#### <u>Diagnostic Role of Diffusion-</u> <u>weighted MR Imaging in Neck</u> <u>Masses.</u>

ESSAY
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## بسم الله الرحمن الرحيم



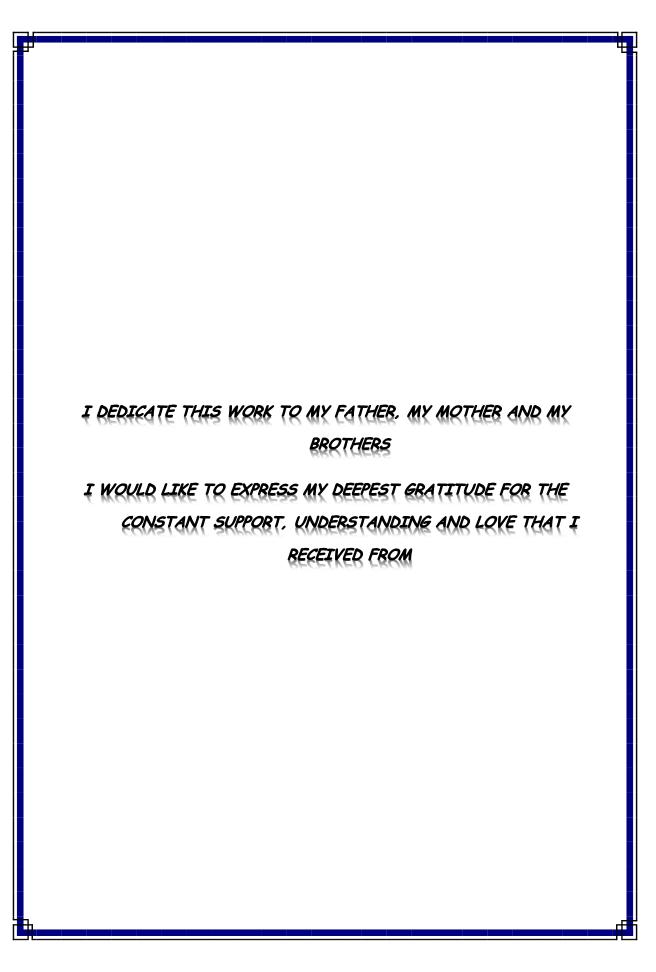
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#### List of abbreviations

ACS	anterior cervical space		
ADC	apparent diffusion coefficient		
AJCC	American Joint Committee on Cancer		
AVM	Arterio venous malformation		
AVM	arteriovenous hemangioma or malformation		
CD	cluster of differentiation		
CE-FAST	fast gradient echo		
CHL	Classical Hodgkin lymphoma		
CS	Carotid space		
CT	Computerized Tomography		
CXCR	chemokine receptor family		
DLBCL	Diffuse large B cell lymphoma		
DWI	Diffusion weighted imaging		
EBV	Epistein-Barr Virus		
EPI	Echo planar imaging		
FLASH	Fast Low Angle Shot Magnetic Resonance Imaging		
FSE	Fast spin echo		
Gd-DTPA	gadolinium Diethylene triamine pentaacetic acid		
HIV	human immunodeficiency virus		
HL	Hodgkin lymphomas		
LRP	The lateral retropharyngeal		
MALT	mucosa-associated lymphoid tumours		
MPNST	malignant peripheral nerve sheath tumours		
MP-RAGE	Magnetization Prepared Rapid Gradient Echo		
MRI	Magnetic resonance Imaging		
MRP	The medial retropharyngeal		
MS	Masticator space		
NEX	number of excitations		
NF	neurofibromatosis		
NHL	Non-Hodgkin lymphomas		
NLPHL	Nodular lymphocyte predominant Hodgkin		
	lymphoma		
NPV	negative predictive value		

PCS	The posterior cervical space		
PD	Proton density		
PET	positron emission Tomography		
PET	photon emission tomography		
PGL	persistent generalised lymphadenopathy		
PMS	Pharyngeal Mucosal Space		
PPPS	Prestyloid parapharyngeal space		
PPS	parapharyngeal space		
PPV	positive predictive value		
PS	Parotid space		
PSIF	reverted fast imaging with steady precession		
PVS	Prevertebral space		
REAL	European- American Lymphoma		
RF	The radio frequency		
RPPS	Retrostyloid parapharyngeal space		
RPS	Retropharyngeal space		
RPS	Retropharyngeal Space		
SCCs	squamous cell carcinoma		
SE	spin echo		
SENSE	sensitivity encoding		
SPECT	single photon emission CT		
SPIO	super-paramagnetic iron oxide		
SSFP	steady-state free-precession		
STIR	Short time inversion recovery		
T	tesla		
TAM	The thyroarytenoid muscle		
TE	Time to echo		
TR	Time to repeat		
UICC	Union Internationale contre Le Cancer		
USgFNA	ultrasound guided fine needle aspiration biopsy		
VS	The visceral space		
WHO	World Health Organization		
WR	Waldeyer's ring		

## CHAPTER I

# INTRODUCTION AND THE AIM OF THE WORK

#### INTRODUCTION

A neck mass is a common finding and can present a difficult diagnostic challenge. Differentiation of malignant neck tumours from benign lesions and accurate definite diagnosis are essential for treatment planning as well as for prognosis of malignant tumours. A variety of imaging techniques can help in characterization of neck masses. Ultrasound has a role in cystic lesions but it cannot determine the nature of solid masses. CT is associated with radiation exposure. Different routine pulse sequences of MR imaging cannot accurately differentiate benign from malignant tumours (*Abdel Razek et al.*, 2008).

Metabolic imaging with single photon emission CT (SPECT) and photon emission tomography (PET) can help this differentiation, but they are expensive, less available and have low spatial resolution. Ultrasound (US) and US guided fine-needle aspiration cytology (FNAC) have been extensively used, but this technique is invasive and operator-dependent with high incidence of false negative results that might result from aspiration of the wrong node or the wrong part of the correct node (sampling error) (*Abdel Razek et al.*, 2006).

Diffusion-weighted imaging is a magnetic resonance (MR) technique that shows potential in the characterization of lesions. It is a