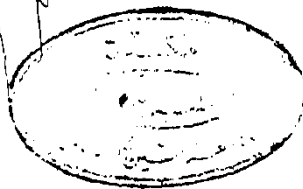
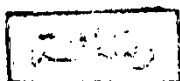


Comparative Study Of Fine Needle Aspiration Cytology
And Histopathology Of Head And Neck Masses Related To Thyroid Gland,
Major Salivary Glands, And Cervical Lymph Nodes
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11/11/11



THESIS  
SUBMITTED FOR THE DEGREE  
OF



Ph. D. Pathology  
AIN SHAMS UNIVERSITY

*[Handwritten signature]*

By

HAMED MOHAMMAD CAMAL ELDIN  
M. B., B. Ch. M. M. Sc. (Pathology)

Supervisors

Prof. Dr. MOURAD ALI SHERIF  
Prof. Of Pathology

Prof. Dr. ABDE EL-MACID M. EL-SHENNAWY  
Prof. Of Surgery

Prof. Dr. TALAAT M. EL-DEEP  
Prof. Of Pathology

616. 04  
H. M

25978

1987

## ACKNOWLEDGEMENT

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Writing an acknowledgement seems more difficult than writing a thesis, because simple words cannot express my deepest gratitude to my supervisors whose wide experience, intelligent thoughts, indispensable help and continuous encouragement constituted the greenlight and passage way in putting this work to shape.

I am very much indebted to Prof. Dr. Mourad A. Sherif, Professor of pathology, Ain-Shams University, for his excellent supervision, staunch guidance, meticulous advices and tireless efforts throughout the whole work. His supervision offered me much pleasure and great honour and added to this work a particular flavour.

I would like sincerely to thank Dr. Abd El-Magid M. El-Shennawy, Professor of surgery, Ain-Shams University, who spared no effort in overcoming all difficulties and affording all facilities required to establish this work.

I am greatly indebted and heartily thankful to Dr. Talaat M. El-Deeb, Professor of pathology, Ain-Shams University, who was behind the idea of this thesis and whose efforts and thoughts were deeply imprinted in all particles of this work. I really feel much honoured by his supervision and much grateful for allowing me much



of his valuable time.

I am much indebted to Dr. Amir A. Fouad, Lecturer of pathology, Ain-Shams University, for his sincere help and tireless efforts throughout the whole work.

I would like sincerely to thank Dr. Mourad S. Rashad for his great efforts throughout the whole work.

It is with deep appreciation that I acknowledge Dr. Mahmoud A. Khalifa, Lecturer of pathology, Ain Shams University, for his sincere help in microphotography.

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## INTRODUCTION

## INTRODUCTION

Masses involving glandular and nodal structures of the head and neck (cervical lymph nodes, major salivary glands, and thyroid gland) often present diagnostic and therapeutic difficulties. Traditional open surgical biopsy is a definite diagnostic procedure, but it sometimes necessitates a rather extensive operative approach that may interfere with the best line of management, for example, the surgeon may be unprepared for a radical surgery if the condition proved to be malignant. Consequently, the need for preoperative information about the nature of the condition is of utmost importance, and this is where fine needle aspiration biopsy is an easy, rapid, direct and safe diagnostic procedure.

One hundred cases of head and neck masses were subjected first to fine needle aspiration biopsy cytology following the modified technique of Russ et al. (1978), stained with hematoxylin & eosin, and Papanicolaou's stains. Secondly, these cases are followed up until surgery was performed and surgical specimens were examined with the standard routine histopathologic technique.



Comparative study was done between the results of fine needle aspiration biopsy cytology and the standard routine tissue sections prepared after surgery, taking the latter as our reference.

Assesment of the results of the fine needle aspiration biopsy cytology is the prepose of this work.

