Angiographic Slow/No Flow Predictors During Percutaneous Coronary Intervention For Acute Coronary Syndrome

Thesis

Submitted for Partial Fulfillment of Master Degree in Cardiology

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2012

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List of Abbreviations

A1c	Glycosylated hemoglobin
ABC	Airway breathing circulation
ACC	American college of cardiology
ACE	Angiotensine converting enzyme
ACS	Acute coronary syndrom
AHA	American heart association
AMI	Acute myocardial infarction
aPTT	Activated partial thromboplastin time
ASA	Acetyle salicylis acid
ATP	Adenosine triphosphate
ATP	Adenosine triphosphate
AVM	Atriovenous malformation
BNP	B-Natriuretic peptide
CA++	Calcium
CABG	Coronary artery bypass graft
CAD	Coronary artery disease
CCU	Coronary care unit
CHF	Congestive heart faliure
CK-MB	MB fraction of creatine kinase
CMR	Cardiac magnetic resonance
CPR	Cardiopulmonary resuscitation
CPU	Chest pain unit
CT	Computed tomography
cTFC	Corrected timi frame count
D	Diagonal artery
DBP	Diastolic blood pressure
ECG	Electrocardiogram
ED	Emergency department
EF	Ejection fraction
EMS	Emergency medical service
ESSENCE	Efficacy and safetyn of subcutaneous enoxaprin
ET	Endothelin
GIK	Glucose insulin potassium

List of Abbreviations (Cont.)

Gp	Glycoprotein receptors
GRACE	Global registry of acute coronary event
GREAT	Grampian region early anistreplase trial
H	Hydrogen
HMG COA	Hydroxyl-methylglutaryl coenzyme a
IABP	Intra aortic balloon counter pulsation
INR	International normalized ratio
IR	Ischemia-reperfusion
IRA	Infarct-related artery
ISIS	International study infarct survival
IV	Intravenous access
K+	Potassium
LAD	Left anterior descending artery
LBBB	Left bundle branch block
LCX	Left circumflex artery
LDL	Low density lipo protein
LM	Left main artery
LMWH	Low molecular weight heparin
LOE	Level of evidence
LV	Left ventricle
LVF	Left ventricular failure
MACCE	Major adverse cardiac and cerebrovascular events
MACE	Major adverse cardiac events
MBG	Myocardial blush grade
MCE	Myocardial contrast echocardiography
MDCT	Multi detector computed tomography
MPS	Myocardial perfusion scintiography
m-PTP	Mitochondrial permeability transition pore
m-PTP	Mitochondrial permeability tension pore
MR	Mitral regurge
Na+	Sodium

List of Abbreviations (Cont.)

NSAIDS	Non steroidal anti-inflammatory drugs
N-STEMI	Non ST-elevation myocardial infarction
NVP	Negative predictive value
PAPP-A	Pregnancy associated plasma protein a
PDE-5	Phosphodistrase-5 inhibitors
PPCI	Primary percutaneous coronary intervention
RCA	Right coronary artery
RCT	Randomised controlled trial
rtPA	Tissue plasminogen activator
RVI	Right ventricular infarction
SBP	Systolic blood pressure
SC	Subcutaneous
SSA protein	Sulfosalycylic acid protein
STEMI	St-elevationmyocardial infarction
STR	ST-segment elevation resolution
TIA	Transient ischemic attack
TIMI	Thrombolysis in myocardial infarction
TxA2	Thromboxane-A2
UA	Unstable angina
UFH	Unfractionated heparin
URL	Upper reference limit
VF	Ventricular fibrillation
VT	Ventricular tachycardia

Acknowledgement

First and foremost, thanks to the gracious Allah. to Allah no words of thanks are sufficient.

