COMPARISON BETWEEN MRI AND CT IN DETECTION OF CEREBRAL INFARCTION

ESSAY

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RADIO-DIAGNOSIS

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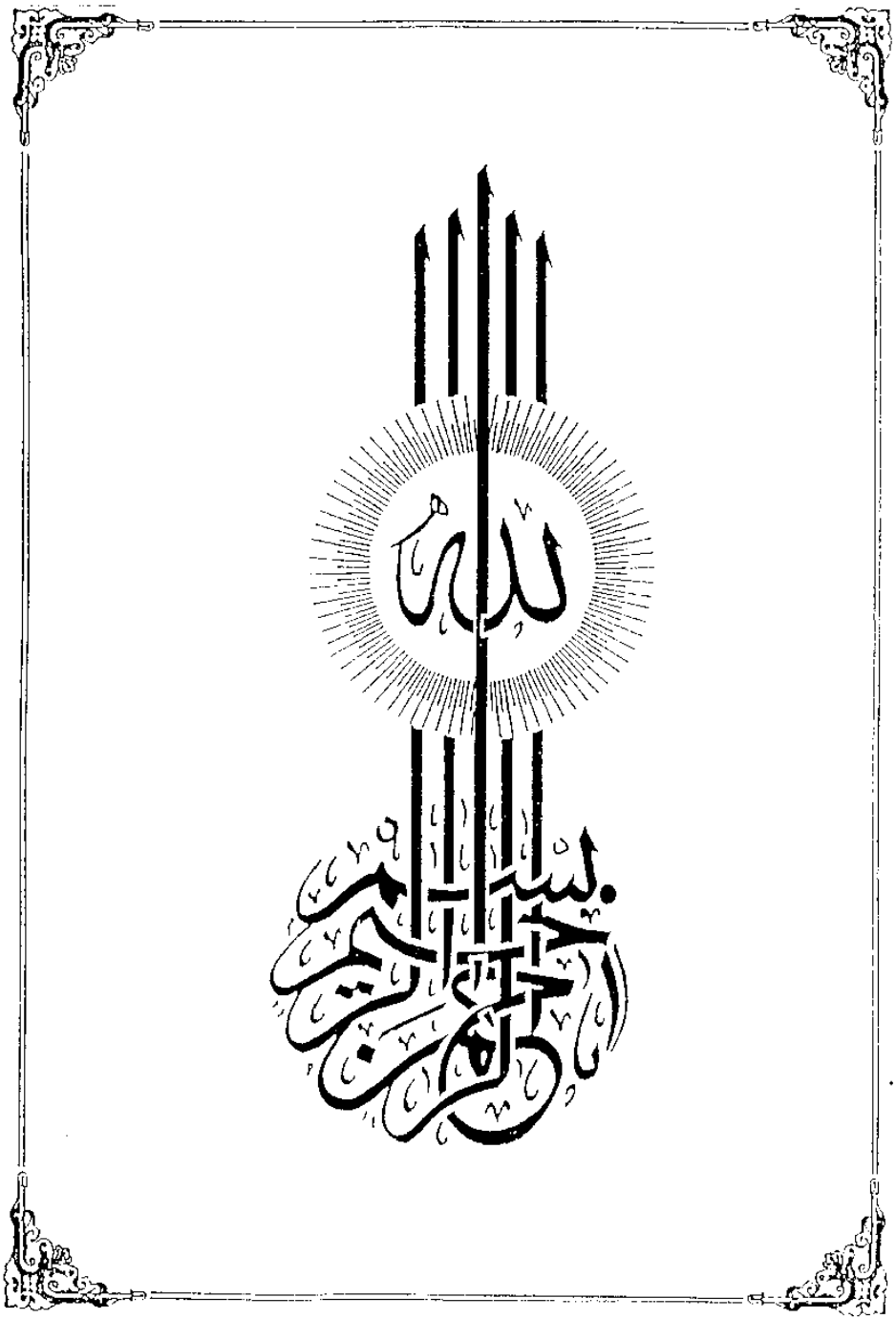

Dedication

This work is dedicated to

My beloved mother,

my dearest wife,

and my sister,

for their love,

Patience

&

Forebearance

ACKNOWLEDGEMENT

I wish to express my sincere appreciation and gratitude to Professor Dr., YOUSSEF HAMED ZAKI, Radiology Department, Faculty of Medicine, Ain Shams University, for his unlimited guidance, help and support throughout the whole work.

