بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

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في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

ROLE OF SURGERY IN PATIENTS WITH CERBROVASCULAR STROKE

Thesis

Submitted to The Faculty of Medicine,

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In partial fulfillment of the requirements

Of the degree of

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LIST OF ABBREVIATIONS

ACA	Anterior Cerebral Artery
AICA	Anterior Inferior Cerebellar Artery
CBF	Cerebral Blood Flow
CT	Computed Tomography
EC/IC	Extracranial/Intracranial
ECG	Electrocardiography
ESR	Erythrocyte Sedimentation Rate
ICA	Internal Carotid Artery
ICH	Intracerebral Hemorrhage
ICP	Intracranial pressure
IVH	Intraventricular Hemorrhage
MCA	Middle Cerebral Artery
MRA	Magnetic Resonance Angiography
MRI	Magnetic Resonance Imaging
PET	Positron Emission Tomography
PICA	Posterior Inferior Cerebellar Artery
SAH	Subarachnoid Hemorrhage
SCA	Superior Cerebellar Artery
SPECT	Single Photon Emission Computed Tomography
TCD	Transcranial Doppler

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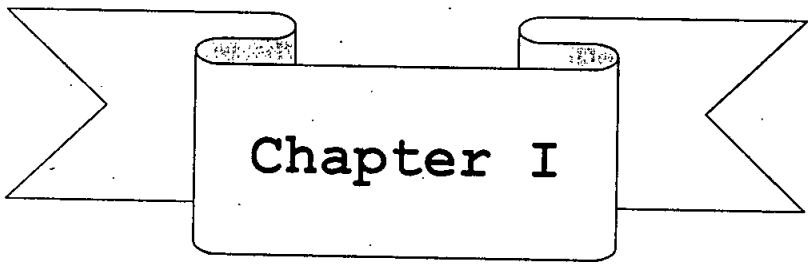

INTRODUCTION

INTRODUCTION

BLOOD SUPPLY TO THE BRAIN

ARTERIAL BLOOD SUPPLY OF THE FOREBRAIN [1,2]

The blood supply to the forebrain is derived from the two internal carotid arteries and from the basilar artery. Each internal carotid artery enters the subarachnoid space by piercing the roof of the cavernous sinus. In the subarachnoid space it gives off ophthalmic, posterior communicating and anterior choroidal arteries before dividing into the anterior and middle cerebral arteries. The basilar artery divides at the upper border of the pons into two posterior cerebral arteries. The arterial circle of Willis is completed by a linkage of the posterior communicating artery with the posterior cerebral on each side, and by linkage of the two anterior cerebrals by the anterior communicating artery (Figure 1).

The choroid plexuses of the lateral ventricles are supplied by the anterior choroidal branch of the anterior cerebral artery and by the posterior choroidal branch of the posterior cerebral artery. Dozens of fine central (perforating) branches are given off by the constituent arteries of the circle of Willis. They enter the brain through the anterior perforated substance beside the optic chiasma, and through the posterior perforated substance behind the mamillary bodies. They have been classified into short and long branches. Short central branches arise from all of the constituent arteries and from the two choroidal arteries and they supply the optic nerve, chiasma and tract, and the hypothalamus. Long central branches arise from the three cerebral arteries and they supply the thalamus, corpus striatum and internal capsule. They include the striate branches of the anterior and middle cerebral arteries.