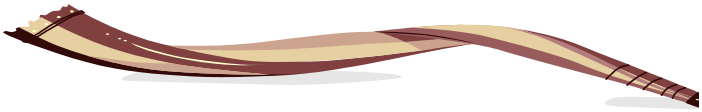
I would like to express my deepest gratitude to Prof. Dr. Nabil Farag, Professor of Cardiology Department, Faculty of Medicine, Ain Shams University, for his masterful teaching, continuous support, enthusiastic encouragement and correction. I thank him beyond words can convey. I will always owe him so much for guiding me and teaching me the true meaning behind being a doctor. I hope I will be able to follow his footsteps.

I would like also to express my sincere gratitude to Dr. Ahmed Onsy, Lecturer of Cardiology, Faculty of Medicine, Ain Shams University, for his great help and faithful advice. His continuous encouragement was of great value and support to me. I have really learnt so much from his great support and stimulating views. His active, persistent guidance and overwhelming kindness have been of great help throughout this work. His precious advice, excellent supervision, his time and supreme effort are clear in every part of this work. He has taught me so much and to him I will be eternally grateful.

I also should thank My Seniors and Colleagues in my hospital Nasr City Insurance Hospital, Department of Cardiology for their kind help and continuous encouragement.

Special thanks to all patients, on whom and for whom this work has been achieved and without them it was nerve going to appear.

Last but definitely not least, I would like to add my love to My Parents and My Wife for always being there for me praying all the time, and for all the suffering and hardships I made them face. To them I owe my life.



Ahmed Badra

Introduction

Ankle impingement is defined as a painful mechanical limitation of full ankle range of motion secondary to an osseous or soft-tissue abnormality ***(Sanders and Rathur, 2008) (Donovan and Rosenberg, 2010).***

From both an anatomical and a clinical point of view these syndromes are classified as bone impingement, soft tissue impingement and entrapment neuropathy depending on which joint portion impinges on the others ***(Henderson and La Valette, 2004).***

Soft tissue and osseous impingement syndromes of the ankle can be an important cause of chronic pain particularly in the professional athlete ***(Rosenberg et al., 2000).***

Depending on anatomical location and the structures involved, impingement syndromes are classified into anterolateral, anterior, posterior, posteromedial, and anteromedial types ***(Robinson and White, 2002) (Donovan and Rosenberg, 2010).***

These conditions arise from initial ankle injuries which in the subacute or chronic situation lead to development of abnormal osseous and soft tissue thickening within the ankle joint ***(Robinson and White,2002).***

Despite conventional radiography being usually the first imaging technique performed to assess any potential bone abnormalities, soft tissue affection usually escape and it has

disadvantages of improper assessment of cartilaginous, ligamentous and tendinous lesions ***(Dunfee et al., 2002).***

US is a rapid, widely available and inexpensive modality for evaluation of pathologic conditions of the ankle but it need familiarity with normal anatomic variants as well as with sonographic artifacts and common pitfalls to increase the diagnostic accuracy of ankle and foot sonography ***(Fessel et al, 1999).***

CT and isotope bone scanning have been largely superseded by MR imaging ***(Robinson and White, 2002).***

Magnetic resonance imaging has opened new horizon in diagnosis, hence treatment of most of ankle joint lesions. It enabled the detection of a wide varieties of bone changes and variety of soft tissue disorders such as ligaments, tendons and synovial membranes ***(Rosenberg et al., 2000).***

MRI is particularly suited for evaluation of the complex bone and soft tissue anatomy of the foot and ankle because of its superior soft tissue contrast and the ability to image in multiple planes. In addition new fast scan techniques provide improved efficiency and allow dynamic studies to be performed. MR arthrography technique has improved significantly in recent years resulting in more routine use of this technique ***(Rosenberg et al., 2000).***

Aim of the Work

The aim of this study is to evaluate the role of magnetic resonance imaging in assessment of impingement syndromes of the ankle.

