OLITARY NODULE OF THYROID GLAND

AN ESSAY

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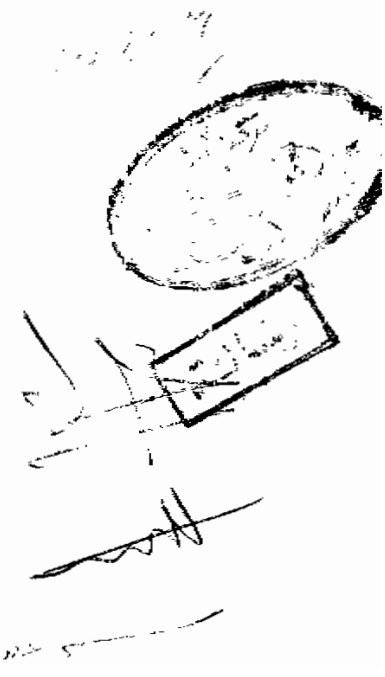

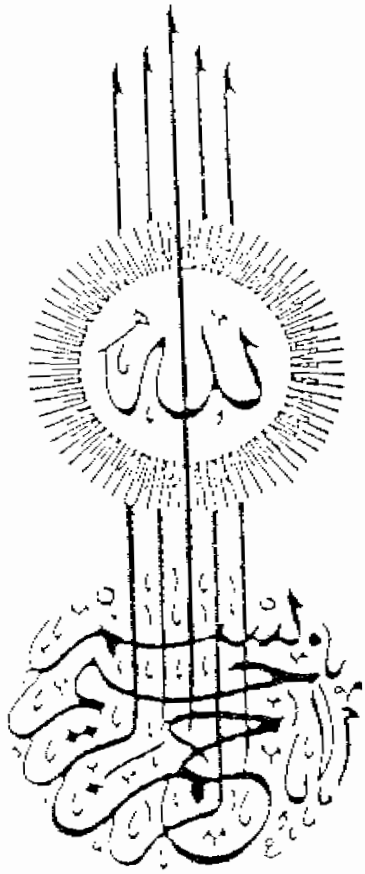

سبحانك

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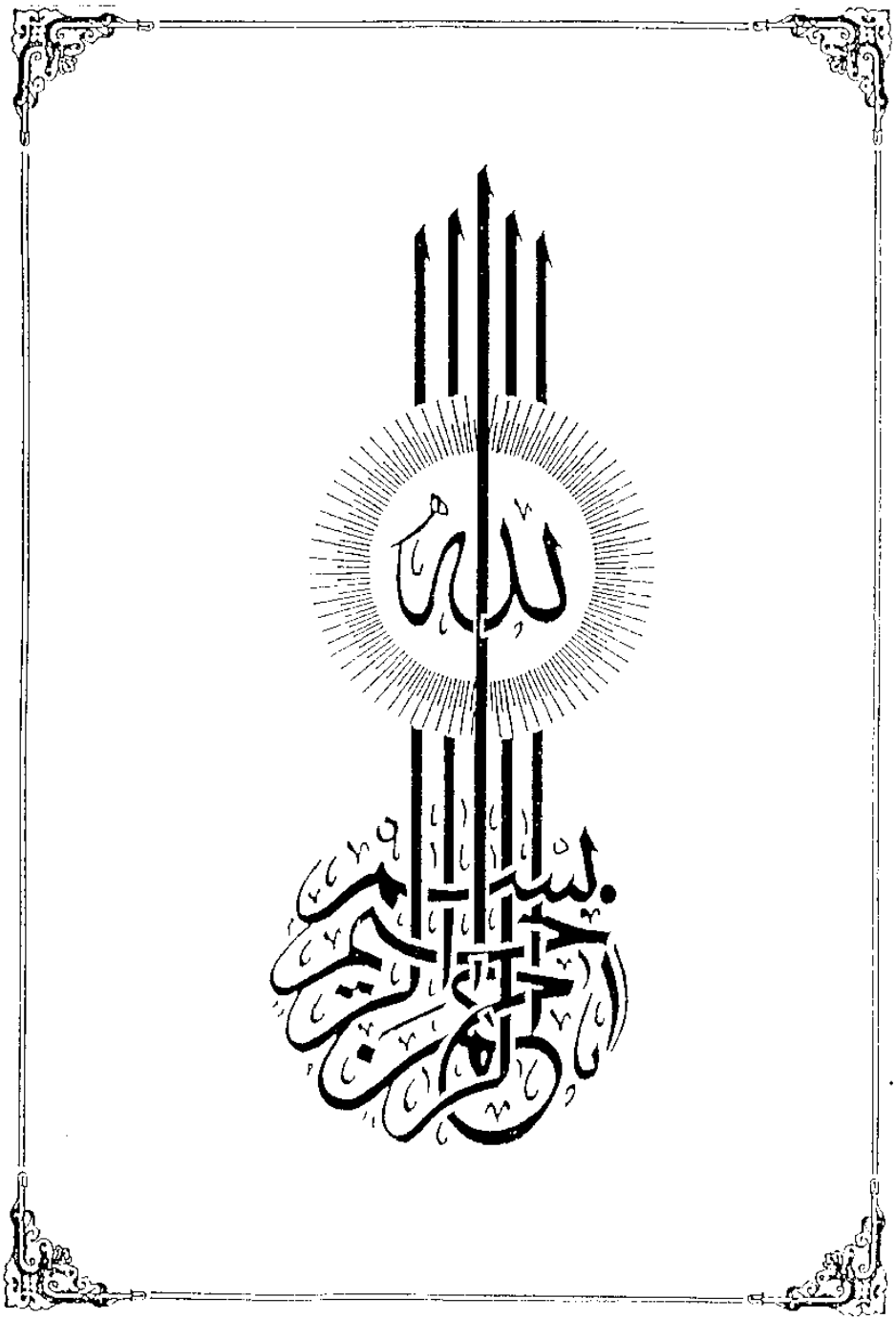

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TO

THE SOUL OF MY MOTHER,
MY FATHER,
MY WIFE
AND MY DAUGHTERS.

