INTRAOPERATIVE TRANSESOPHAGEAL ECHOCARDIOGRAPHIC ASSESSMENT OF PARADOXICAL INTERVENTRICULAR SEPTAL MOTION AFTER CARDIAC SURGERY

A THESIS

Submitted in partial fulfillment of the

M.Sc. Degree in Cardiology

By

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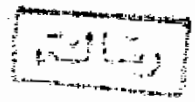

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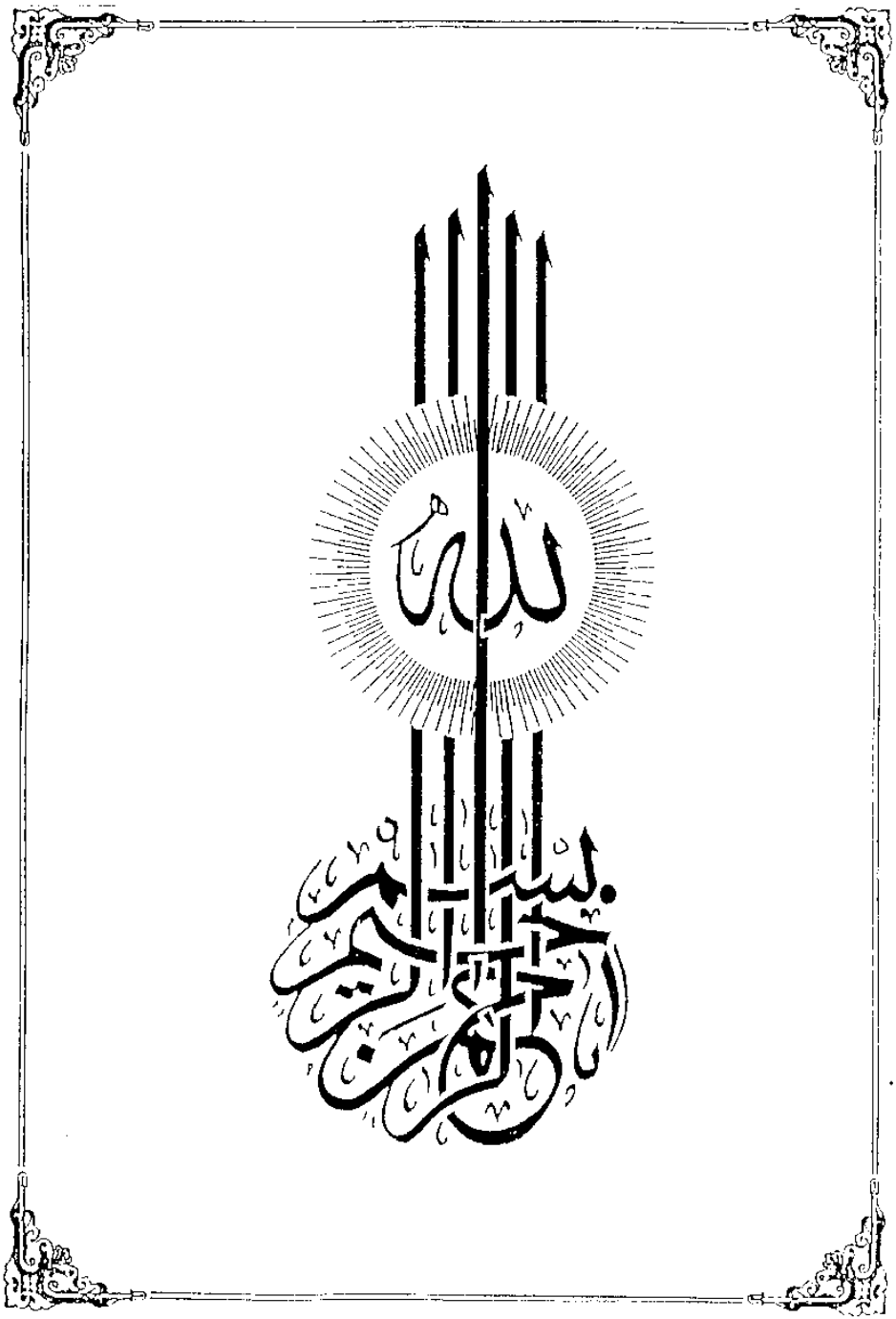

To...

The memory of my father.

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Introduction

INTRODUCTION

Esophageal echocardiography has been recently available. Initially, this approach was tried with an M-mode transducer; more recently a two-dimensional echocardiographic transducer has been placed on a fibro-optic endoscope. Esophageal echocardiography provides images of the heart that are not distorted by ribs or lungs. Doppler recordings can also be obtained via this approach, several clinical applications using this particular approach, have been described. One area of active investigation is using esophageal echocardiography to monitor patients during surgery (*Feigenbaum,* 1986).

Paradoxical interventricular septal motion is an abnormal systolic increase in normalized septal curvature. It is observed in certain conditions such as atrial septal defect (*Nugent et al.,* 1990), dilated cardiomyopathy (*Ribeiro et al.,* 1987) and in coronary heart disease where the ischemic muscle may be pulled by the adjacent normal muscle (*Feigenbaum,* 1986). Moreover, paradoxical septal motion can be detected during and after uncomplicated cardiac surgery. *Fenely et al.* (1987) studied 16 patients with normal left ventricular function preoperatively, seven of which remained with no paradoxical septal

motion after surgery and nine showed paradoxical septal motion which disappeared after 12–18 months. They concluded that paradoxical septal motion early after uncomplicated cardiac surgery is an artifact due to exaggerated cardiac mobility that resolves with the progressive restraining effect of postoperative adhesions. The exact mechanisms of paradoxical septal motion is not yet settled. Some authors suggest that is is due to a left ventricular dysfunction after cardiopulmonary bypass, others suggest it is due to opening of the pericardium.

More data are needed to detect the factors related to the development and onset of paradoxical septal motion and whether it starts intra or postoperatively.

Aim of the Work

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The aim of this work is to evaluate the onset, incidence and factors related to the development of paradoxical septal motion during cardiac surgery using intraoperative transesophageal echocardiography.

Review of Literature