# IMAGING THE LARYNX

THESIS
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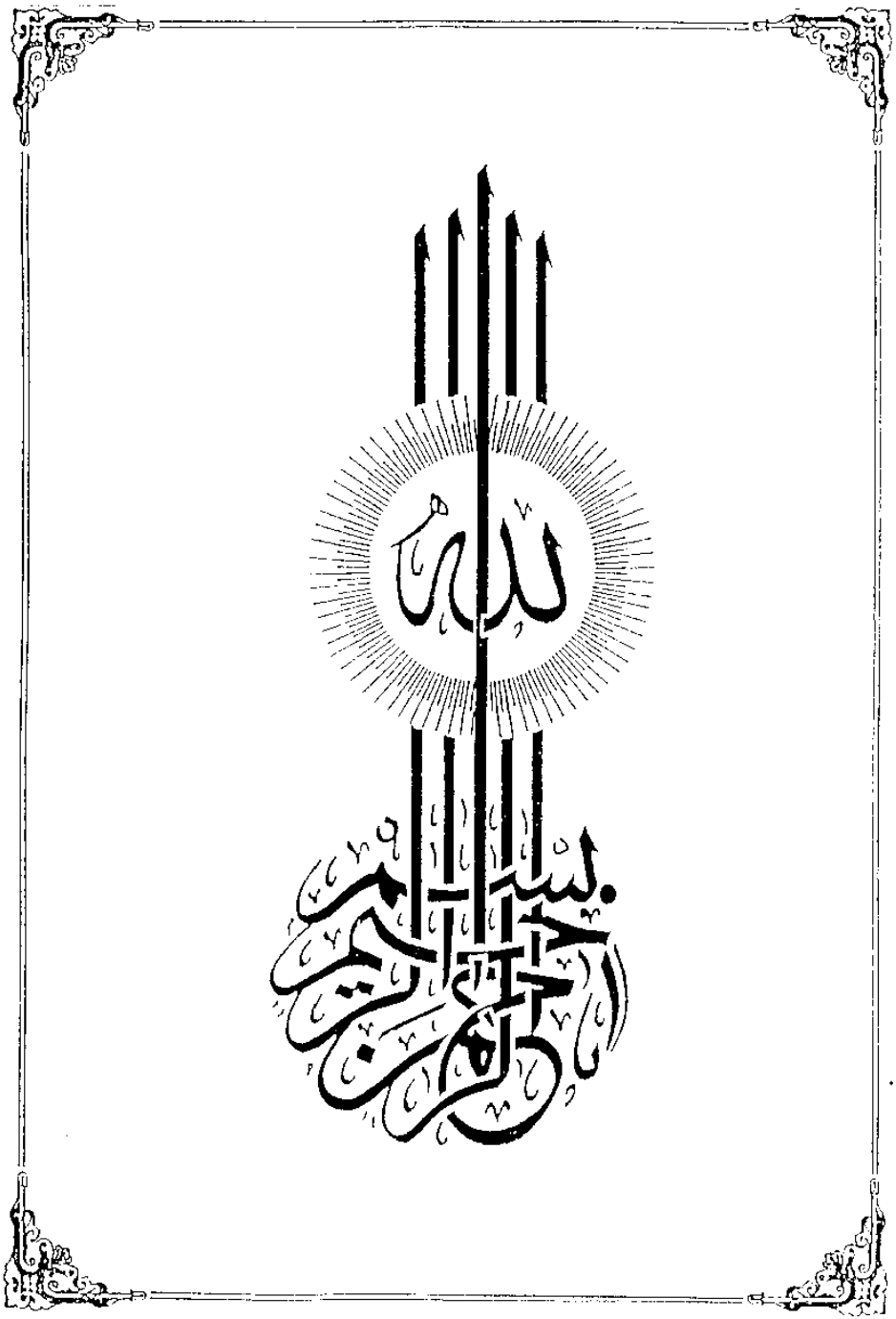

بسم الله الرحمن الرحيم

(و قل رب زدني علما )

صدق الله العظيم

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# INTRODUCTION AND AIM OF THE STUDY

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Imaging techniques of the larynx is an important topic which gains its importance from the fact that laryngeal lesions are frequently encountered by clinicians and approximately 20% of all malignant tumors of the head and neck originate in the larynx. Carcinoma of the larynx is in fact, the second most common neoplasm of the respiratory tract and superseded only by carcinoma of the lung.

For the past century direct laryngoscopy has been considered as the most accurate and valuable tool for diagnosing and staging of laryngeal lesions, especially laryngeal cancer (Unger et al, 1987).

Computerized Tomography (CT) was introduced to the clinical practice in the early 70s and has revolutionized the laryngeal radiology, which until then depended on the conventional methods of imaging such as laryngography, and linear tomography. Other techniques used before the era of CT included plain neck radiography as well as using barium swallow. It was until the late 70s, when CT started to be a dependable tool for the clinicians and a decisive method of the therapy of laryngeal neoplasms, as it can provide accurate information about the volume of the lesion, submucousal extension and invasions of the cartilaginous skeleton and the adjacent structures and the involvement of cervical lymph nodes (El Serafi, 1990).

MRI was introduced in the early 80s providing a new non-invasive cross-sectional imaging modality, which unlike CT does not require ionizing radiation and is capable of demonstrating soft tissue structures with exquisite details. Such capabilities where soon made use of in the assessment of laryngeal lesions (Castelijns et al, 1989).

Ultrasonography is now used with great success in the diagnosis of cervical adenopathy with great reported accuracy in the differentiation between benign and malignant lymph nodal enlargement (Loveday et al, 1994). The use of Ultrasonography in the assessment of laryngeal masses is currently under investigations (Bruneton et al, 1995).

The decision of the methods of treatment of the laryngeal lesions requires a very accurate delineation of the lesion's extent to provide the simplest and least invasive form of therapy while avoiding treatment failure (Ogura & Biller, 1969). Thanks to the imaging techniques and specially the newly introduced, this is now possible and easily achieved.

The above imaging techniques are just tools used by the radiologist. In order to reach an accurate diagnosis, one should be perfectly aware of the gross regional anatomy of the larynx, the different radiological appearance of the region by the different available techniques as well as a good understanding of the physiology of phonation. Thus the aim of the work is to emphasize the importance of such knowledge, as well as to explore the potentials of the different imaging techniques of the

larynx, highlighting their advantages and limitations. The discussion includes a review of the basic anatomy, physiology of phonation, details of imaging techniques of the larynx with special interest in their values in facilitating a diagnosis.

# LIST OF FIGURES

# ANATOMY OF THE LARYNX