

بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار





بعض الوثائق الأصلية تالفة





بالرسالة صفحات
لم ترد بالأصل



B11.1-3

SHORT-TERM OUTCOME OF TIBIAL ANGIOPLASTY IN DIABETIC PATIENTS

Thesis

Submitted for Complete Fulfillment of
The Master Degree (M.Sc.) in
General Surgery

By

Mamdouh Abd Elsalam Mabrouk
(M.B.; B.Ch.)

Under supervision of

Prof. Dr. Mohamed Hany Hefny
*Professor of General and Vascular Surgery,
Faculty of Medicine, Cairo University*

Prof. Dr. Mohammed I. Sharkawy
*Professor of General and Vascular Surgery,
Faculty of Medicine, Cairo University*

Prof. Dr. Omar Ahmed Elkashef
*Professor of General and Vascular Surgery,
Faculty of Medicine, Cairo University*

**Faculty of Medicine,
Cairo University
2011**

جامعة القاهرة / كلية الطب
الدراسات العليا

مختبر

اجتماع لجنة الحكم على الرسالة المقدمة من
الطبيب / محمد عبد السلام مراد
توطئة للحصول على درجة الماجستير / الدكتوراه
في الجراحة العامة

تحت عنوان: باللغة الإنجليزية: Short - Term outcome of
Tibial Angioplasty in Diabetic Patients.

باللغة العربية: متابعة نتائج - القسطرة - التداخلية
لشرايين الساق أسفل الركبة لمرضى السكري
على المدى القصير في عرصة السكر

- بناء على موافقة الجامعة بتاريخ / / ٢٠٠ تم تشكيل لجنة الفحص والمناقشة
للمرسلة المذكورة أعلاه على النحو التالي:
١. / د. محمد إسماعيل شرف الدين / استشاري الجراحات العامة والمفتحة
 ٢. / د. عز الدين القرشي / استشاري الجراحات العامة والمفتحة
 ٣. / د. وليد علي البار / استشاري الجراحات العامة والمفتحة

بعد فحص الرسالة بواسطة كل عضو منفردا وكتابة تقارير منفردة لكل منهم انعقدت اللجنة
مجتمعة في يوم / / بتاريخ / ٢٠٠ بقسم / / منرج
بكلية الطب - جامعة القاهرة وذلك لمناقشة المطلب في جلسة علنية في موضوع الرسالة والنتائج
التي توصل اليها وكذلك الأسس العلمية التي قام عليها البحث
قرار اللجنة: قبلت الرسالة

توقيعات أعضاء اللجنة:-
المشرف للمبتحن

المبتحن الداخلي

المبتحن الخارجي

عصام

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

ACKNOWLEDGEMENT

*It is a great honour to express my deep gratitude and appreciation to Professor Dr. **Mohamed Hany Hefny**, Professor of General and Vascular Surgery, Faculty of Medicine, Cairo University, for his encouragement, fatherhood and his guidance throughout the study.*

*I would like to express my sincere thanks and deep gratitude to Professor Dr. **Mohamed Ibrahim Sharkawy**, Professor of General and Vascular Surgery, Faculty of Medicine, Cairo University, for his energetic follow up with constructive advice, criticism and creative suggestions.*

*I am also grateful to Prof. Dr. **Omar Ahmed Elkashef**, Professor of General and Vascular Surgery, Faculty of Medicine, Cairo University, for his valuable advice and encouragement throughout the entire study.*

Last, but not least, I would like to thank all members of the Department of General Surgery, Faculty of Medicine, Cairo University for their help.

CONTENTS

	Page
▪ Introduction	1
▪ Aim of the Work	3
▪ Review of Literature	4
○ Anatomy	4
○ Etiology of infragenicular arterial disease	16
○ Clinical Manifestations	22
○ Diagnosis of peripheral arterial occlusive disease	27
○ Treatment of PAD	38
○ Angioplasty of the tibial arteries	79
▪ Patients and Methods	89
▪ Results	94
▪ Case Presentation	100
▪ Discussion	107
▪ Summary and Conclusion	114
▪ References	117
▪ Arabic Summary	135

LIST OF FIGURES

No.	Title	Page
1	Anterior view of a popliteal artery trifurcation showing the origins of the anterior tibial artery, posterior tibial artery, and peroneal artery	6
2	Schematic drawing of the arterial circulation of the ankle and foot in an anterior view	7
3	Anterior view of an angiogram of the right ankle	8
4	Lateral view of a schematic drawing showing the arterial circulation of the right foot	9
5	Steps and processes observed during atheromatous plaque formation	19
6	Approximate magnitude of the effect of risk factors on the development of critical limb ischemia in patients with peripheral arterial disease	25
7	Fate of the patients presenting with chronic critical leg ischemia	26
8	Chronic limb ischemia, progression of disease	28
9	Normal triphasic Doppler waveform	32
10	The most important landmark is the femoral head	51
11	A 6-French internal mammary artery (IMA) or Judkins right 4 catheter will direct the guidewire to the contralateral iliac artery	52
12	The Flexor Check-Flo II (Cook Inc., Bloomington, IN) introducer systems are tin walled with large lumens and are equipped with a side-arm and hemostasis valve that allows contrast injections	56
13	(a) The Flexor Shuttle Select (Cook Inc., Bloomington IN) has a stiff proximal shaft with an atraumatic tip. The lubricious hydrophilic coating promotes easier introduction but maximum possibility and support during endoluminal maneuvers in the supra-aortic vessels; (b) 6.5-French Slip-Cath for selectively engagement of the carotid vessels and is available in a variety of shapes. The Beacon radio-opaque tip offers optimal visualization of catheter tip manipulation	57
14	The 22- and 24-French sheath with Flexor Keller-Timmerman valve has a hydrophilic coating and is used to introduce large devices like endovascular stent grafts for abdominal aortic aneurysm exclusion	57
15	Angiographic catheters are available in multiple shapes and sizes and non-selective catheters generally come with multiple side-holes to accommodate injections of large amounts of contrast	60

