Role of MDCT Angiography in Diagnosis of Lower Limb Peripheral Arteries Diseases

Thesis

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Ali Basyoni Amin Abdel Keream

Dedication

This work is dedicated to . . .

My beloved Father, to whom I owe everything I ever did in my life and will achieve.

My Mother for always being there for me through out my personnel and professional life and all the nights she stayed with me.

My Brothers and My Sister for their support

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List of Abbreviations

Abb.	Full term
ATA	*Anterior tibial artery*
AVF	*Arterio-venous fistula*
DSA	*Digital subtraction angiography*
MDCT	*Multi-detector row CT*
MR	*Magnetic resonance*
MRI	*Magnetic resonance imaging*
PAA	*Popliteal artery aneurysm*
PAD	*Peripheral arterial disease*
PTA	*Posterior tibial artery*
SFA	*Superficial femoral artery*
TAO	*Thromboangiitis obliterans*

INTRODUCTION

Peripheral arterial disease (PAD) reflect systemic atherosclerosis and is associated with long term disability and increased cardiovascular complications.

Lower limb peripheral artery disease is the third leading cause of atherosclerotic cardiovascular morbidity after coronary heart disease and stroke, it is estimated to affect 200 million people globally ***(Rudan et al., 2013).***

Reduction of blood supply to a lower limb initially presents as intermittent claudication, while further restriction of flow leads to ischemic pain at rest, if not treated ulceration and gangrene may occur and can result in loss of a limb. Accurate characterization of number, level and severity of lesions is necessary to plan treatment ***(Koshy et al., 2009).***

The diagnosis and management of PAD is based on careful history, physical examination and a variety of diagnostic tools.

Conventional angiography is the gold standard for imaging of lower extremity occlusive disease. However, this method is invasive and expensive and has a definite, although low, morbidity ***(Soto et al., 2001).***

Compared with conventional angiography, CT angiography is less costly and faster, does not require assembly

of an angiographic team to perform the study, permits a wider variety of manipulations of the volumetric data set for image display and analysis in contrast to the limited projections routinely obtained during conventional angiography, and has fewer potential complications ***(Rubin et al., 2000).***

AIM OF THE WORK

Our objective in this study is to discuss the peripheral arterial diseases (PAD) and to evaluate accuracy of MDCT angiography in diagnosis of the (PAD) compared to the Digital subtraction angiography (DSA) as pre-operative evaluation of lower limb peripheral arterial diseases.

Chapter 1

ANATOMY

Arterial flow to the lower limbs comes from the abdominal aorta, which gives the iliac systems. The anatomy will be discussed due to their great importance in the examination of lower limb arterial system.

The abdominal aorta:

The abdominal aorta **(Fig. 1)** begins at the aortic hiatus of the diaphragm in front of the lower border of the body of the last thoracic vertebra, it descends in front of the vertebral column. It ends on the body of the fourth lumbar vertebra, commonly a little to the left of the midline by dividing into the two common iliac arteries. It diminishes rapidly in size, in consequence of the many branches which it gives of ***(Standring et al., 2005).***