NEOPLASTIC THYROID DISEASE

THESIS

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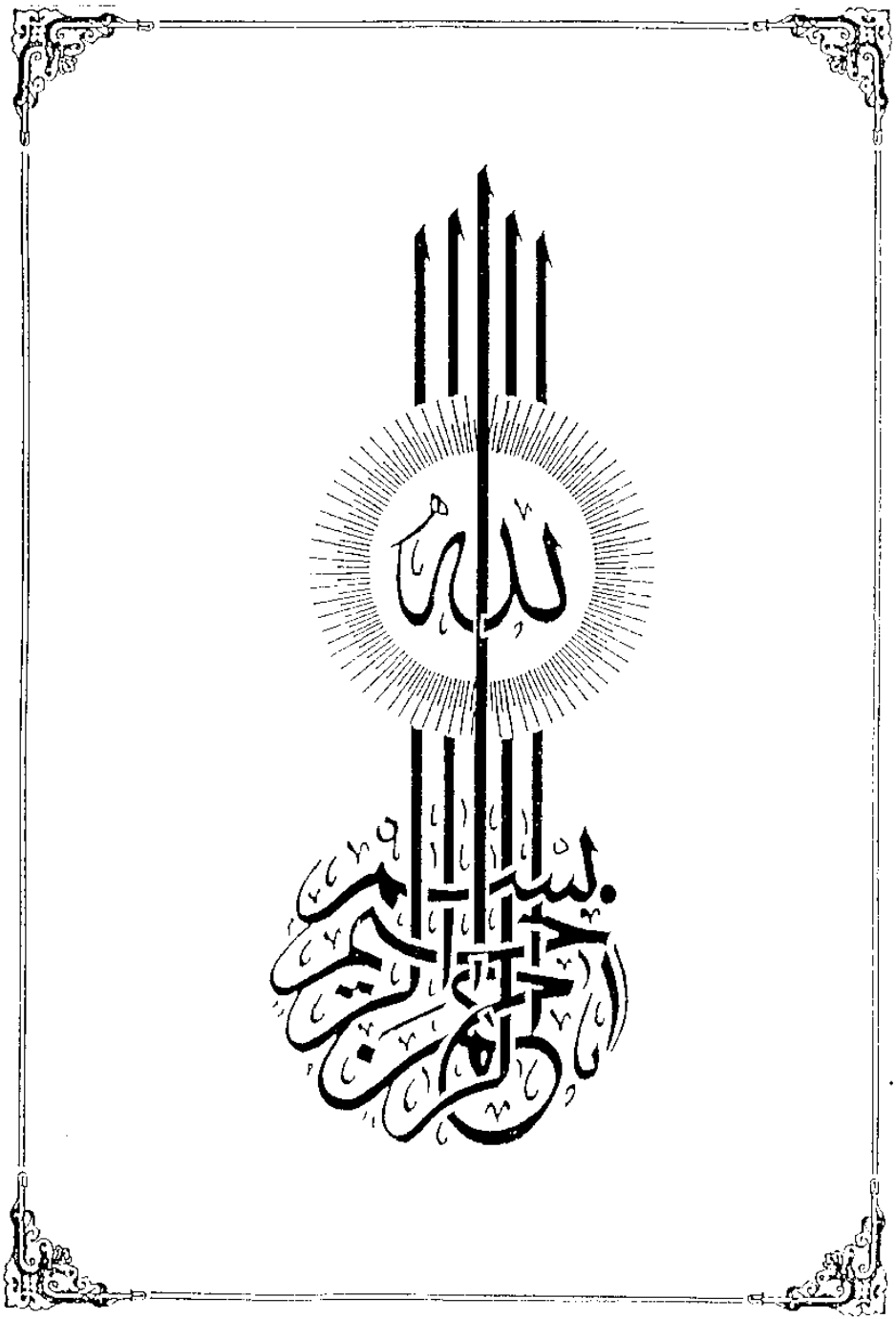

