CLINICAL PARAMETERS AND C.T. SCAN FINDINGS IN EVALUATION OF MANAGEMENT OF PRIMARY SPONTANEOUS SUPRATENTORIAL INTRACEREBRAL HEMORRHAGE

(CONSERVATIVE VERSUS SURGICAL MANAGEMENT)

THESIS

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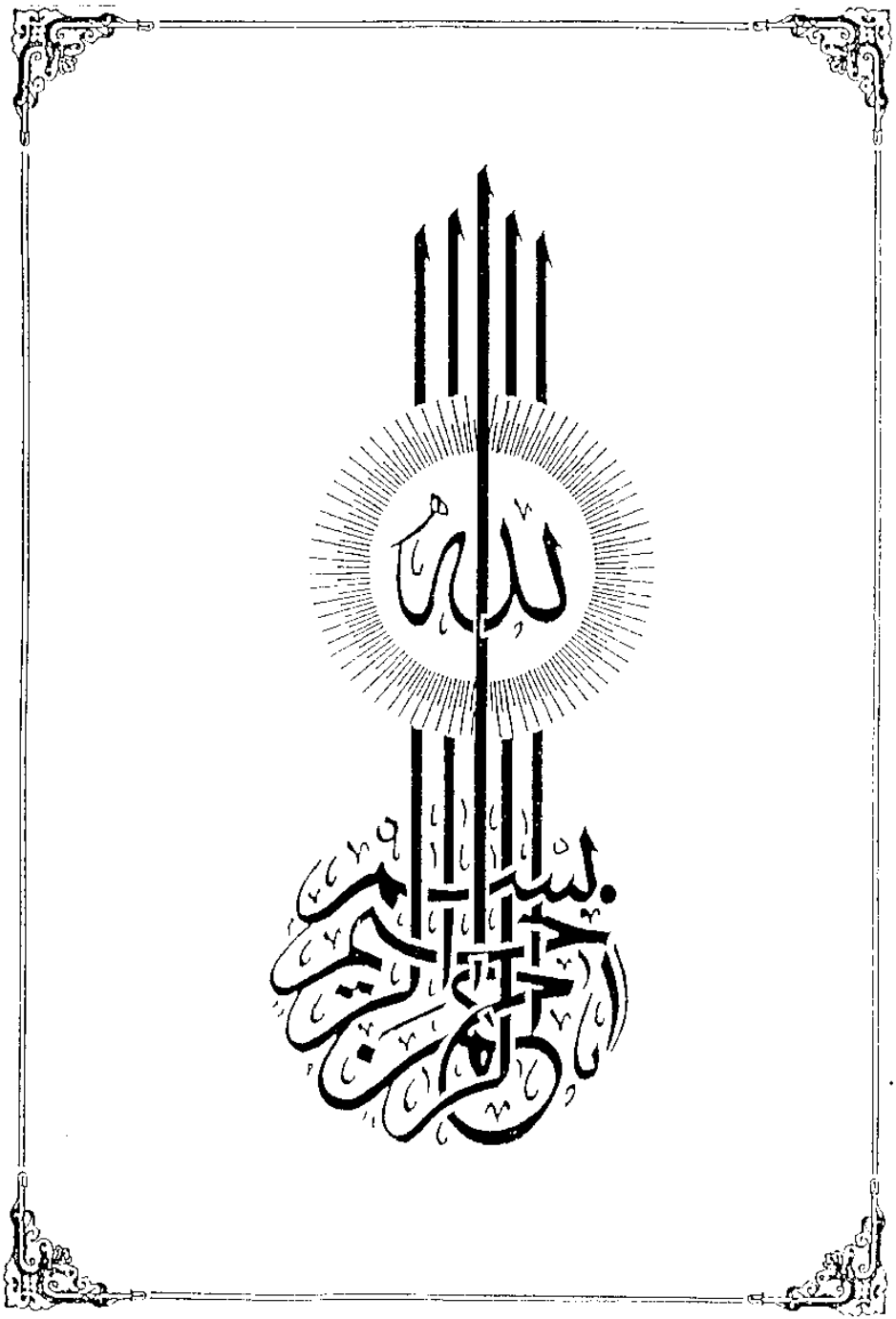

Abbreviations:

A	: Alert
A.B.Gs.	: Arterial blood gases
Ab.M.R.	: Abnormal motor response
Ab.P.	: Abnormal pulse
A.V.Ms.	: Arteriovenous malformations
B.H.A.	: Burrhole aspiration
Cau.	: Caudate
C.B.C.	: Complete blood count
C.B.F.	: Cerebral blood flow
C.D.	: Conservatively treated and died
C.S.V.S.	: Changes in shape of ventricular system
Com.	: Comatose
Cons.ttt.	: Conservative treatment
Cra.	: Craniotomy
C.S.	: Conservatively treated and survived
D	: Dead
D.E.S.	: Doll's eye sign
dil.C.V.	: Dilatation of contralateral ventricle
D.C.	: Deteriorated consciousness
D.M.	: Diabetes mellitus
Dr.	: Drowsy
D.V.T.	: Deep venous thrombosis
G.C.S.	: Glasgow coma scale
G.O.S.	: Glasgow outcome scale
G.R.	: Good recovery
Hd.	: Headache
H.S.	: Highly significant
ICH	: Intracerebral hemorrhage
I.C.P.	: Intracranial pressure
I.H.D.	: Ischemic heart disease
I.L.C.	: Initial level of consciousness
I.O.	: Insidious onset
I.r.P.	: Irregular respiratory pattern
IVE	: Intra ventricular extension.
L.M.L.S.	: Lateral midline shift
Lo	: Lobar
M.B.S.D.	: Manifestations of brain stem dysfunction
M.D.	: Motor deficit
M.Dis.	: Moderate Disability
N.S.	: Non significant
Ob.I.V.	: Obliteration of ipsilateral ventricle
O.C.	: Outcome

