ECHOCARDIOGRAPHY AND DOPPLER ULTRASONOGRAPHY IN THE EVALUATION OF PATIENTS WITH MITRAL VALVE DISEASE

Thesis

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BY

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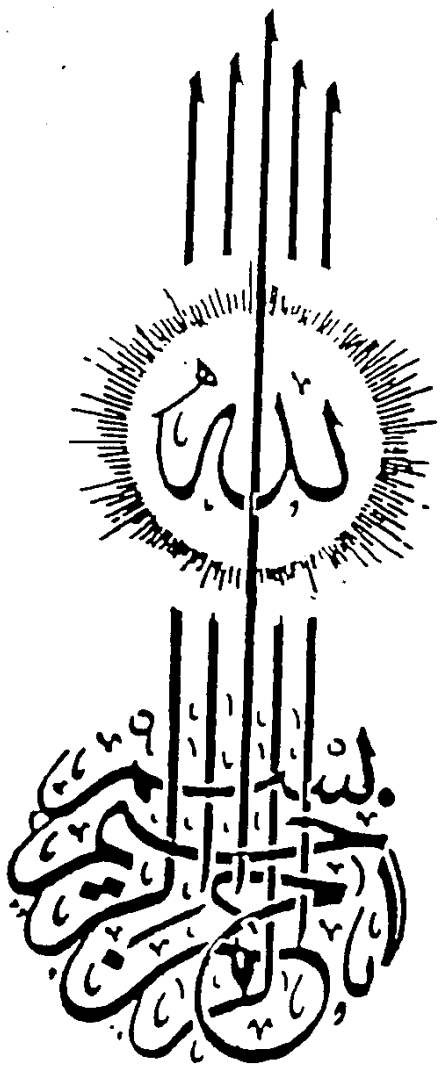