CONTENTS

	PAGE
I. INTRODUCTION	1
II. REVIEW OF LITERATURE	2
1) Anatomy of the thyroid gland	2
2) Physiology of the thyroid gland	10
3) Pathology of the thyroid neoplasm	12
4) Premalignant conditions	28
5) Clinical presentations	40
6) Differential diagnosis	47
7) Investigations	53
8) Treatment	73
III. MATERIAL AND METHODS	93
IV. RESULTS	95
V. DISCUSSION	119
VI. SUMMARY AND CONCLUSION	130
VII. REFERENCES	133
VIII. ARABIC SUMMARY	---

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INTRODUCTION

INTRODUCTION

Among other thyroid diseases, neoplastic thyroid disease is a major problem with increasing incidence. It is difficult to distinguish between hyperplasia and neoplastic conditions and between benign and malignant tumours. Our study aims at studying the increasing incidence of thyroid carcinomas and comparing the different neoplastic conditions with the inflammatory lesions of the thyroid gland.

The incidence of carcinoma of the thyroid gland and its relation to different aetiologic factors, as well as its variation with age, sex and its relations to other thyroid diseases are reviewed. This revision included also the different pathological types of thyroid neoplasm. Special attention was giver to clinical presentation, di diagnosis, differential diagnosis and treatment.

For studying the incidence of cancer thyroid. The surgical biopsies were collected in the last five years and restudied as regard : age, sex, incidence as histopathological findings.

Review Of Literature

ANATOMY OF THE THYROID GLAND

I. Developmental Anatomy :

The origin of the thyroid gland is closely related to the upper part of gullet. It is formed from a midline out-pouching of the endoderm in the floor of the primitive buccal cavity, descending in the neck and fusing with the forth or fifth branchial pouches and the ultimo-branchial bodies. (Gray's anatomy, 1962).

The ultimo-branchial bodies are the sources of the parafollicular cells. (Gray's anatomy, 1973). The thyroglossal duct is formed by a process of envagiuation from the foramen caecum ventrally between the first and second arches . Then caudally in front of the remaining arches. The thyroglossal duct has an intimate relation to the hyoid bone. Remenants of the thyroglossal duct may persist giving rise to cysts. (Last , 1977).

The thyroglossal duct connects the gland to its origin for a time and then disappears. Remenant of the duct, when persists, represent the pyramidal lobe. (Gray's anatomy, 1973).

Last (1977) stated that the bilobed thyroid gland grows out from the distal extremity of the thyroglossal duct , a portion of the latter often remains as the pyramidal lobe.

The lateral lobes of the thyroid are firmly attached to the fourth pharyngeal pouch from which probably a part of the thyroid develops.

Microscopically, the mass shows a solid acini which become hollowed, These disappear to be replaced by larger typical vesicles produced by budding (Shepard and Anderson, 1964).

II. Gross Anatomy :

The thyroid gland consists of two symmetrical lobes united in front of the second, third and fourth tracheal rings by an isthmus of gland tissue. It is absent in 3-6 % of cases (Desmet, 1960). The average of normal weight of the adult thyroid in non goiterous area is 20-40 grams. There is a pyramidal lobe in 50% of thyroid glands.

Superficially the thyroid gland is covered by the sternothyroid and sternohyoid muscles, more superficially by the superior belly of the omohyoid muscles overlaped below by the anterior border of the sternomastoid muscle.

The medial surface is moulded over the larynx and trachea, above, it is in contact with the inferior constrictor of the pharynx and posterior part of the cricothyroid muscle. Below it is related to the side of the trachea in front to the oesophagous behind and the recurrent laryngeal nerve in between .

The postero-lateral surface is relatec tc the carotid sheath and overlaps the common carotid artery. The posterior border is closely related below to the inferior thyroid artery and the posterior branch of the superior thyroid artery. In addition the parathyroid glands are usually related to this border. The lower end of the posterior border of the left lobe is closely related to the thoracic duct (Gray's , 1969).

The gland possesses its own delicate histological capsule, the fascia propria. It lies free within an envelop of pre-tracheal fascia , a fact that explain the

movement of the thyroid gland with deglutation. A small portion of the gland often projects from the isthmus commonly to the left side, named the pyramidal lobe. It is attached to the inferior border of the hyoid bone by a fibromuscular band, the musclar part is termed the levator glandulae thyroidae (Last, 1977).

