



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



شبكة المعلومات الجامعية
@ ASUNET



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of
15-25- c and relative humidity 20-40%

بعض الوثائق الأصلية تالفة

بالرسالة صفحات لم ترد بالاصل

CORONARY ARTERY BYPASS GRAFTING WITHOUT CARDIOPULMONARY BYPASS

THESIS

Submitted in Partial Fulfillment of the Requirement of M. D. Degree in
Cardiothoracic Surgery

By

Bedair Mostafa Ibrahim

M. B. B. Ch., M. Sc (General surgery)

TANTA

Supervisors

Prof. Dr.

Hamed M. Al-Akshar

Professor of Cardiothoracic surgery
Faculty of Medicine
Tanta university

Prof. Dr.

Antonio M. Calafiore

Professor and head of Cardiac
surgery departement
Chieti university
Italy

Prof. Dr.

Ehab A. Wahby

Professor And Head of
Cardiothoracic surgery Unit
Faculty of Medicine
Tanta university

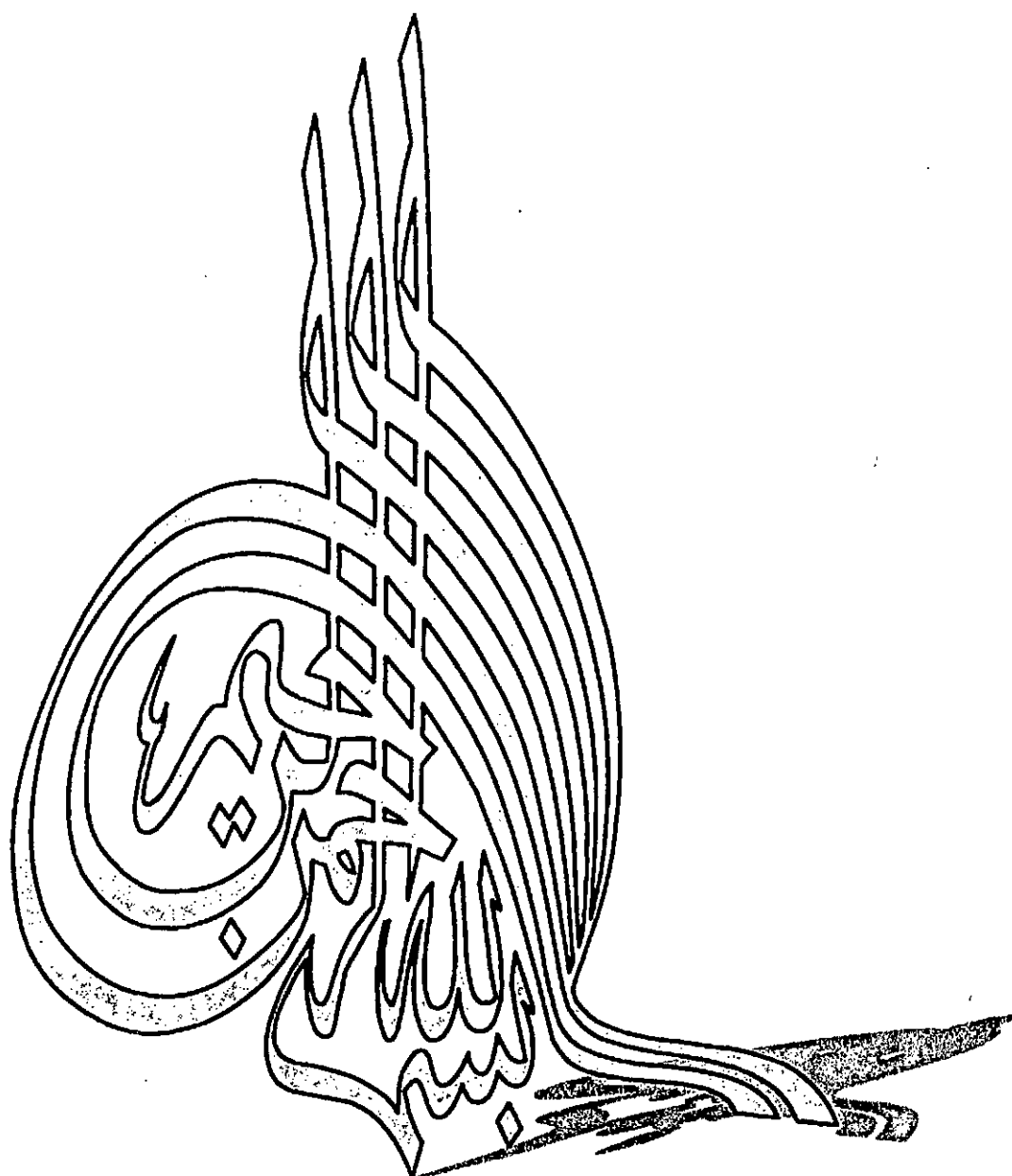
Prof. Dr.

Mohamed Adel El-Banna

Professor of Cardiac surgery
National Heart Institute

Tanta universty

2002



Acknowledgment

First I should thank "**GOD**" who helped me all through to achieve this work.