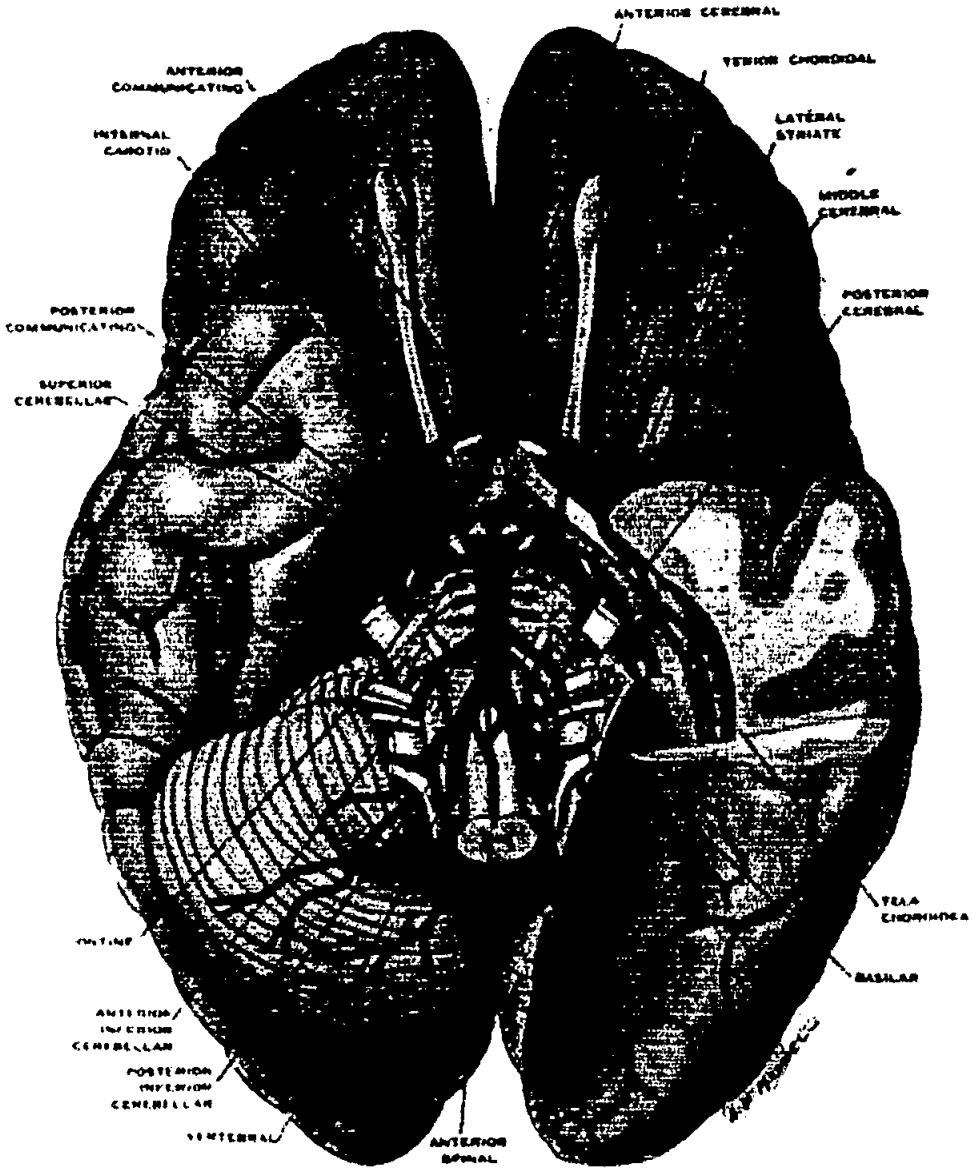

Fig :1 Circle of Willis.

INTERNAL CAROTID ARTERY (ICA)[3]

Segments

- **C1** (cervical) begins at the carotid bifurcation and ends where it enters the carotid canal of petrous bone and gives no branches.
- **C2** (petrous) ends at the posterior edge of the foramen lacerum.
- **C3** (lacerum) passes over the foramen lacerum forming the lateral loop, then ascends in the canalicular portion of the foramen lacerum to the juxtasellar position, piercing the dura as it passes the petroclinoid ligament to become the cavernous segment. Its branches include:
    1. corticotympanic branch: supplies the tympanic cavity.
    2. pterygoid branch.
- **C4** (cavernous) ends at the proximal dural ring, gives many branches, the main ones include:
    1. meningohypophyseal trunk (largest and most proximal).
    2. anterior meningeal artery.
    3. artery to the inferior portion of the cavernous sinus.
    4. capsular artery of McConnell.
- **C5** (clinoid) ends at the distal dural ring where ICA becomes intradural.
- **C6** (ophthalmic) ends just proximal to the posterior communicating artery, gives the following branches:
    1. superior hypophyseal artery
    2. ophthalmic artery
    3. posterior communicating artery
    4. anterior choroidal artery
- **C7** (communicating) travels between cranial nerve 2 and 3, terminates just below the anterior perforated substance where it bifurcates into anterior cerebral artery (ACA) and middle cerebral artery (MCA).

ANTERIOR CEREBRAL ARTERY (ACA) [4]

It Passes between cranial nerve 2 and anterior perforated substance.

Segments

- **A1:** from origin of ACA to anterior communicating artery.
- **A2:** from anterior communicating artery to branch point of callosomarginal.
- **A3:** from branch point of callosomarginal to superior surface of corpus callosum 3 cm posterior to the genu.
- **A4:** pericallosal.
- **A5:** terminal branch.

BRANCHES

1. recurrent artery of Heubner: 80% arise from A1, one of the larger medial lenticulostriates, supply head of caudate, putamen and anterior internal capsule.
2. medial orbitofrontal artery: supply orbital surface of the frontal lobe.
3. frontopollar artery: supply the frontal pole.
4. callosomarginal: supply cingulate and superior frontal gyri and paracentral lobule.
5. pericallosal: supply the corpus callosum.

MIDDLE CEREBRAL ARTERY (MCA) [4]

The middle cerebral artery is the main continuation of the internal carotid artery, receiving 80% of the carotid blood flow.

Segments

- **M1:** from origin to the bifurcation into ACA and MCA.
- **M2:** from bifurcation to emergence from Sylvian fissure.
- **M3-4:** distal branches.
- **M5:** terminal branch.