No.	Title	Page
16	Selective angiography catheter types and shapes are infinitely variable and choice is based on type and location of the lesion being treated	61
17	Guiding catheters come in a variety of lengths and shapes designed to facilitate their manipulation into branch vessels. However, they differ from diagnostic catheters by having a substantially luminal diameter	62
18	The non-articulated Palmaz TM stent	65
19	Demonstration of the need for a flexion angiogram when stenting behind the knee	66
20	Ultrasound image of a partially thrombosed inguinal pseudoaneurysm after transfemoral access with a 6 French sheath	70
21	Pseudoaneurysm in the right groin 24 hours after removal of a 7 French sheath	70
22	Clinical finding of a huge pseudoaneurysm in a patient after left-sided access for endovascular intervention (oral anticoagulation, INR 3)	71
23	Angiographic documentation of the pseudoaneurysm emerging from the deep femoral artery	71
24	Angiographic appearance of an arteriovenous fistula with simultaneous filling of the right superficial femoral artery (left) and vein (right)	72
25	Distal embolization after stenting of the proximal superficial femoral artery: the tibioperoneal trifurcation is occluded by embolic material	75
26	(A) Occlusion of all three crucial arteries (arrow) in a patient with critical limb ischemia. (B) Guidewire perforation of the anterior tibial artery close to the ankle during attempted recanalization. (C) Completion angiogram following recanalization of the peroneal artery (arrowheads). As there is no flow in the anterior tibial artery, the extravasation was self-limiting	76
27	Large extravasation due to rupture of the left external iliac artery during balloon angioplasty	77
28	Perforation and bleeding to the popliteal fossa after failed recanalization of a P1 occlusion. The patient had to undergo fasciotomy the day after the procedure	77
29	Preoperative (left) and postoperative (right) angiographic control of PTA (insert) of long diffuse infrapopliteal stenosis	84
30	(A) Inflated peripheral cutting balloon (Boston Scientific Interventional Technologies, San Diego, California, USA). (B)	86

No.	Title	Page
	Inflated AngioSculpt (AngioScore, Inc., Fremont, California, USA)	
31	(A) Preoperative and (B, C) postoperative angiographic control of stenting with a siolimus-eluting stent (Cypher®, Condis, J & J Company, Waterloo, Belgium) of a short focal infrapopliteal occlusion	87
32	No. of males and females	95
33	Indication for intervention	95

LIST OF TABLES

No.	Title	Page
1	Selected risk factors for atherosclerosis	19
2	Classification of peripheral arterial disease: Fontaine's stages and Rutherford's categories	23
3	Medical strategies for the management of peripheral arterial disease	39
4	Percutaneous Retrograde Puncture of Femoral Artery	47
5	Variation in guidewire stiffness	55
6	Balloon sizing for angioplasty	63
7	Angioplasty balloon catheter length	64
8	Complications of elective angioplasty	68
9	Indications for infragenicular PTA	81
10	Trans-Atlantic Inter-Society Consensus classification for infra-popliteal lesions	90
11	Patients demographics and co-morbidity	94
12	Lesion positions	96
13	Clinical improvement	97
14	Results of cases	99

ABBREVIATIONS

ABI	: Ankle-Brachial pressure Index
ABPI	: Ankle Brachial Pressure Index
ACT	: Arteries activated clotting time
ADP	: Adenosine diphosphate
A-K	: Above Knee
AKA	: Above Knee Amputation
AP	: Ankle systolic pressure
AVF	: Arteriovenous fistula
B-K A	: Below-knee arteries
BKA	: Below Knee Amputation
CAD	: Coronary Arterial Disease
CAPRIE	: Clopidogrel versus aspirin in Patients at risk of ischemic events
CFA	: Common femoral artery
CFDU	: Color flow Doppler ultrasound
CLI	: Critical Limb Ischemia
CM	: Capillary Microscopy
EDV	: End-diastolic velocity
ESRD	: End-stage renal disease
GFV	: Graft flow velocity
GTN	: Glyceryl trinitrate
HDL	: High-Density lipoprotein
IC	: Intermittent claudication
ILH	: Inducing Limb Hyperaemia
IMA	: Internal mammary artery
LDF	: Laser Doppler Fluxmetry
LDL	: Low-density lipoprotein
MDCT	: Multiple detector computer tomography
MRA	: Magnetic resonance angiography
MRFIT	: Multiple Risk Factor Intervention Trial
NIDDM	: Non-Insulin-Dependent Diabetes Mellitus
OTW	: Long over-the-wire
PAD	: Peripheral Arterial occlusive Disease
PSV	: Peak systolic velocity
PTA	: Percutaneous transluminal angioplasty
PVD	: Peripheral vascular disease