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# بالرسالة صفحات لم ترد بالاصل

# PERCUTENOUS TRANSLUMINAL ANGIOPLASTY AND INTRAVASCULAR STENT PLACEMENT IN LOWER LIMB CHRONIC ISCHEM'A

Thesis Submitted in Partial Fulfillment Of MD degree in Radiodiagnosis

Prepared by

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Faculty of Medicine Suez Canal University 2004



Dedicated To The Soul of My Father

&

To My Wife

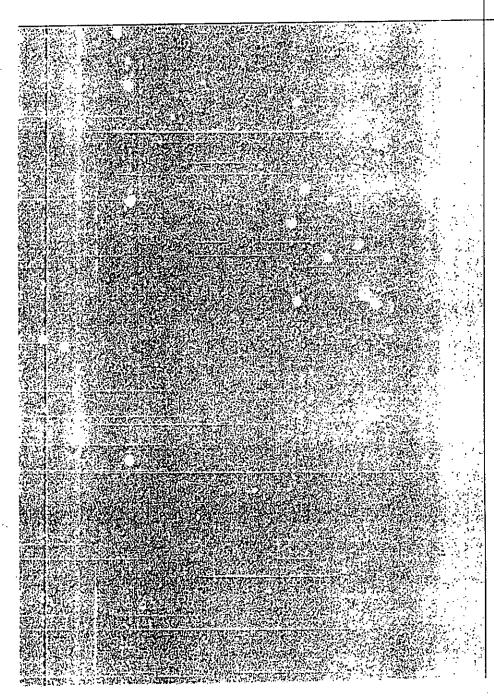
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### Abbreviations |

Appreviations	í
Adverse Drug Events 625 Black A 1977	∧DEs
Ankle Brachial Indices in Land 1997	ABIs
Arlenovenous Maljormation	AVM
Golor Doppler Sonography	S CDS
Common Lemoral Artery Andreas 19 19 19 19 19 19 19 19 19 19 19 19 19	CFA
Commontifiac Artery 25 12 12 13 12 13 12 13 12 13 13 13 13 13 13 13 13 13 13 13 13 13	CIA
Goronary Artery Disease	CAD
Diameter Reduction & Company of the Park State o	DR
DividiSubraction Ingiography	DSA
EndDiastoliciVelouply and the state of the s	EDV
Femoral Brachittindes	FBI
in broblasti Grovin Lactor - 200 1990 1990 1990	FGF :
Intra-Arter all Digital Subtraction Angiography	IADSA
Vintra-Vascillar-Girrasopha mass strike artist	IVUS
Intra-VenoisiDigitalSubtraction:Angiography	IVDSA
Dipoprotein Lipase	LpL
Liow Density Lippy Lieing Services	LDL
Los Osmolar Contrasta Medianas La santa de la contrasta Medianas La santa de la contrasta de l	LOCM
avagnetic Resonance and a superior a	MR MR
Monocyle Ghemojuci oe polein-1	MCP-I
Oxidized LDL State Francisco	OxLDL
Partial Prothrombin Lames 12 22 22	PTT
Peak Systolic, Clouby	s PSV
Rejcutenous de misluminal angioplasiy,	§ PTA
Perpheral Vascular Disease	PVD
Profunda Kemo, Alennery	PFA
Prothrombinstime	# <i>PT</i>
Recombinantinumantissue type Plasminogen Activator-	rt-PA
RediBloodsCells Survey 1997	RBCs
Segmental dami Pressures Paper 1	SLPs
Smooth Muscle Gells Section 1984	EMCs
Standard Deviation 34 Programme 1997	<u>SD</u>
Streptokinuse	SK
Superficial Fenoral Ariena	SFA
Tissue type Plasminogen Amivator 1975	:-PA
Transluminal Exercitoric Catheter	<u>TEC</u>
SUroknase Company of the Company of	UK
Vascular Endot/lettal/Growth Ractor	VEGF
Versus: The Control of the Control o	vs.
•	

## Introduction



Vascular recanalization for the treatment of lower extremity ischemia now be accomplished by both surgical and percutenous means. During the last 10 years many new procedures have been introduced to improve the circulation to lower extremities. Surgical revascularization with the use of a bypass graft remains the standard against which other modalities should be compared. The availability of percutenous interventions for the management of lower extremity arterial ischemic disease has given rise to controversy regarding selection of the definite procedure for a particular patient.