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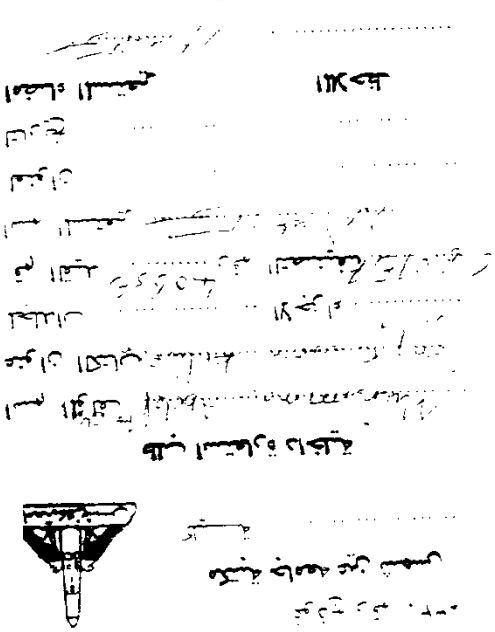
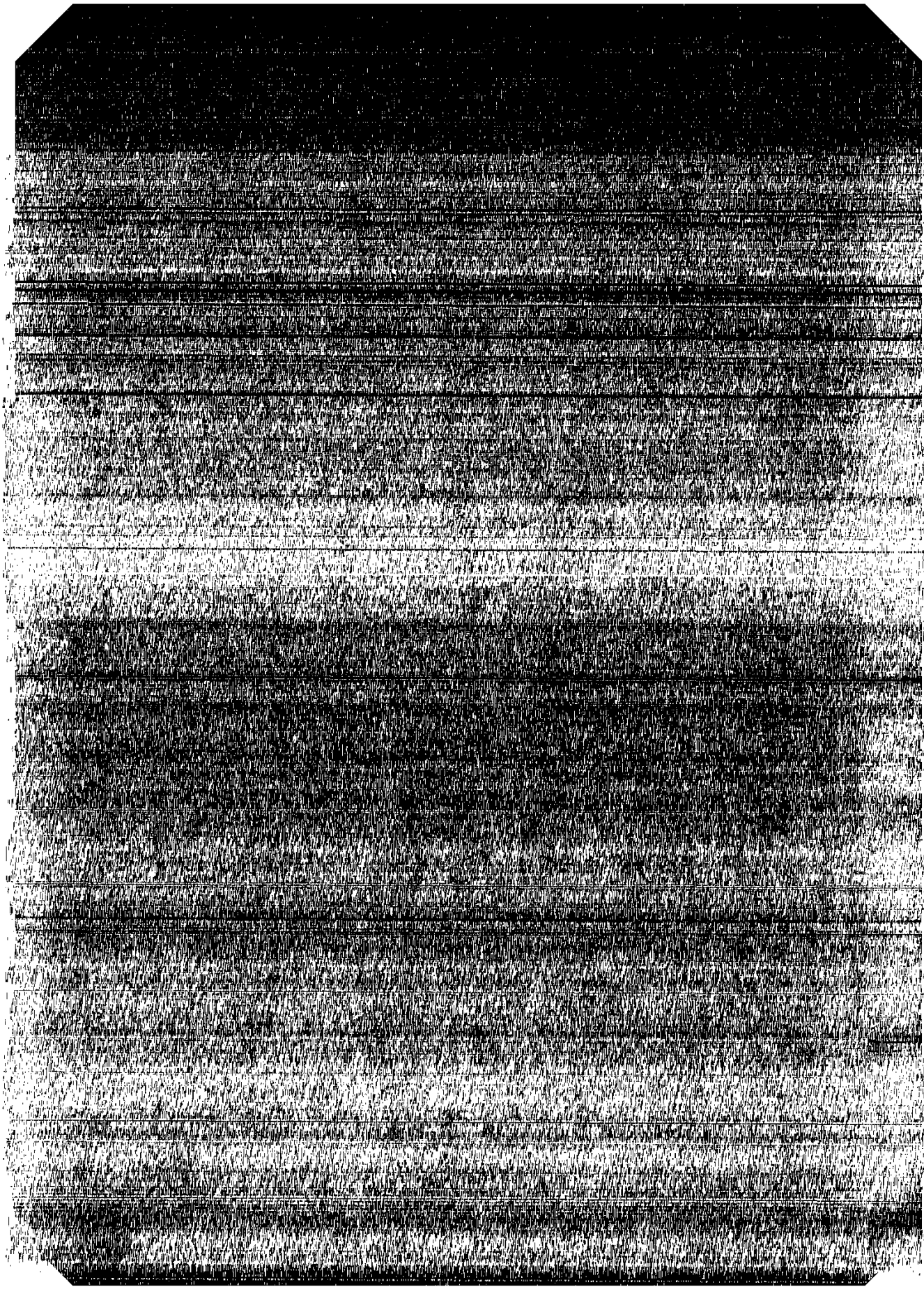


