

REVIVAL OF THE RADIAL ARTERY FOR CORONARY ARTERY BYPASS GRAFTING

Thesis

Submitted for partial fulfillment of the requirements for

M.D. Degree

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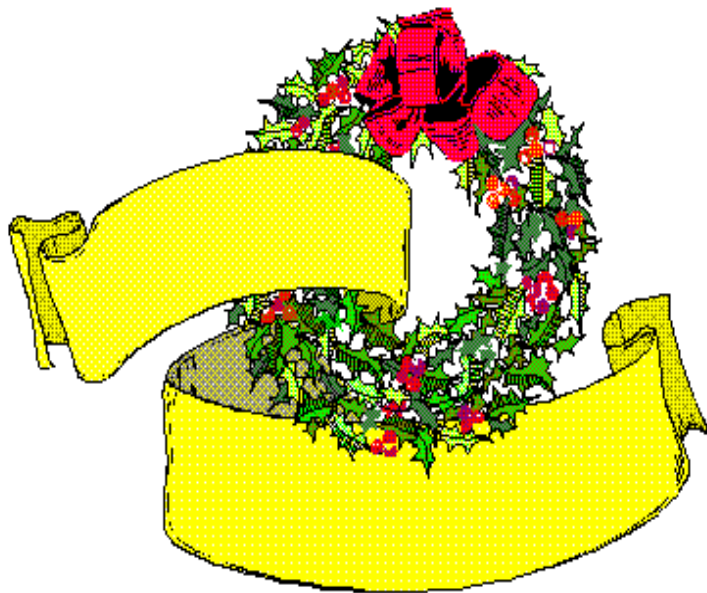
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2005

Dedicated
To My
Family And
To My Wife



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2005

ACKNOWLEDGMENT

My deepest gratitude and thank to GOD the most merciful for guiding me through and giving me the strength to complete this work the way it is.

I find no words by which I can express my deepest thank and profound respect to **PROF. DR. ALY SEIF EL-DIN MAKLAD**, professor and head of the department of Cardiothoracic Surgery, Faculty of medicine, Ain Shams university for the continuous kind encouragement, guidance and support he gave me throughout the whole work. It has been an honour and a privilege to work under his generous supervision.

Also, I would like to express my deepest thanks and appreciation to **PROF. DR. Ahmed Mahmoud Ali** Professor and head of Cardiothoracic Surgery, Faculty of Medicine, Benha University for this great support, Valuable time, careful supervision and continuous advises which helped me to overcome many difficulties.

I am also deeply grateful and would like to express my sincere thanks and gratitude to **PROF. DR. WALAA AHMED SABER**, Professor of Cardiothoracic surgery, Faculty of Medicine, Ain Shams University, for his great help.

I am deeply indebted to **PROF DR HOSAM EZZAT EL-OKDA** Professor of Cardiothoracic surgery, Faculty of Medicine Ain Shams university for his great help, continuous support and sincere advice during this work.

ABSTRACT

Revival of Radial artery in CABG:

- *Authors: Kasap I, Maklad AS, Ali AM, Saber W, El Okda H.*
- *Departments: of cardiothoracic surgery, Ain Shams university Hospital, Egypt, and Nasser Institue Hospital, Cairo Egypt.*
- *Objectives: the aim of the work was to evaluate the early postoperative results of CABG using radial artery grafts with or without other grafts (venous or / and arterial).*
 - *Patients and methods: The study comprised 60 patients aged 34-67 (54.1 ± 6.9) years who underwent coronary artery bypass operation (CABG). All patients received radial artery graft with or without other grafts (arterial or/and venous). A total 147 coronary grafts were performed with a mean of 2.45 per patients. LIMA was used in 40 patients and saphenous vein was used in 41 patients. All patients data were collected at the operative, postoperative (hospital stay) and 3 months post operative periods, Thallium scientigraphy was done for 21 patients and coronary angiography was done for 15 patients, after 3 months postoperatively.*

Results: Cardiopulmonary bypass time was 93.5 ± 25.4 minutes and the aortic cross clamp time was 63.2 ± 19.8 minutes. The hospital stay was 12.9 ± 5.44 days and the ICU stay was 36.3 ± 14.3 hours. The early postoperative MI was 1.66% and the ECG changes was 3.33%. The post operative low cardiac output was 25%, the postoperative cardiac tamponade was 3.33%. There was no hand ischaemia after RA harvesting. Two patients (3.33%) died at hospital stay from cerebral stroke and one patient (1.66%) died 2 months after discharge due to acute pulmonary oedema. Thaluim scientegraply was done for 21 patients which revealed no areas of perfusion defects in RA territories. Coronary angiography was done for 15 patients with perfect patency rate 93.33%.