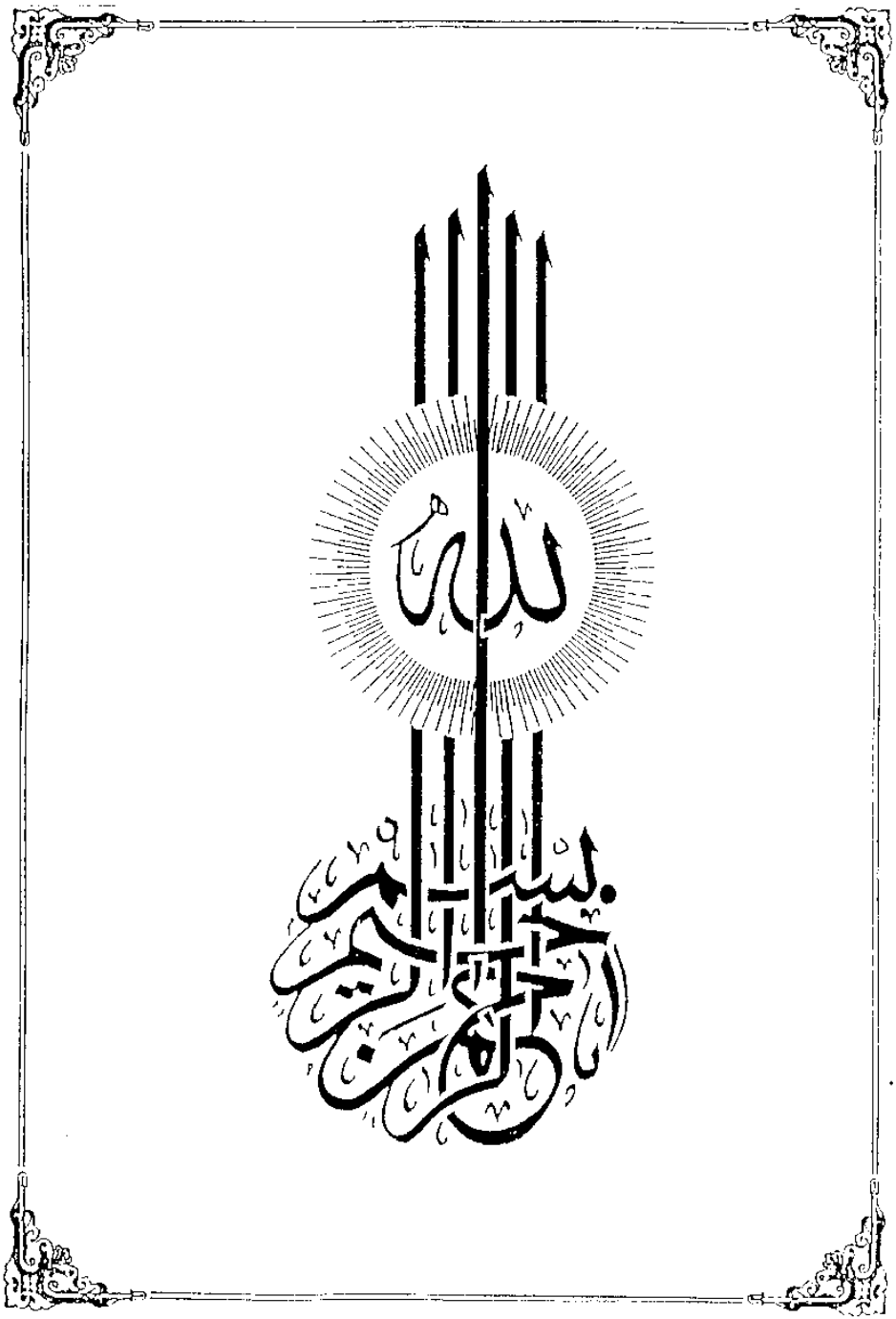

TO MY WIFE.

AND THE SPIRIT OF MY FATHER.

A C K N O W L E D G M E N T

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CONTENTS

INTRODUCTION
AND
AIM OF THE WORK

I N T R O D U C T I O N

Rheumatic heart disease is still a common cause of morbidity and mortaity in our country . It still casts its gloomy shadow on the future of those patients affected by this disabling illness.

The mitral valve is the commenest valve to be affected by the rheumatic process . The resultant mitral stenosis or incompetence or both , cause haemodynamic disturbance which is reflected on the clinical condition of the patient .

(Hurst et al, 1986)

Acute clinical manifestations of rheumatic fever are detected in only about half of patients who subsequently develop mitral valve disease . The presence or absence of a history of rheumatic fever makes no difference in the course of the disease or in its clinical , haemodynamic , or pathologicl findings . In patients who have no history of rheumatic fever, it is generally assumed that a subclinical attack without overt signs of cardiac or joint involvement was responsible for the valvular lesion .

* A past history of rheumatic fever is present in about half of patients with mitral valve disease .It is (less)

common in patients with acute mitral incompetence (15%), more common in chronic mitrd incomptence (20%) amd mitral stenosis (50%) and commenest in mixed mitral stenosis and incompetence (70%) . **(Braunwald et al, 1986).**

THE AIM OF THE WORK

This study is planned to evaluate the rheumatic mitral valve disease by combined M-mode echocardiography, Two-dimensional echocardiography and Doppler ultrasound.

This include the determination of the sensetivity and accupacy of this method in detecting the severity of the lesion alone (isolated mitral stenosis) and the combination of the lesions (combined mitral stenosis and incompetence.)

This included the estimation of the mitral valve area, pressure gradient accross the mitral valve and severity of mitral regurgitation and trying to find a correlation between echocardiographic results, Doppler results and cardiae cotheterization results.

LITERATURE REVIEW

ANATOMY & PHYSIOLOGY OF THE MITRAL VALVE

The mitral valve is a complex unit comprising the annulus the leaflets, the chordae tendineae, the papillary muscles, and the underlying left ventricular myocardium . (Lam,1970 & Ranganthan, 1970). Recent classification of the chordae tendineae of the mitral valve according to their morphology and site of insertion has made it's possible to redefine the valve's anatomy, clarifying some of the controversis regarding the organization of the posterior leaflet.

(Lam, 1970 & Ranganthan, 1970).

The mitral valve consists of a continuous veil of tissue inserted around the entire circumference of the mitral orifice. The basal portion of this veil is attached to a fibromuscular ring, the annulus. The mitral valve annulus extends along the left atrioventricular sulcus and is fixed medially to the central cardiac skeleton at the aortic root. The free margin of the leaflet veil shows several indentations. Two are regularly placed and permit the division of the veil into anterior and posterior leaflets.Fig (1).There are the anterolateral and the poste-

romedial comissures. While the tips of the papillary muscles may be used as a guide to locate the commissures. **(Rustel et al 1952 & Von Der Spuy 1958 & Davila et al,1962 and Du Plessis et al, 1964).**

Definitive identification can be made by recognizing a specific type of fan shaped chordae called ."Commissural chordae tendineae "**(Silverman et al,1968 & Lam et al, 1970).** These arise as single stem that branch radially like the struts of a fan to insert into the free margins of the commissural regions . the extent of the commissural area can be defined by the spread of insertion of these chordae. Although both anterolateral and posteromedial commissural areas have equal amounts of valvular tissue, ' the posteromedial commissural chordae has a greater spread than its anterolateral counterpart. **(Ranganthan et al,1970)** this might explain the greater susceptibility of this region to mitral regurgitation . Once the commissures are defined,the organization of the rest of the leaflets is easy. All the valvular tissue anterior to the commissures becomes the anterior leaflet, and all the valvular tissue posterior to the commissures becomes the posterior mitral leaflet. **(Chiechi et al, 1956 & Ranganthan et al, 1970).**