

سامية محمد مصطفى



شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم



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شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



سامية محمد مصطفى



شبكة المعلومات الجامعية

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



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بالرسالة صفحات لم ترد بالأصل



**ASSESSMENT THE ROLE OF DOPPLER
ULTRASONOGRAPHY VERSUS ANGIOGRAPHY
IN DIAGNOSIS OF PERIPHERAL ARTERIAL
LESIONS IN GHARBIA GOVERNORATE**

Thesis

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INTRODUCTION AND AIM OF THE WORK

Almost all diseases that affect arterial supply to limbs interfere with tissue perfusion by obstruction of the involved segment. The degree to which the disease produce symptoms or signs depends on both the location and extent of arterial involvement. (*Patrolero et al., 1984*)⁽¹⁾

It becomes mandatory in approaching patient with suspected arterial disease is to identify not only the sites of involvement but also the nature of underlying disease. (*Eugene strandness, 1992*)⁽²⁾

Angiography is one of the most exciting and rapidly developing branches of radiology owing to its diagnostic capability in peripheral arterial lesions. The diagnostic possibilities of angiographic study must be carefully weighed against its potential complication. (*Malden et al., 1994*)⁽³⁾

Angiography has an effective role in diagnosing of many vascular disorders with precise localization of the site obstruction. In addition to its diagnostic power it has many therapeutic benefits e.g angioplasty and intra – arterial drug therapy and embolization. (*Bell and Cumberland 1989*)⁽⁴⁾

The advent of duplex sonography aroused high hopes, which initially could not be fulfilled. Doppler (functional) and B – mode (morphological) examination are complementary for the evaluation of the vascular diseases of extremities. (*Jacques et al., 1977*)⁽⁵⁾

Nowdays recent diagnostic modalities may be used in the vascular disorders. The principal application of C.T. in vascular diseases is in the evaluation of disorders of large vessels, particularly aortic aneurysms and their complications. (*Jeffery 1983*)⁽⁶⁾

On other hand, blood vessels may be shown by magnetic resonance on routine scan or when imaging sequences designed specifically for their demonstration. Many advances occurred in that diagnostic modality and one of the most exciting prospects offered by magnetic resonance angiography (M.R.A) is its ability to represent vascular structures in 3 – D reconstructions. (Wright et al., 1991)⁽⁷⁾

AIM OF THE WORK

The aim of this work is to compare between doppler U.S and angiography in diagnosing of arterial diseases of extremities. The capability of these diagnostic modalities to differentiate between different vascular diseases is also studied.

ANATOMY

Arterial supply of upper limb:

The aortic arch connects the ascending aorta with the descending aorta. Three great vessels originate from the aortic arch; the innominate artery originates on the right side of the arch, followed by left common carotid in the middle then the left subclavian artery at the left side of the arch. The innominate artery divides into the right common carotid and right subclavian arteries. The subclavian arteries on both sides continue as axillary arteries at the lateral margin of the first rib. (Gregory and Zwiebel 1992)⁽⁸⁾

Axillary artery: *Fig. (1).*

The axillary artery is the chief artery of the upper limb. It enters the axilla at its apex, at the outer border of the first rib, commencing as the continuation of the subclavian artery. It lies for a short distance on the medial wall of axilla, crosses the fat in the angle between the medial and posterior walls, and then runs along the lateral wall to the lower border of the teres major, where it leaves the axilla and passes into the arm to become the brachial artery. The axillary artery is divided into three parts by means of pectoralis minor muscle. (Kadir 1986)⁽⁹⁾

Brachial artery: *Fig. (1).*

The brachial artery is the direct continuation of the axillary artery. It begins at the lower border of the teres major and it passes distally and slightly laterally to the cubital fossa where at the level of the neck of the radius it divides into two terminal branches; the radial and the ulnar arteries. In the proximal part of the arm the brachial artery lies to the medial side of the humerus, but as it approaches the elbow it passes to the front of humerus. (Kadir 1986)⁽⁹⁾