Conclusion: RA is a safe arterial conduit for CABG provided gentle harvesting and medical treatment by calcium channel blockers to prevent its spasm.

CONTENTS

Title	Page
Introduction and Aim of the Work	1
Review of Literature	
History of surgery for IHD	3
Surgical anatomy of the coronary arteries	6
Pathology of the myocardial ischemic syndromes	11
Surgical anatomy of the conduits	21
Biological characteristics of arterial grafts	49
Choice of a graft for CABG	63
Material and Methods	74
Results	79
Discussion	102
Summary and conclusion	107
References	109
Arabic Summary	

LIST OF FIGURES

Figures	Title	Page
Fig. (1)	Early series of radial artery grafts	2
Fig. (2)	Two radial arteries anastomosed at different coronary arteries.	2
Fig. (3)	Anatomy of coronary artery	9
Fig. (4)	Anatomy of coronary artery	9
Fig. (5)	Anatomy of the LIMA	22
Fig. (6)	Incision site for the harvesting of the radial artery	26
Fig. (7)	Anatomy of radial artery	27
Fig. (8)	Arteries of the forearm	27
Fig. (9)	Histology of the RA	28
Fig. (10)	Exposure of the RA	34
Fig. (11)	Harvesting of the RA	35
Fig. (12)	Anatomy of ulnar artery	37
Fig. (13)	Anatomy of the celiac arteries	38
Fig. (14)	The RGE pedicle	38
Fig. (15)	Anatomy of IEA	41
Fig. (16)	Anatomy of IEA	41
Fig. (17)	Anatomy of the long and short saphenous veins	43
Fig. (18)	Anatomy of subscapular artery and lateral thoracodorsal arteries	47
Fig. (19)	Pre operative data (Sex)	80
Fig. (20)	Pre operative data (smoking).	80
Fig. (21)	Pre operative data risk factors	81
Fig. (22)	Sites of RA	87
Fig. (23)	The distribution of RA among other grafts	89
Fig. (24)	Post operative ECG changes	92
Fig (25)	Post operative low cardiac output	94

LIST OF TABLES

Tables	Title	Page
Table (1)	Classification of the lesions of atherosclerosis.	16
Table (2)	Early RA graft patency rates (< 6 months).	59
Table (3)	Mid term (6 to 36 months) RA graft patency rate.	60
Table (4)	Preoperative data, age	79
Table (5)	Pre operative data, sex, smoking & obesity.	79
Table (6)	Pre operative data, risk factors	81
Table (7)	Pre operative data	82
Table (8)	Per-operative data	83
Table (9)	Haematocrite value	83
Table (10)	Pre operative data: Ejection fraction	84
Table (11)	Coronary angiographic finding	84
Table (12)	Coronary angiographic finding	85
Table (13)	The use of CPB	85
Table (14)	Cross clamp and by pass times	86
Table (15)	The sites of radial artery	87
Table (16)	Sites of LIMA & vein graft	88
Table(17)	The distribution of RA among other graft	89

Table (18)	Post operative data	92
Table (19)	Post operative complications	93
Table (20)	Post operative complications	97
Table (21)	Three months post operative follow up	100
Table (22)	Post operative angiographic results	102

LIST OF ABBREVIATIONS

AC	:	Arterial conduit
ACs	:	Arterial conduits
ALT	:	Alanine transaminase
AST	:	Aspartate Transaminase
CABG	:	Coronary artery bypass grafting
CBC	:	Complete blood count
COPD	:	Chronic obstructive pulmonary disease
CPK	:	Creatinine phospho kinase
CX	:	Circumflex artery
D₁	:	First diagonal artery
DCIA	:	Deep Circumflex iliac artery
DLFCA	:	Descending branch of lateral femoral circumflex artery
ECG	:	Electro-cardiogram
ENDO	:	Endothelial derived nitric oxide
ENDRF	:	Endothelial derived relaxing factor.
GEA	:	Gastro epiploic artery
HBV	:	Hepatitis B virus
HCV	:	Hepatitis C virus
ICU	:	Intensive care unit
IEA	:	Inferior epigastric artery
IHD	:	Ischaemic heart disease
IMA	:	Internal mammary artery
ITA	:	Internal thoracic artery
LAD	:	Left anterior descending artery
LCA	:	Lateral costal artery
LDL	:	Low density lipoproteins
LIMA	:	Left internal mammary artery