## REVIEW OF LITERATURE

## THYROID GLAND

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### HISTOLOGY OF THE THYROID GLAND

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Ham and Cormack (1979), have described the histology of the thyroid gland as follows:

The unit of the thyroid structure is the follicle, a closed sac lined with epithelium and containing colloid. Individual follicles are roughly spherical and vary considerably in size with an average diameter of about 200 micra.

Thyroid lobules consist of 20 to 40 follicles bound together by a thin sheath of connective tissue and supplied by a lobular artery.

The epithelium of the follicle is usually cuboidal, roughly spherical, and rests on a basement membrane. In the resting cell the nucleus is usually central, roughly spherical and about one-third the diameter of the cell. The nucleolus is not prominent.

There is a second type of cells known as parafollicular or "C" cells which are larger and have pale cytoplasm than the ordinary low cuboidal cells and these cells are placed in the outer aspect of the wall of the follicles, so they don't abut on its lumen and are always separated from the colloid by the follicular cells and they are responsible for the production of thyrocalcitonin hormone.

The colloid is uniform in density and slightly acidophilic, its main content is thyroglobulin which is synthesized by the follicular cells and secreted into the lumen of the follicles. Vacuoles are often seen at the periphery giving a scalloped appearance.

During increased activity the follicle becomes smaller, colloid diminishes, the follicular cells become tall columnar, and the nuclei enlarge and lie nearer the base.

In spite of the great vascularity and the close relationship of small vessels and capillaries to the follicles, neither blood vessels nor interfollicular stroma are conspicuous in the normal gland.

## ANATOMY OF THE THYROID GLAND

Last (1984), has described the anatomy of the thyroid gland as follows:

The thyroid gland is a brownish red highly vascular organ which lies in the soft tissues of the lower part of the neck anteriorly, it extends from the level of 5th, 6th, 7th. cervical and 1st thoracic vertebrae.

The thyroid gland consists of right and left lobes connected by the isthms, the lobes are approximately conical in shape, the apex of each is ascending and diverging laterally to the level of the oblique line of thyroid cartilage, the base is on a level with 4th, or 5th tracheal ring, each lobe is about 5 cm. long, its transverse and anteroposterior dimensions being about 3 cm. and 2 cm. respectively.

### The Relations of The Lobes

- The posteromedial aspect in each lobe is attached to the side of the cricoid cartilage by ligamentous band which is called the lateral ligament of the thyroid gland..
- The lateral surface is convex, and it is closely covered by the sternomastoid and the superior belly of omohyoid muscle.

- The medial surface is adapted to the larynx and the trachea at its superior pole, it is in contact with the inferior pharyngeal constrictor muscle and the posterior part of the cricothyroid.
- The postero-lateral surface is related to the carotid sheath and overlaps the common carotid artery.
- The anterior border of each lobe is closely related to the anterior branch of the superior thyroid artery.
- The posterior border is blunt and rounded, and it is closely related below to the inferior thyroid artery.

### The Isthmus

It connects the lower parts of the two lobes, it measures about 1.25 cm transversely and the same vertically and usually extends anterior to the 2nd, 3rd and 4th tracheal rings.

### The Blood Supply

#### A- Arterial Supply

##### 1- The superior thyroid artery:

It arises on each side of the neck from the carotid artery system. It divides into its two terminal anterior and posterior branches which supply the thyroid and anastomose freely with other vessels.

2- The inferior thyroid artery

It arises from the thyrocervical trunk of the subclavian artery. It usually divides into upper and lower terminal branches at variable distance from the gland, and at some distance or point it may be related to the recurrent laryngeal nerve.

3- The arteria thyroidea ima

It may arise from the innominate artery, the right common carotid artery, the aortic arch or the internal mammary artery.

B- Venous Supply

1- The superior thyroid vein

It arises near the upper end of the lobe, draining the area supplied by the superior carotid artery.

2- The middle thyroid vein

It arises near the lower end of the lobe.

3- The inferior thyroid vein

It arises from the network on the isthmus or from its inferior continuation.