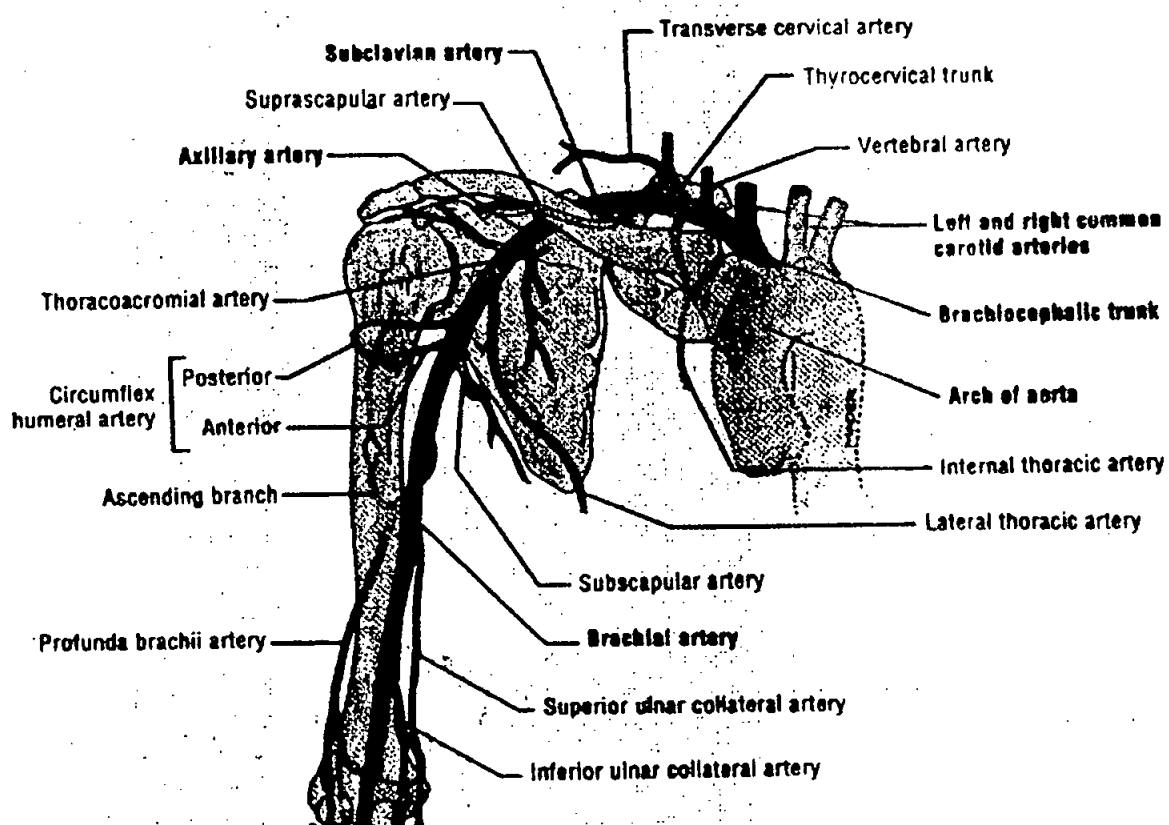


Fig. (1): Diagram of Rt. Shoulder and upper arm showing the axillary and brachial arteries with their major branches [Lawrence 1995]⁽¹³⁾.

Radial artery: Fig. (2).

The radial artery is the smaller of the two terminal branches of the brachial artery, but its direction gives it the appearance of being the continuation of the parent trunk in the forearm. It takes origin in the cubital fossa opposite the neck of the radius and it proceeds distally in the lateral part of the front of the limb until it reaches the distal end of the radius. Lastly the radial artery turns round the lateral border of the wrist where it terminates in the deep palmar arch. (Gregory and Zwiebel 1992)⁽⁸⁾

Ulnar artery: Fig. (2).

Ulnar artery is the larger of the two terminal branches of the brachial artery. It takes origin in the cubital fossa at the level of the neck of the radius. At proximal part of the forearm it inclines medially then it proceeds straight down to the wrist. It enters the palm by passing anterior to the transverse carpal ligament. In the proximal portion of its course, the vessel is deeply placed and is crossed by both heads of pronator teres, the flexor carpi radialis and the palmaris longus muscles. The distal vertical part of the artery is overlapped on the medial side by the flexor carpi ulnaris, but short distance proximal to the wrist the artery become superficial & passes to the wrist where it terminates in superficial palmar arch. (Rose and Kadir 1991)⁽¹⁰⁾