LITA	:	Left internal thoracic artery
Na	:	Sodium
OM	:	Obtuse marginal artery
PDA	:	Posterior descending artery
PT	:	Prothrombin time
PTFE	:	Polytetrafluoro-ethylene
PTT	:	Partial thromboplastin time
RA	:	Radial artery
RBCs	:	Red blood cells
RCA	:	Right coronary artery
RGEA	:	Right gastro-epiploic artery
RIMA	:	Right internal mammary artery
RITA	:	Right internal thoracic artery
SV	:	Saphenous Vein
SVG	:	Saphenous vein graft
SVGS	:	Saphenous vein grafts
TACR	:	Total arterial coronary revascularization
U.S.A	:	United state of America
UA	:	Ulnar artery
VD	:	Vasodilator

B-Venous Conduits:

Long Saphenous Vein:

Indications for using the saphenous vein:

- 1- Patient older than 70 years.
- 2- Poor flow through the IMA.
- 3- Sever brachiocephalic atherosclerosis.
- 4- Lack of other arterial conduits.
- 5- Poor lung function.
- 6- When the bilateral internal mammary artery is contraindicated as in diabetic and obese patients **(94)**.

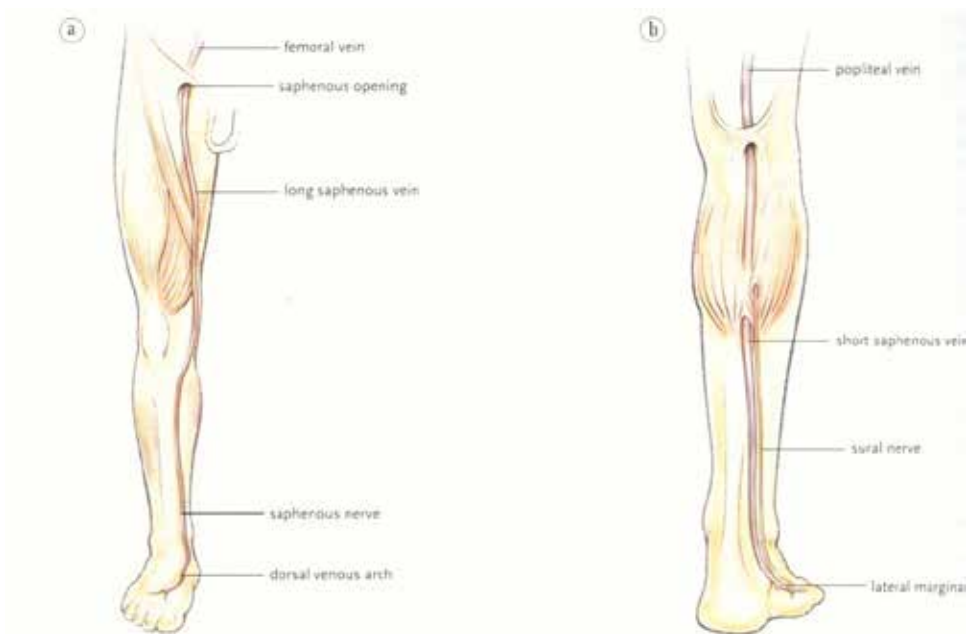


Fig (17): Anatomy of the long and short saphenous viens (187).

Contraindications for using the saphenous vein

- 1- Bad quality of the saphenous vein.
 - 2- Lack of the vein in redo operation.
 - 3- Peripheral vascular disease as varicose veins.
-

- 4- Discrepancy between the size of the vein and the native coronary size.
- 5- Young aged patients, as the arterial conduits are preferred for complete myocardial revascularization.
- 6- Trauma to the leg or previous operation in the leg **(95)**.

Advantages of the use of the saphenous vein:

- 1- Easy accessible and available.
- 2- To accomplish complete myocardial revascularization when other arterial conduits not available.
- 3- It can be used safely in patients >70 years.
- 4- It can be used in patients with diabetes mellitus when bilateral ITA use is contraindicated.
- 5- It can be used in emergency patients when there is no enough time to harvest the ITA **(95)**.

Disadvantages of using the saphenous vein:

- 1- Diffuse, concentric intimal hyperplasia develops in nearly all vein grafts **(96)**. Intimal hyperplasia produces stenosis in some vein grafts, and these stenoses can lead to total occlusion **(97)**.
 - 2- Angiotensin II-forming activity through chymase in the SV was higher than that in the ITA, and the chymase- positive mast cells in the medial layer may play an important role in the development of vascular hyperplasia in the SV used as a graft conduit **(98)**.
 - 3- Myofibroblast formation occurs around and within saphenous veins after bypass grafting **(99)**. The histologic changes are strikingly similar to events that occur during wound healing and may have implications for
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