P.Str. : Previous strokes
P.T. : Prothrombin time
P.T.T. : Partial thromboplastin time
Pu. : Putaminal
Ren.D. : Renal disease
R.O.I. : Region of interest
S.D. : Surgically treated and died
S.Dis. : Severe disability
S.O. : Sudden onset
S.S. : Surgically treated and survived
St. : Stuporous
Surg. ttt. : Surgical treatment
Th. : Thalamic
U.P. : Unequal pupils
Ve : Vegetative
Vo. : Vomiting
Vol : Volume

CONTENTS

Introduction And Aim Of Work

Spontaneous intracerebral hemorrhage, because of its catastrophic effect on humans, has been a subject of great interest and importance to medical science. The advent of C.T. scanning has made the diagnosis, localization and treatment of such lesions much easier. But their management remains problematic. Numerous surgical strategies have been advocated over the years but non has achieved universal acceptance and the questions remain: Which cases require operation, when and which surgical techniques are best.? *(Tsementzis, 1985).*

Aim of The Work:

The aim of this study is to evaluate the results of surgical and conservative treatment of primary spontaneous supratentorial ICH to search for parameters that could help to predict the outcome and facilitate the decision between surgery and conservative treatment.

So, in our study, some clinical parameters and C.T. scan findings will be studied to identify their correlation with the outcome in both surgically and conservatively treated patients.

Some clinical parameters:

Age

Mode of onset

Initial level of consciousness

Manifestations of brainstem dysfunction

Some C.T. scan findings:

Volume of ICH

Site of ICH

Midline shift

Intraventricular extension

Changes in shape of ventricular system

Changes in shape of basal cisterns

Review of Literature

I. Anatomy
II. Pathology
III. Clinical presentation
IV. Special investigations
V. Conservative management
VI. Surgical management
VII. Complications
VIII. Final outcome and prognosis

I. Anatomy:

1. Blood supply of the brain
2. Correlation between thalamoganglionic anatomy and C.T. scan finding:

1. Blood supply of the brain:

Although the brain represents only 2% of the body weight, it receives about one fifth of cardiac output.

The blood reaches the brain through two general types of arteries: The superficial or conducting arteries and the nutrient or penetrating arteries.

The conducting arteries include the two internal carotid arteries and the two vertebral arteries and their branches.

On the ventral surface of the brain, the four arteries are joined together by one anterior and two posterior communicating arteries to form an anatomically anastomosing system, *the circle of Willis*.

Vertebral arteries:

Normally, the V.A. arises as the first branch of the subclavian artery, coursing superiorly and medially to enter the transverse foramen of C6. The V.A. purses an almost vertical course as it ascends through the transverse foraminae of C6-C3. It then turns superiolaterally to pass through the C2 foramen. After it

emerges from this foramen. The VA courses upward through the transverse foramen of the atlas. It then curves backward around the atlanto-occipital joint and lies in a horizontal groove along the posterior arch of C1. As the vertebral artery approaches the midline, it abruptly bends cephalad to enter the skull through the foramen magnum. Anterior to the upper medulla, the two vertebral arteries unite to form the basilar artery.

Extracranial branches of the vertebral artery:

Throughout its intraspinal course, each VA gives rise to segmental branches that supply the vertebrae and supplement the spinal circulation. Each also has deep muscular rami that have numerous anastomosis with muscular branches of external carotid artery, primarily the occipital artery *(Lasjaunias et al., 1978)*. Anastomotic channels also exist between segmental branches of the cervical VA and the ascending pharyngeal artery *(Lasjaunias and Manelfe, 1979)*.

Intracranial branches of the vertebral artery:

Intracranial VA rami include the posterior meningeal artery, direct bulbar branches to the medulla, the anterior spinal artery, the posterior inferior cerebellar artery, small basal meningeal branches and occasionally, the posterior spinal artery *(Lasjaunias and Manelf, 1979)*.

The posterior meningeal artery originates from the VA at or just below the foramen magnum. It follows a relatively straight superomedial course to supply the Falx cerebelli.

The posterior spinal artery arises from the distal VA or posterior inferior cerebellar artery. It descends along the dorsal surface of the medulla and spinal cord. Together with the VA and other spinal radicular branches, it forms a vascular network that continues inferiorly along the cord to the cauda equina *(Stephens and Stillwell, 1969)*.

The interior spinal artery also arises from the distal VA. In approximately 50% of cases, it courses inferiorly and medially to unit with its counterpart from the opposite side. The anterior spinal artery then runs caudal in the anteromedian sulcus of the spinal cord.

The posterior inferior cerebellar artery (PICA) is both the largest and most variable branch of the VA. It normally arises from the VA about one or two cm below the basilar artery origin at or near the olive.

The first segment of the PICA courses laterally around the medulla and is called the anterior medullary segment *(Wolf et al.,*