veins may share in the drainage of the pampiniform plexus. The pampiniform plexus is divided into three groups of veins: the testicular vein emerging from the testis and accompanying the spermatic artery (Anterior group); deferential vein (Middle group) and the external spermatic veins (cremasteric, funicular or posterior veins) on the posterior aspect of the spermatic cord **(Boyce & Politano, 1970).** The pampiniform plexus veins join to form two groups of veins at the level of the external inguinal ring. The deferential vein accompanies the vas deferens, while the other two veins usually