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لم ترد بالاصل

BALLOON VALVULOPLASTY VERSUS CLOSED AND OPEN COMMISSUROTOMY IN SURGICAL MANAGEMENT OF ISOLATED MITRAL VALVE STENOSIS

Thesis

SUBMITTED FOR PARTIAL FULFILLMENT OF M.D. DEGREE
IN *CARDIOTHORACIC SURGERY*

By

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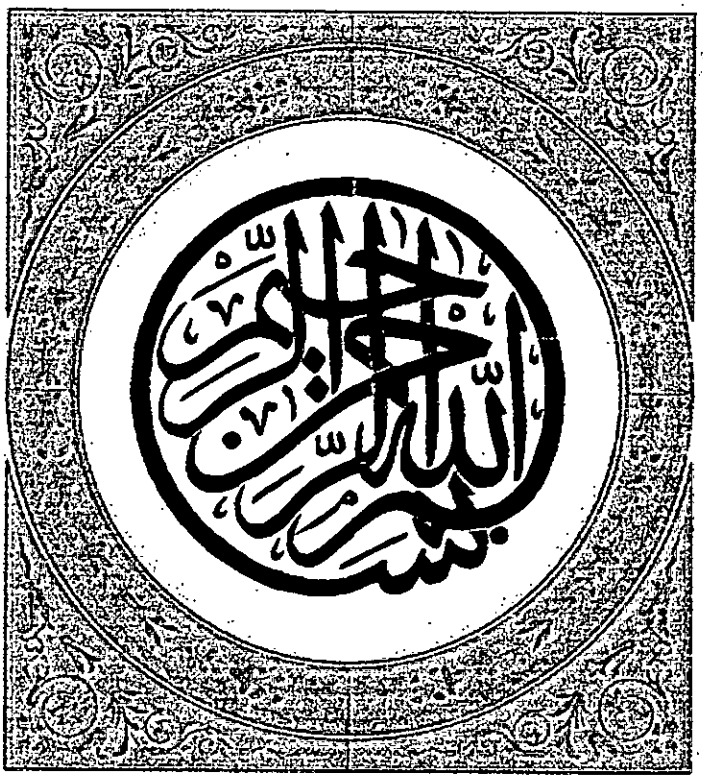
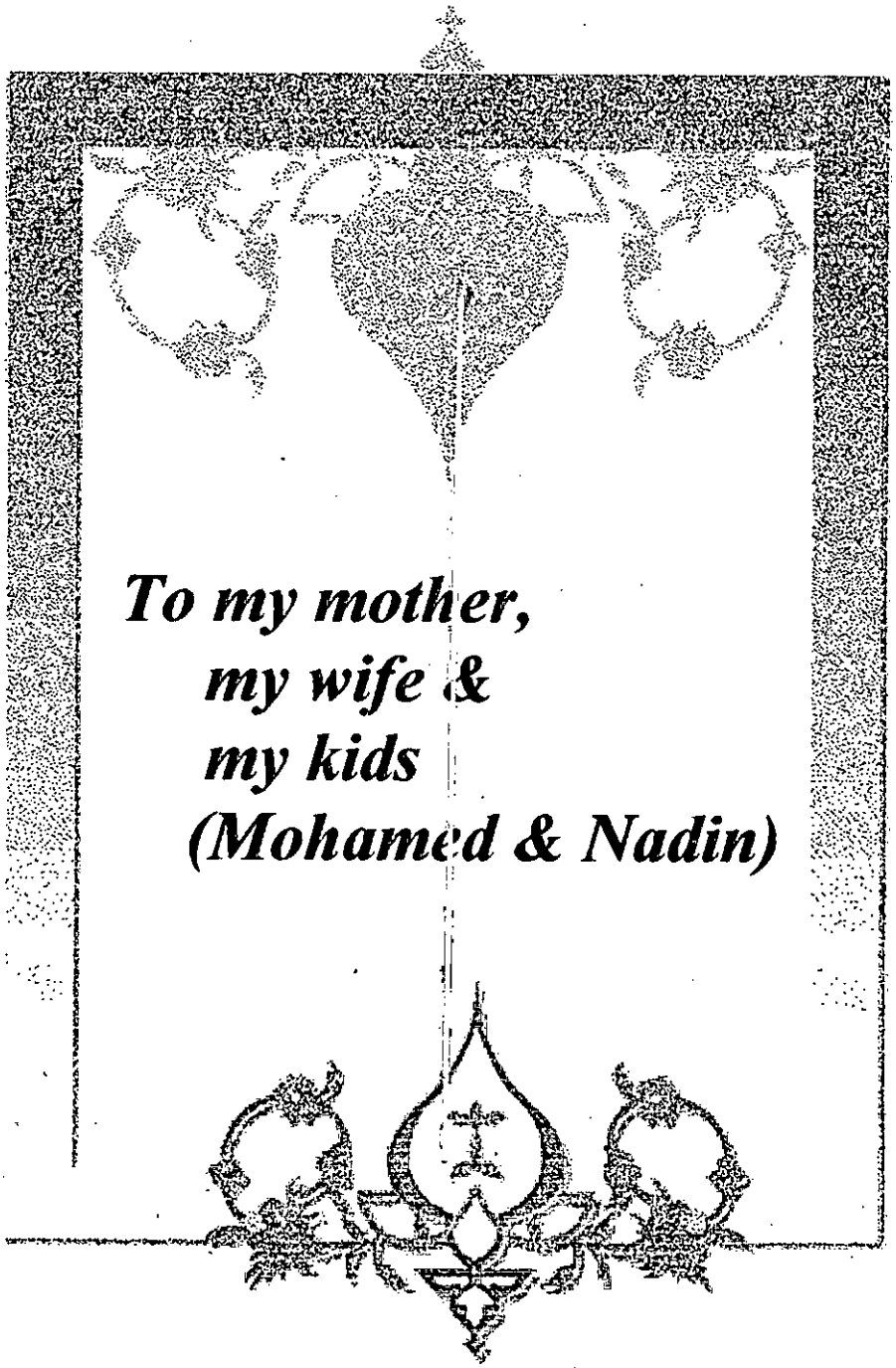
FACULTY OF MEDICINE
TANTA UNIVERSITY
2002