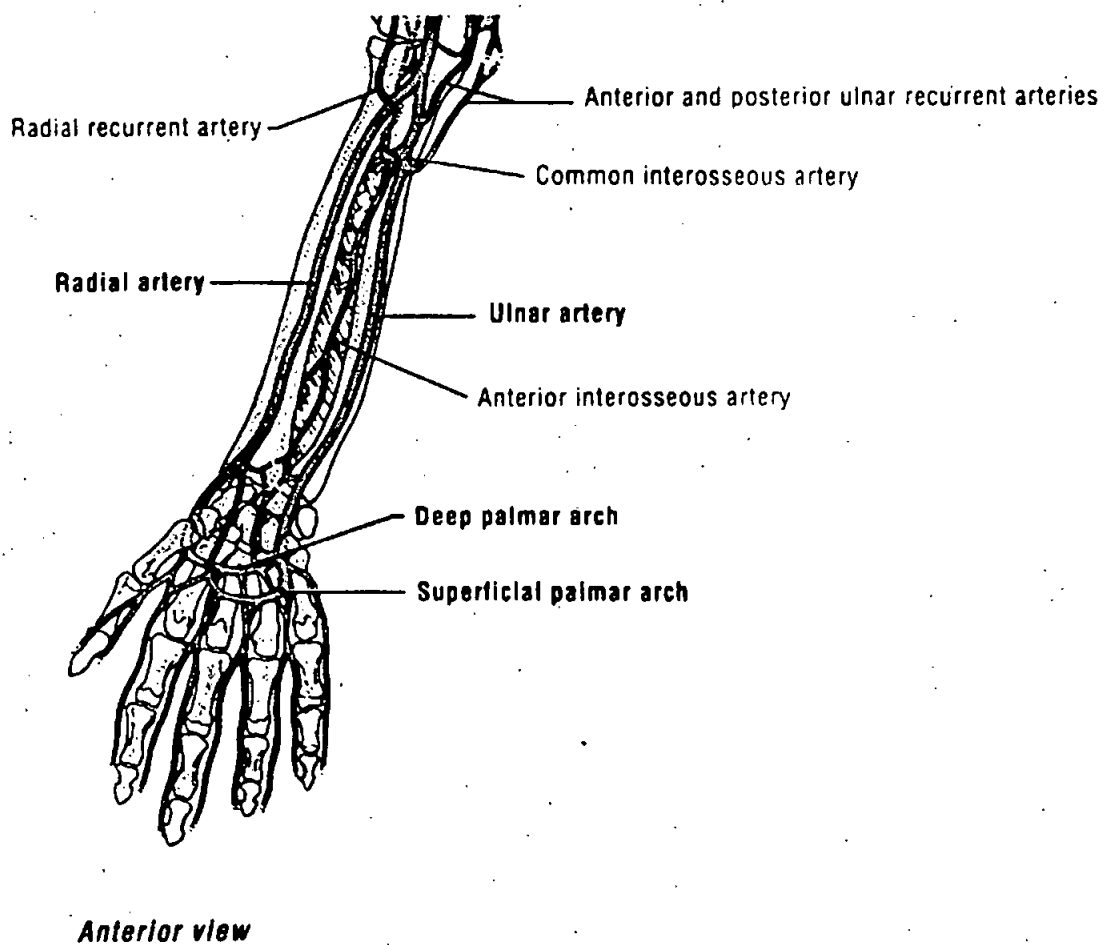


Fig. (2): Diagram of the anterior aspect of forearm showing radial and ulnar arteries with their terminal divisions at the palm of the hand [Lawrence 1995]⁽¹³⁾.

Arterial variants of upper Extremity:

Many anatomic variants can occur in the arterial tree of upper extremity, the most common include:

Structure	Variant	Frequency of occurrence in %
Arm and forearm	Radial artery origin from the axillary artery	1-3%
	Early division of the brachial artery:	19%
	a) High origin of radial artery.	13%
	b) Accessory (duplicated) brachial artery.	6%
	□ Ulnar artery origin from brachial or axillary artery.	2-3%
	□ Persistent median A.	2-4%

(Rose and Kadir 1991)⁽¹⁰⁾

Arterial supply of lower limb:

The abdominal aorta usually terminates at the level of the lower border of the fourth lumbar vertebra, dividing into right and left common iliac arteries. The common iliac arteries have minute branches which are peritoneal, psoas, ureteric and areolar branches. They may give rise to aberrant renal arteries or to the ilio – lumbar branch which arises normally from the internal iliac artery. The common iliac arteries branch after a variable distance of 2 – 6 cm at a level from the fifth lumbar vertebra to the sacro – iliac joint into the larger branch which is the external iliac artery and the internal iliac trunk which passes down to the pelvis. (Gregory and Zwiebel 1992)⁽⁸⁾

Internal iliac artery:

This artery passes down into the pelvis for about 1½ inches and ends on the side wall of the pelvis opposite the upper border of the greater sciatic foramen, by dividing into anterior and posterior divisions. The posterior division early in its course gives rise to one or two lateral sacral arteries, then it gives the ilio – lumbar branch with its iliac & lumbar ramification. Finally it continues through the greater sciatic notch as the superior gluteal artery. The anterior division of internal iliac artery contribute the remaining pelvic arteries & gives obturator, internal pudendal, inferior gluteal, uterine, superior vesical, inferior vesical, middle rectal and vaginal arteries. (Kadir and Athanasoullis 1986)⁽¹¹⁾

External iliac artery: *Fig. (3).*

It is the larger branch of the division of common iliac artery. Its course is quite ventral as well as downward and slightly lateral. The external iliac artery gives off two small branches, the inferior epigastric and the deep

circumflex iliac arteries: (a) The deep circumflex iliac artery: arises from the external iliac artery just above the level of inguinal ligament and ascends laterally to the anterior superior iliac spine and then passes along the iliac crest. It enlarges as a frequent collateral anastomosis in occlusive diseases. (b) The inferior epigastric artery: It passes in a smoothly curved line, superiorly and medially. It anastomoses freely with the superior epigastric branch of the internal mammary artery. The external iliac artery becomes the common femoral artery behind the inguinal ligament. (Gregory and Zwiebel 1992)⁽⁸⁾

The common femoral artery: *Fig. (3).*

This artery enters the thigh at a point midway between the anterior superior iliac spine and the symphysis pubis (mid – inguinal point) just medial to the deep inguinal ring. It continues for a distance 2 – 5 cm below the inguinal ligament and gives rise to the following small superficial branches: Superficial circumflex iliac artery, superficial epigastric artery and superficial external pudendal artery. (Mcminn 1990)⁽¹²⁾. Approximately two inches beyond its origin, the common femoral artery bifurcates into the deep femoral artery (profunda femoris) and the superficial femoral artery which continues on to hunter's adductor canal to be the popliteal artery. (Lawrence 1995)⁽¹³⁾