KEY TO ABBREVIATIONS

CCA	=	Common carotid Artery.
ICA	=	Internal Carotid Artery.
ACA	=	Anterior cerebral Artery.
MCA	=	Middle cerebral Artery.
C6	=	6thCervicalvertebra
C2	=	Second cervical vertebra.
AICA	=	Anterior Inferior cerebellar Artery.
PCA	=	Posterior cerebral Artery.
CT	=	Computed tomography.
CSF	=	Cerebro spinal Fluid.
IV	=	Intravenous.
MRI	=	Magnetic Resonance Imaging.
WI	=	Weighted image.
RT.	=	Right.
LT.	=	Left.

INTRODUCTION AND AIM OF THE WORK



INTRODUCTION AND AIM OF WORK

CT has been the Radiologic Mainstey in the evaluation of cerebral infarction. In most instances, it can reliably define the location, extent, type (bland vs hemorrhagic) and chronicity of the infarction. However, MR imaging has been shown by several authors to be more sensitive in the detection of cerebrovascular accidents (CVAS), especially early in the course of the infarction, (Brant-zawadzki M. et al., 1987).

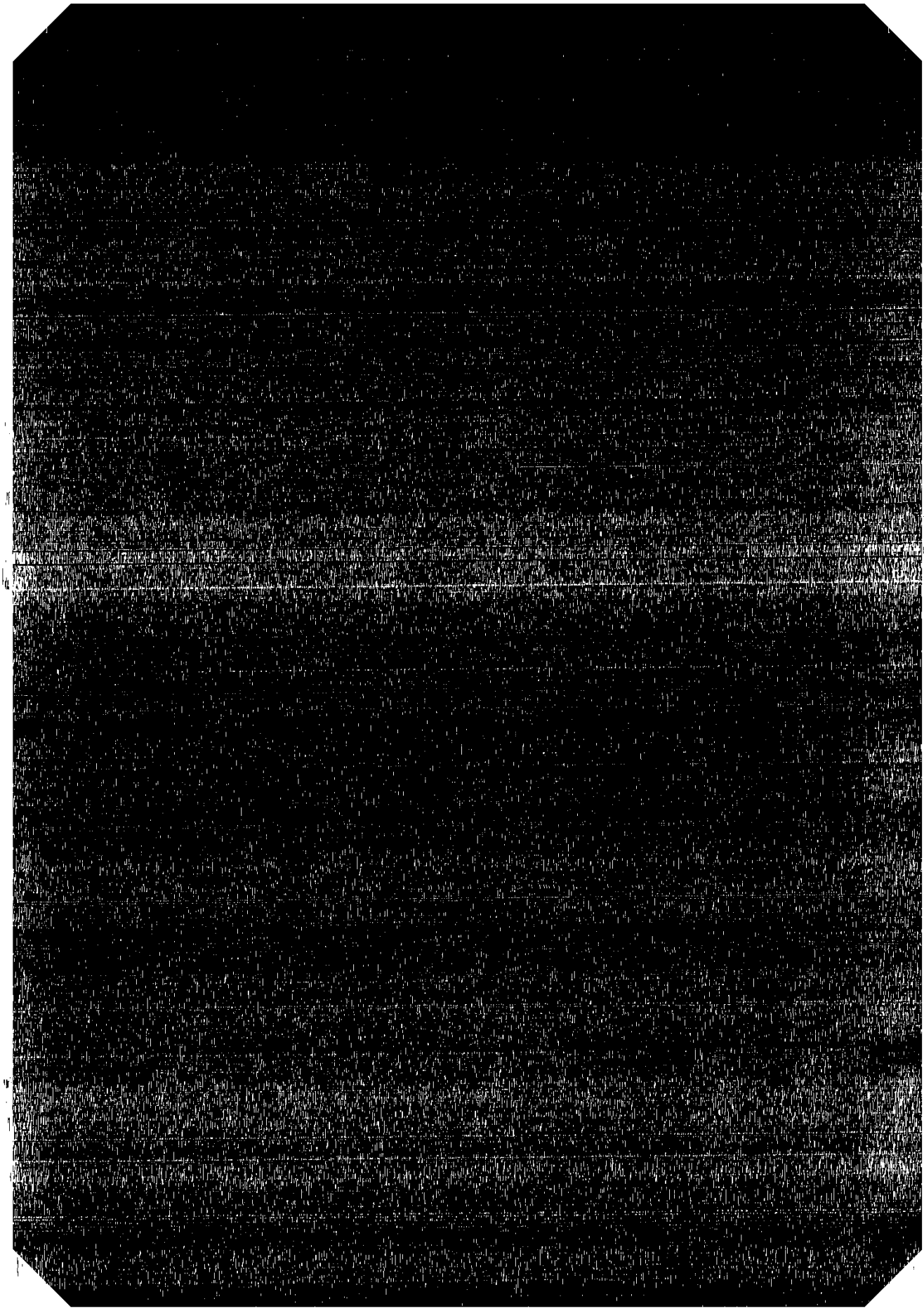
This sensitivity is the result of the superior ability of MR imaging to detect an increase in water content within ischemic tissue as manifested by an increase in the tissue T1 and T2 relaxation times. MR can also assess the presence or absence of intravascular flow in a noninasive manner (Bradley WG JR, et al., 1985).

The characteristic flow void, seen as absence of signal on T1 and T2 weighted imager, indicater vascular patency and rapid flow. An a bsence of this finding on routine MR imaging is strongly suggestive of slow flow or thrombosis. The ability to study intracranial structures in multiple planes

with MR improves the ability to diagnose vascular occlusion. This can be an important corroborative finding in the evaluation of cerebral infarction. Especially when the clinical or radiologic diagnosis is unclear. (Bryan RN, et al., 1983).