Arterial supply :

The thyroid gland is supplied mainly by the inferior and superior thyroid arteries and other accessory branches.

The superior thyroid artery is the first branch of the external carotid artery, it pierces the pretracheal fascia to reach the summit of the upper pole.

It divides into anterior and posterior branches . The inferior thyroid artery arises from the thyrocervical trunk of the first part of the subclavian artery. It divides outside the pre tracheal fascia into four or five branches in the lower pole of the gland.

The thyroidae ima artery arises from the brachiocephalic trunk or directly from the arch of aorta, in 3 percent of individuals. The accessary thyroid

arteries arises from oesophageal and tracheal vesseles (Last, 1977).

Veinous drainage :

The thyroid gland is drainedby a system of veins. These are : the superior thyroid vein, the middle thyroid vein and the inferior thyroid veins.

The superior thyroid vein arises from the upper pole, following its artery. It ends in either the internal jugular or the common fascial vein.

The middle thyroid vein is short and wide, it passes from the middle of the lobe directly to the internal jugular vein, crossing the common carotid artery.

The inferior thyroid veins (10-12) arise from the isthmus and the lower poles of the gland, to form a plexus in the pretracheal fascia.

This plexus drains into the brachiocephalic veins, mostly to the left side (Last, 1977).

Lymphatic drainage :

There is an extensive lymphatic network with in the gland, although some lymph channels pass directly

to the deep cervical nodes, the subcapsular plexus drains principally to the juxta-thyroid nodes i.e. pretracheal, the paratracheal lymph nodes and nodes on the superior and inferior thyroid veins, then to the deep cervical andmediastinal group of lymph nodes (Baily and Love's, 1977).

Gray's(1973)stated that, surrounding the arterioles, the lymphatics run in the lobular connective tissue, comunicating with a network in the capsule of the gland they may contain colloid material. They end in the deep lymph vessels of the neck.

Nerve supply

The thyroid gland is supplied by sympathetic nerves derived mainly from the middle cervical ganglia and enter the gland with the inferior thyroid artery. Vagal fibres can be traced to the gland, their function is unknown. The thyroid gland has a rich sympathetic and parasympathetic nerve fibres (Last, 1977).

N.B.: The recurrent laryngeal nerve lies in the tracheo - oesophageal groove, posterior to the inferior thyroid artery. It may be further anterior or even entwined with the branches of the inferior thyroid artery.

Histology of the Thyroid Gland :

The essential unit of the thyroid gland is the follicle, which varies much in size around an average diameter 200 microns. The follicle is a closed sac lined by epithelium, the high of the cells (3 to 20 microns) is proportional to their secretory activity (Abo-El Naga, 1967).

The follicle contains viscous colloid material which gives a strongly positive periodic-acid schiff reaction. In active follicles, the colloid is weakly eosinophilic, in older ones it is strongly eosinophilic. Each follide is surrounded by a network of capillaries. In addition each follicle is surrounded by a basement membrane of its own (Meissner, 1971).

Groups of twenty to fourty follicles, bounded together by fine connective tissue and supplied by a single arterial twig, constitute the thyroid lobules.

Another type of epithelial cells are seen in human thyroid with difficulty, which are named parafollicular cells (light cells, clear cells or "C"-cells).

They are found between the follicles. They produce calcitouin . They have also been found in the parathyroid and thymus. The parafolicular cells are larger than the follicular cells, they have a watery cytoplasm and many secretory granules. (Gray's anatomy, 1973).

There is a connective tissue stroma containing blood vessels, nerves and lymphatics, lymphocytes are present in a diffuse manner. (Boyd, 1970).

The microscopic appearance depends on the state of the activity of the gland. In the resting state the follicles are uniformly distended with structure less co colloid, while in the more active state, the amount of the colloid is less, and the follides are uniformly smaller and crinkled ir outline . The liring columnar epithelium is musch faller (Last, 1977).