I would like to express my profound and sincere gratitude to **Prof. Antonio M. Calafiore**, head of the department of cardiac surgery, Chieti University, Italy, who enlightened the way to complete this work with his precious advice, endless help and fatherly attitude.

I owe a deep gratitude to **Prof. Hamed Al Akshar**, professor of cardiothoracic surgery, Tanta University, for his constructive criticism and continuous guidance and who contributed his valuable time and effort in the supervision of this study.

I wish also to express my deep appreciation to **Prof. Ehab A. Wahby**, professor and head of cardiothoracic surgery unit, Tanta University, who kindly supervised and generously helped me all the way to the end of this study.

I wish to extend my sincere thanks to **Prof. Adel El Banna**, professor of cardiac surgery, National Heart Institute, for his valuable guidance and encouragement.

Many thanks to all the staff members of the cardiac surgery department, Chieti University, Italy. Specially **Dr. Gabriele DiGiammarco** and **Dr. Giovanni Teodori**, who were willing enough to help me in this work.

INTRODUCTION



INTRODUCTION

^f Coronary artery bypass grafting with cardiopulmonary bypass has had enormous, and the relative ease of working on the arrested heart undoubtedly makes most cardiac surgeon favors cardiopulmonary bypass in most instances however cardio-pulmonary bypass has been associated with severe adverse effects. ^v (*Pfister A J, et al., 1992*).

^f We have found that many patients who were considered high surgical associated disease have been excellent candidates for risks because of this procedure. ^v (*Benetti F J, et al., 1991*).

As an alternative method of myocardial protection and to obviate the inherent risks of cardiopulmonary bypass, we performed coronary bypass grafting without cardiopulmonary bypass. (*Fanning W J, et al., 1993*).

The development of abnormal septal motion in patients having coronary artery surgery is related at least in part to cardiopulmonary bypass and myocardial preservation techniques. (*Akins C W, et al., 1984*).

Coronary artery bypass grafting without cardiopulmonary

bypass can be done with relatively low operative mortality although there seems to be an increased risk for early return of angina. This procedure should therefore be considered for patients with appropriate coronary anatomy in whom cardiopulmonary bypass poses a high risk, this procedure is still hazardous with calcified aorta or emergency operation. (*Moshkovitz Y, et al., 1995*).

REVIEW OF
LITERATURE



Historical Review of Coronary Artery by Pass Grafting on Beating Heart

In taking a skeptical view of beating – heart coronary artery by Pass grafting, let me begin by critiquing the title of the present debate, which implies that beating- heart surgery is a new concept.

However, beating – heart surgery is not a modern innovation. In the 1950s, before cardio-pulmonary by Pass came into widespread use, Murray and Longmire performed a coronary endarterectomy or segmental excision with saphenous vein or internal mammary artery grafts. (*Westaby, Benoit JW, 1996*).

The concept of myocardial revascularization by anastomosing the internal mammary artery to the coronary artery was propounded by Demikhov, who undertook a canine study of this technique in 1952, four of his dogs survived for more than two years with patent grafts, about the same time Murray reported the first arterial autograph interposition in a human coronary artery after lesion excision (*Muller RL, et al., 1997*).

In 1962, Sabiston used a saphenous vein graft to bypass the right coronary artery and in 1964 Garrahy Passed the left

anterior descending coronary artery. (*Westaby S, 1994*).

That same year, inspired by Demikhov's experience, *Kolesov 1967*, anastomosed the left IMA to a marginal branch of the circumflex artery. (*Spencer F C, et al., 1995*).

Years later, in *1975*, *Trabb and Bisarya* in Canada, and in the same year *Ankeney* in the USA, independently reported the first series of patients who had myocardial revascularization performed without CPB with good results.

Parallel to this development, *Buffolo et al., 1985* and almost simultaneously *Benniti 1985* In Argentina published the first results of off-pump coronary artery by pass.

All of these procedures were done on beating heart, after 1968 CABG with CPB was widely adopted by beating heart coronary surgery continued to be performed by some surgeons, therefore beating heart surgery was not a revolutionary new approach, it was originally the only possible approach and after the advent of modern CPB techniques was largely viewed as outmoded, today it is being revived, accounting for about 20% of the CABG operations in the united states. (*Denton A C, 2000*).

Current indications for CABG

Harlam et al., 1995 pointed out that elective or urgent CABG in patients with suitable distal coronary vessels (1.5 mm or more in diameter and mild or no atherosclerotic involvement distally), suitable left ventricular function (Ejection fraction > 25%) and no major associated disease should result in perioperative mortality below 2%, perioperative infarction below 5% and late graft patency rate of 80% or better.

A) Generally accepted indications for CABG

1. *Chronic stable angina:* The primary indication of CABG for patients suffering from stable angina is failure of medical treatment with coronary artery stenosis not amenable to angioplasty. (*Gersh et al., 1989*).

2. *Unstable angina:* Following medical stabilization of the patients with unstable angina, coronary angiography should be performed and a decision regarding surgery or PTCA can be made based on the clinical picture and the anatomical findings. Patients who have left main coronary artery (LMCA) stenosis and those who have been on maximal medical therapy prior to hospitalization, should undergo myocardial revascularization