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التوثيق الالكتروني والميكروفيلم

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DUPLEX AND COLOR DOPPLER IN THE EVALUATION OF EXTRACRANIAL CAROTID ARTERIES

Thesis

Submitted for Partial Fulfillment of Master Degree

In

"RADIODIAGNOSIS"

By

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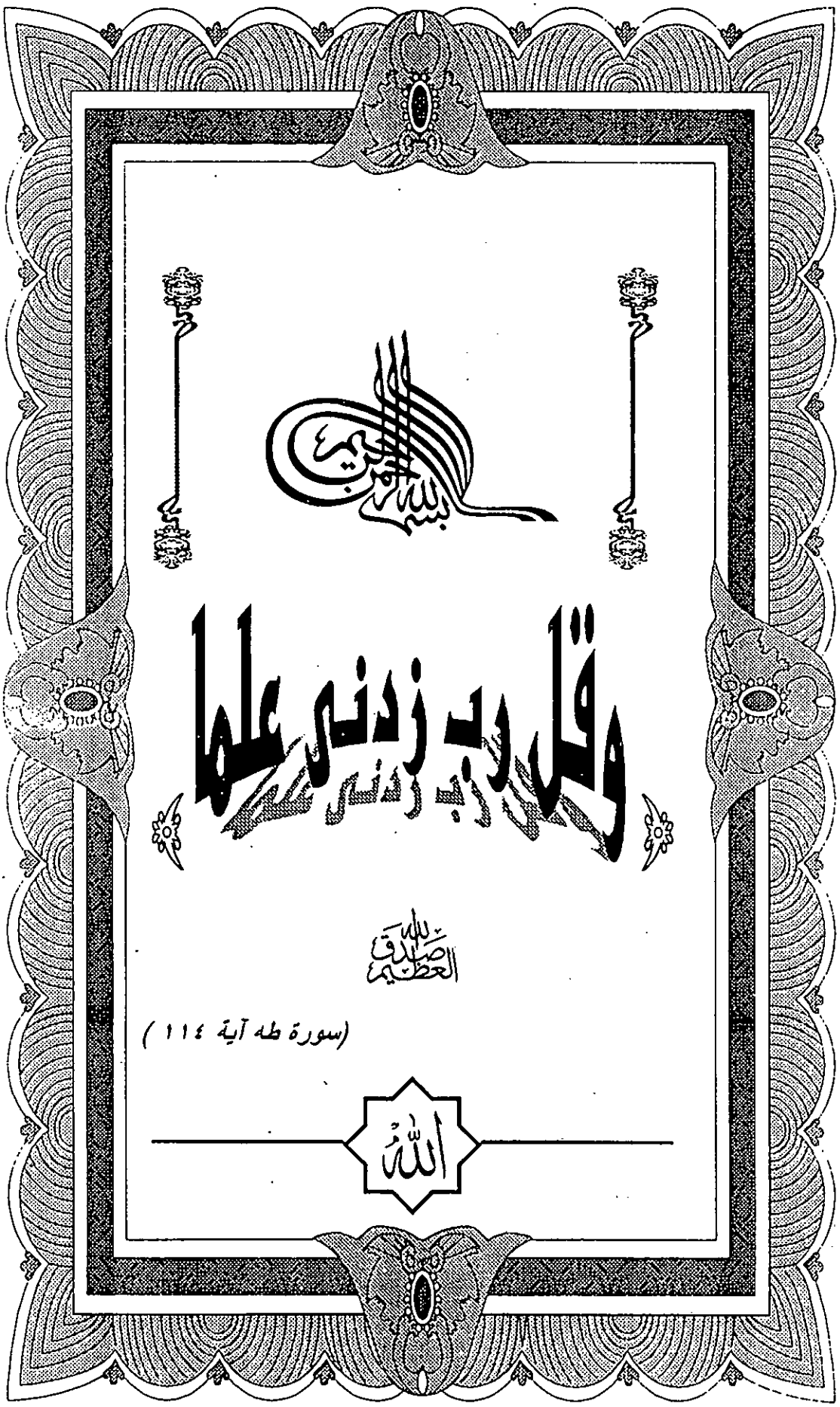
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INTRODUCTION

INTRODUCTION

Knowledge of the pathologic status of the origin of the internal carotid artery is important for a number of anatomic and epidemiologic reasons. First, 75% of the brain's substances is nourished by the blood that passes through the two internal carotid arteries and their branches. Second, about 75% of strokes occur in areas supplied by the carotid arteries, probably because of their vascular anatomic arrangement [1]. Third , the most common cause of arterial stenosis in accidentals is atherosclerosis, which is most prevalent in the cerebral vasculature at the carotid bifurcation [2].

Duplex instrumentation has become remarkably sophisticated and the latest advancement , Color –duplex sonography , is dramatic indeed .With color-duplex imaging, blood flow information is superimposed in color on the B-mode ultrasound image, permitting the visual assessment of blood flow. This technology has already improved duplex examination techniques sigificantly, and the clinical applications of color-duplex are sure to have wide-ranging effects [3] .

Color-flow duplex scanning (CFS) has become the most widely used non invasive method for assessing extracranial cerebrovascular occlusive disease. Stenotic lesions are identified and quantified by analyzing Doppler velocity spectra in combination with real-time B-mode and color-flow images of these vessels. Interpretation of CFS findings is commonly based on criteria that categories internal carotid artery (ICA) stenosis into five degrees of severity: 0% to 15%, 16% to

49%, 50% to 79%, 80% to 99%, and 100% (or occlusion). Differentiation between these degrees of stenosis is largely based on the measured velocity of blood flow within the ICA. The reliability of this criteria has been well documented [4].

Symptomatic atheromatous carotid artery disease is believed to result from local thrombosis at the site of an atherosclerotic plaque followed by cerebral embolization. Many factors influence whether a carotid plaque causes symptoms, including local characteristic, the state of the cerebral circulation and systemic factors such as procoagulant tendencies. To date, the principle factor which identifies high- risk plaques is the severity of carotid stenosis . Other factors, however, must be important, since patients with symptomatic carotid stenosis are at much greater risk of subsequent stroke than patients with asymptomatic carotid stenosis of similar severity [5] .

AIM OF THE WORK

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The aim of this thesis is to evaluate the role of duplex and color Doppler in the evaluation of extracranial carotid arteries.

REVIEW OF LITERATURE