قالوا سبحانك لا علم لنا إلا ما
علمتنا إنك أنت العليم الحكيم

صدق الله العظيم
سورة البقرة - ٣٢


To my mother,
my wife &
my kids
(Mohamed & Nadin)

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"First and foremost, Thanks are due to **ALLAH**, the Beneficent and Merciful".

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CONTENTS

LIST OF ABBREVIATION

AF	Atrial fibrillation
ASD	Atrial septal defect
AV fistula	Arteriovenous fistula
BMC	Balloon mitral commissurotomy
CMC	Closed mitral commissurotomy
CPB	Cardiopulmonary bypass
DPG	Diastolic pressure gradient
ECG	Electrocardiogram
Echo	Echocardiogram
LA	Left atrium
LAD	Left atrial diameter
LL	Lower limb
LV	Left ventricle
MR	Mitral regurgitation
MVA	Mitral valve area
NHLBI	National Heart, Lung and Blood Institute
NYHA	New York Heart Association Classification
OMC	Open mitral commissurotomy
PA	Pulmonary artery
PBMV	Percutaneous balloon mitral valvuloplasty
PMV	Percutaneous balloon mitral valvuloplasty
PTMC	Percutaneous transvenous mitral commissurotomy
RA	Right atrium
TEE	Transesophageal echocardiography

INTRODUCTION

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Mitral valve stenosis is either congenital or rheumatic. Congenital mitral valve stenosis is a developmental malformation of one or more of the components of the mitral valve apparatus (Khalil et al., 1975).

The predominant cause of mitral valve stenosis is rheumatic fever. It occurs approximately in 40% of all rheumatic heart diseases. Two thirds of all mitral stenosis (70%) are female (Henry et al., 1977).

Rheumatic fever results in four types of fusion of mitral valve apparatus leading to stenosis: (i) commissural, (ii) leaflet thickening and calcification, (iii) chordal thickening, shortening and fusion, (iv) papillary muscle length and function. In addition, myocarditis caused by rheumatic fever may affect the left ventricular wall and attached valvular apparatus. It takes approximately 2-10 or more years after acute attack of rheumatic fever for mitral stenosis to develop and approximately a decade before patient becomes symptomatic (Carpentier et al., 1976).

In normal adults the size of mitral valve orifice is 4-6 cm^2 - when the size of the orifice is decreased to 2 cm^2 mitral stenosis is mild and to 1 cm^2 and under it is severe with a transvalvular gradient of 20 mmHg or more (Braunwald and Turi, 1985).

Patients with moderate mitral stenosis are often asymptomatic at rest or with ordinary activities. With severe exertion pulmonary edema develop suddenly. Patients with severe mitral stenosis have easy fatiguability, effort dyspnea, orthopnea and paroxysmal nocturnal dyspnea and sometimes hemoptysis and chronic congestive heart failure (Mitchell and Shapiro, 1969).

Mitral stenosis can be diagnosed clinically on the basis of the history, physical examination include a loud first heart sound, an opening snap, diastolic rumble with a presystolic crescendo when sinus rhythm is present, chest radiograph shows left atrial enlargement, the left ventricle is normal in size but the right ventricle and pulmonary artery are usually somewhat enlarged. ECG is not diagnostic but shows P-wave abnormalities characteristic of left atrial enlargement (p. mitral) or atrial fibrillation and right ventricular hypertrophy (Spencer, 1990).

Echocardiography has become highly reliable for the diagnosis and quantification of the severity of mitral stenosis, it demonstrates the degree of stenosis, leaflet mobility, thickening and probable calcification, and any subvalvar obstruction that may be present. Estimating mitral valve area, the gradient across the valve, pulmonary artery systemic pressure, detection of atrial thrombi and valvular vegetations.

Unsuspected aortic and tricuspid pathology may be demonstrated (Hatle L, 1990).

Cardiac catheterization is usually unnecessary for the diagnosis of mitral stenosis in patients under the age of 40 years old, as about 25% of patients over 40 years of age with mitral stenosis and without angina have important coronary artery disease (Sokolow and McLlory, 1986).

Blood analysis may help to diagnose the etiology of acquired mitral disease, blood culture for endocarditis.

According to the severity of the symptoms (NYHA classification), degree of mitral stenosis, mitral valve area, gradient across the mitral valve, mitral valve score, pulmonary artery systemic pressure; surgical correction of mitral valve stenosis involves three general classes of techniques: repair (closed mitral commissurotomy or open mitral commissurotomy), replacement, and transcatheter intervention) (Patel et al., 1991).