The aim of the work is to study the imaging findings of MRI and CT in the different types of cerebral infarction.

BLOOD SUPPLY OF THE BRAIN



BLOOD SUPPLY OF THE BRAIN

The brain receives its Blood supply via Two systems of arteries:-

A) The Carotid system.

B) The vertebro - Basilar system.

(A) The Carotid system

The Common Carotid artery:-

It aries on the right side from the brachio cephalic trunk at the level of the right sterno clavicular Joint.

The Left common carotid arises from the aortic arch as a second great vessel at the root of the neck opposite the 6th dorsal vertebra.

The artery divides into its two terminal branches the internal and external carotid arteries at the superior margin of the thyroid cartilage (Krayenbuhl and yasargil., 1965).

External Carotid artery:-

It is One of the two terminal branches of the common carotid artery arising from its frontomedial aspect.

This artery participates with the internal carotid artery and subclavian artery in the collateral circulation of the brain.

List of Arteries

1 Internal carotid, cervical part
2 Internal carotid, intrapetrous part
3 Internal carotid, cavernous part
4 Ophthalmic
5 Position of posterior communicating
6 Posterior cerebral
7 Anterior choroidal
8 Anterior cerebral
9 Anterior communicating
10 Frontopolar
11 Pericallosal
12 Callosomarginal
13 Posterior frontal
14 Middle cerebral
15 Lenticulostriate
16 Posterior parietal
17 Posterior temporal
18 Angular gyrus
19 Parietal
20 Frontoparietal

Fig. 1 : The carotid arterial system (antero-posterior) view (Weir and Abrahams, 1978).