Endovascular interventional procedures were developed from diagnostic angiography and now play a central role in the management of patients with vascular disease. Because these therapeutic angiographic procedures are often simple, effective, and efficient with a low morbidity and mortality, they have increased the number of treatment options available to patients by enabling a percutenous endovascular procedure to be performed instead of a conventional surgical one. They have also increased the range of treatment available by offering procedures to patients who are either unfit for surgery or whose symptoms do not merit its risks.<sup>2</sup>

Percutenous transluminal angioplasty (PTA) was the first percutenous procedure used for the treatment of ischemic peripheral arterial disease. Since its development in 1960, angioplasty has continued to be the most commonly performed percutenous vascular interventional procedure.

PTA has become widely accepted because it offers several distinct advantages over surgical revasculc ization. Long-term patency rates after angioplastics of ideal lesions are almost similar to those after surgical bypass grafting.<sup>1</sup>

PTA is a general term for the direct, mechanical treatment of vascular lesions by catheter techniques. There are two similar procedures, which differ in important respects, including clinical applicability and prognosis. Transluminal balloon dilatation is a correction of stenotic but not occluded lesions. So transluminal balloon dilatation require, the presence of luminal patency: however sever the narrowing, there must be something to dilate.

Some authors mentioned that transluminal balloon dilatation can be performed on multiple occasions; there was no statistical difference in patency rates between the initial angioplasty and subsequent dilatation of the same vascular segment.'

The second procedure is transluminal re-canalization; is a correction of short length complete vascular occlusion by mechanical formation of an artificial lumen through the occluded segment.

So PTA now play a major role in the magement of lower extremity peripheral arterial ischemic disease, more precisely, focal iliac arterial steriosis, as it yield a greater than 90% initial success rate and a favorable 5 years outcome ranging from 50% to 90%. However, the patency rates jur femoro-pojliteal lesions are less favorable, generally 50% for 2 years. Also limited success has been obtained with PT! of the infra-genicular vessels in carefully selected patients.

The initial failure of PTA is considered based upon the predictors of failure included number of lesions, lesions length, lesion morphology, limb threat, and other contrib. ting medical disease as diabetes mellitus.'

Often it is considered as a low risk procedure, PTA is not without risk. When morbidity and mortality are tabulated within 30 days of the procedure, us is the standard in the surgical literature, PTA has some complications as initial failure, vessel perforation, and injury of patent proximal and distal segments with intimal hyperplasia as well as re-stenosis or re-occlusion.<sup>6</sup>

Although PTA has become established as an endo-vascular technique, the long-term results must still be considered as unsatisfactory since recurrences are frequent and required repeated interventions. Therefore new therapeutic strategies are required that can reduce re-stenosis or re-occlusion especially in these peripheral vascular segments. So in the more strict sense, the PTA is now being supplemented by endovascular stent implantation for many vascular regions.

Charles Dotter was the first investigator who introduces the concept, as well as the first prototype, of an endoluminal stent. Expandable intraluminal vascular stents were developed to overcome several problems associated with balloon angioplasty. The primary purpose of an intraluminal stent is to support the vascular wall and oppose elastic recoil. In doing so, a stent may improve the hemodynamic gradient across a stenotic segment, even more than is possible with angioplasty alone.

By smoothing-out the ragged, disrupted intimal surface and by exerting radial forces, the intraluminal stent optimizes the morphological changes and flow conditions at the angioplasty site.

Generally end cascular stents can be categorized into balloon-expandable, which proved a rigid scaffold to support the artery, and self-expanding which exert radial force to resist external compression.

The ischemia of the lower extremity is caused by either stenosis or occlusion of the arterial tree, includes iliac, ilio-femoral, femoral, femoro-popliteal and infragenicular segments, sharing almost of the same technical steps, but differ in the patency rates. So our study aiming to evaluate the safety and short term efficacy of the PTA and endo-vascular stent in the indicated lower limb chronic ischemic patients.

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