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INTRODUCTION

INTRODUCTION

The thyroid gland, previously refered to as "laryngeal" gland was so named by Wharton,(1646) because of, either its own shield like (thyreos, shield) shape, or the shape of the thyroid cartilage with which it is closely associated, (Schwartz, 1986).

Theodor Kocher,(1878) is regarded as the father of thyroid surgery. He was the first to successfully excise the thyroid for goitre.

The first successful transplantation of thyroid was reported by Payer in (1906), who transplanted a portion of the gland from a woman into the spleen of myxodematous daughter with " successful" results.

Isolation of the hormone thyroxine (T4) was accomplished by Kendall in (1914), (Schwartz. 1986).

The term nodular goitre is purely descriptive, referring to a number of pathological processes that cause asymmetric enlargement of the thyroid gland. (Degroot, 1975).

To make it in any sense discriminatory, another adjective or two must be added such as single, or multiple, and toxic or non - toxic. (Degroot, 1975).

There is progressive increase in weight and nodularity of the thyroid with age, and by the eights decade, nearly all the thyroid glands, contain macroscopic nodules.

The incidence of clinically detectable goitre is two to four times higher in women than in men (Degroot, 1975).

The commonest cause of a clinically solitary non - toxic thyroid nodule is a diffuse nodular goitre where only one nodule is large enough to be palpable, (Talbot, 1985).

The incidence of malignancy in clinical solitary nodules has been reported as high as 12.6%, (Taylor, 1969) but " Wade's (1980) estimate of 5% seems more in accord with Talbot experience, (Talbot, 1985).

The risk of malignancy is nearer 10% if the nodule is found to be truly solitary when the neck is explored, (Talbot, 1985).

However, autopsy study of thyroid glands has shown a true incidence of malignancy mainly of occult lesions, as high as 20% in Japan, (Fukunaga and Yatani, 1975) (Russell & Matheson 1986).

Malignancy can almost be excluded if a nodule is toxic Nevertheless toxic thyroid nodules are an important group and are not so rare as is commonly believed. (Talbot 1985).

Branson, et al., (1979) adopting the strict histological criteria of true toxic adenoma, found that; they represented 5% of operations for thyrotoxicosis. (Talbot, 1985).

If all the autonomous toxic nodules are included, some of which are single overactive nodules,in nodular goitres a higher incidence is recorded (Eyre – Brook and Talbot, 1982) (Horst et al, 1967). (Tolhot, 1985).

In this essay a short reminder of the formation of the thyroid gland & its anatomy & histological picture will be mentioned before going through the function of this gland, then the solitary thyroid nodule will be focused upon starting by :

A- The pathology.

B- The clinical picture.

C- The different methods of diagnosis.

D- The possible lines of treatment.

EMBRYOLOGY OF THE THYROID GLAND

The thyroid gland is first indicated in embryos, of about twenty somites, as a median thickening of the endoderm in the floor of the pharynx between the levels of the first and the second pharyngeal pouches and immediately overlying the aortic sac. This area is later evaginated to form a median diverticulum, which appears in the latter half of the fourth week in furrow immediately caudal to the tuberculum impar. It grows caudally as a tubular duct which bifurcates and subsequently divides into a series of double cellular plates from which the isthmus and portions of the lateral lobes of the thyroid gland are developed (Gray, 1969).

The primary thyroid follicles differentiate by reorganization and proliferation of the cells of these plates, Secondary follicles subsequently arise by budding and subdivision.

The connection of the median diverticulum with the pharynx is termed the thyroglossal duct, it is obliterated at a very early stage, but the site of its connection with the epithelial floor of the mouth is marked by the foramen caecum. (Gary, 1969)

Occasionally remnants of the thyroglossal duct may persist and give rise to the formation of cysts in the median line of

the neck. (Gray, 1969).

A contribution from the fourth pouch probably exists. There is some evidence that the calcitonin – producing cells between the follicles may develop from the fourth and the 5th (Ultimo – Branchial body) pouch . Fig. (1), (Last, 1979).

Anomalies

The median thyroid anlage may fail to develop or it may differentiate in abnormal locations.

a) The most common of these is the pyramidal lobe which has been reported in as many as 80% of patients in whom the gland was surgically exposed.

b) Other variation represents an arrest in the usual descent of part or all of the thyroid forming material to its normal location.

These include the development of a lingual thyroid, suprahyoid, infrahyoid, and pre-thyroid tissue, and persistence of the thyroglossal duct, which is the most common of the clinically important anomalies of thyroid development.

c) Infrequently, the entire gland or parts of it descend more caudally which results in thyroid tissue located in the superior mediastinum, behind the sternum, adjacent to the aortic arch or between the aorta and the pulmonary trunk, within the upper portion of the pericardium, and even in the interventricular septum of the heart, (Schwartz 1986).

ANATOMY OF THE THYROID GLAND