Anatomy of the Ankle Joint

The ankle is approximately a uniaxial hinge joint. It is composed of the lower end of the tibia and its medial malleolus, together with the lateral malleolus of the fibula and inferior transverse tibiofibular ligament, form a deep recess (mortise) for the body of the talus ***(Davies, 2005).***

Anatomy of the ankle joint consists of:

I. Osseous Anatomy, include*:*

1. The distal end of tibia.
2. The distal end of fibula.
3. The talus.

II. Soft Tissue Anatomy, include:

1. Fibrous capsule.
2. Ligaments.
3. Retinacula.
4. The tendons of the ankle joint.

I. Osseous Anatomy:

1. The Distal End of Tibia

The lower end of the tibia is rectangular in cross section. ***Anteriorly***, the bone is crossed by (from medial to lateral) tibialis anterior, extensor hallucis longus and extensor digitorum longus tendons, as well as anterior tibial neurovascular bundle.

Posteriorly, there is a groove behind the medial malleolus for tendon of the tibialis posterior (Fig. 1) ***(Sinnatamby, 2000).***

2. The Distal End of Fibula

The distal end of the fibula or lateral malleolus, projects distally and posteriorly relative to the medial malleolus (Fig. 1&2) ***(Davies, 2005).***

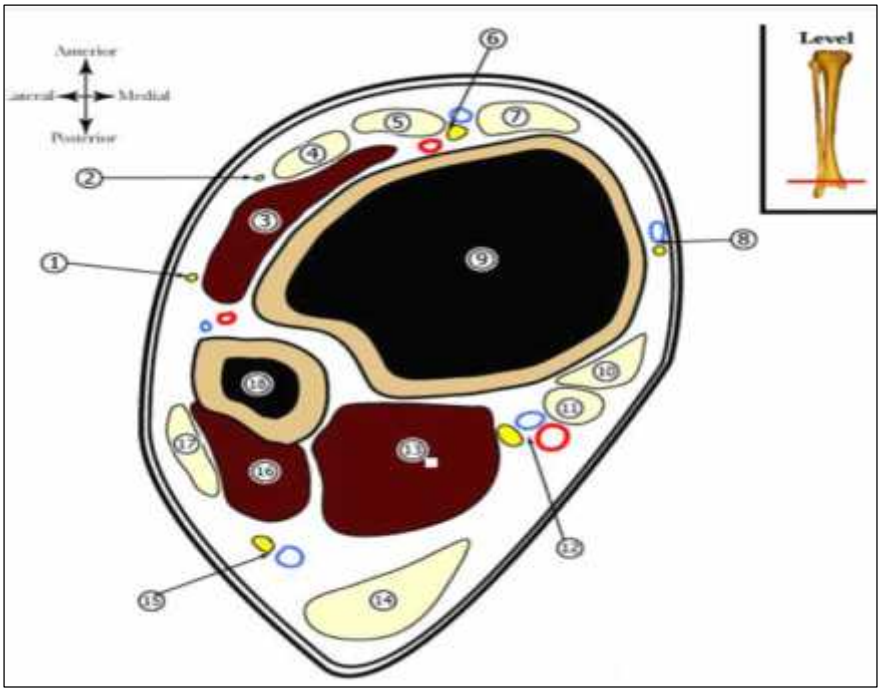


Fig. (1): Transverse section through the ankle joint (A) Intermediate Dorsal Cutaneous branch of superficial peroneal nerve **2.**Medial Dorsal Cutaneous branch of superficial peroneal nerve **3**. Peroneus tertius **4.** Extensor Digitorum Longus **5.** Extensor Hallucis Longus **6**. Deep Peroneal Nerve and Anterior Tibial Vessels **7**. Tibialis Anterior **8**. Great saphenous vein and saphenous nerve**9.** Tibia **10**. Tibialis Posterior**11**. Flexor digitorum longus (FDL) **12**. Tibial Nerve and Posterior Tibial Vessels**13**. Flexor Hallucis Longus **14**. Achilles tendon **15**. Sural Nerve and Lesser Saphenous Vein **16**. Peroneus brevis **17**. Peroneus longus **18**. Fibula ***(Davies, 2005).***