

Blood supply of Brain

Department of Anatomy

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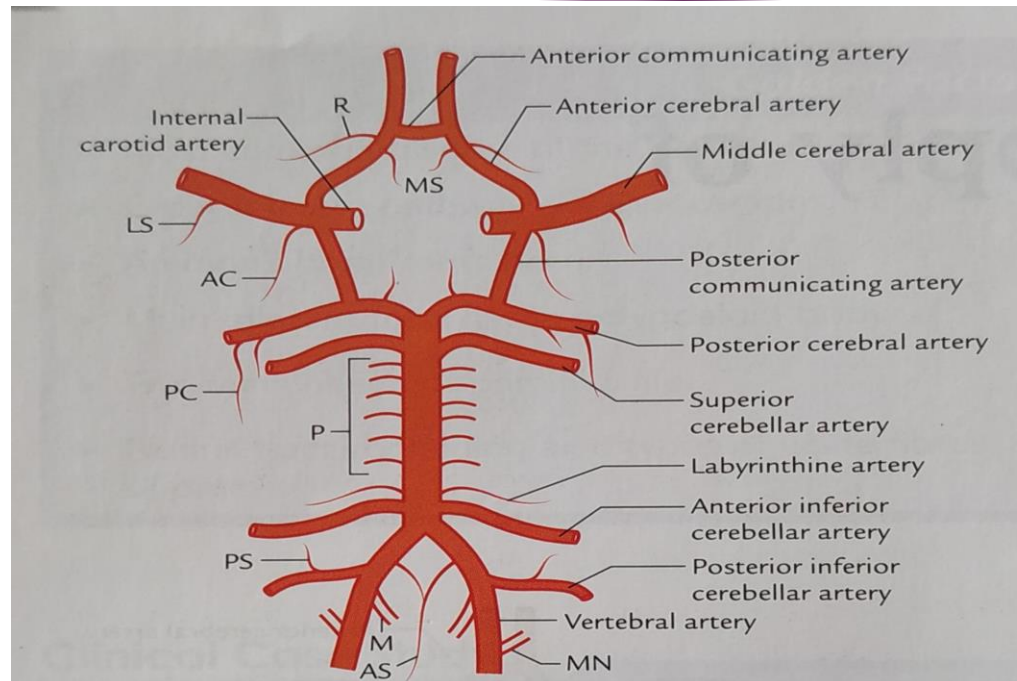


Fig. 29.2 Circle of Willis (AS = anterior spinal artery, LS = lateral striate artery, M = medullary branches, MN = meningeal branches, MS = medial striate arteries, P = pontine branches, PC = posterior choroidal artery, PS = posterior spinal artery, R = recurrent artery of Heubner, AC = anterior choroidal artery).

Introduction

IS PROVIDED BY 2 ARTERIES – 2 VERTEBRAL ARTERY AND 2 INTERNAL CAROTID ARTERY.

THE 2 VERTEBRAL ARTERY- ENTER THE SKULL THROUGH FORAMEN MAGNUM AND UNITE AT THE LOWER BORDER OF PONS TO FORM BASILAR ARTERY WHICH ASCENDS IN THE MIDLINE ON THE VENTRAL SURFACE OF THE PONS AND DIVIDED INTO RIGHT & LEFT POSTERIOR CEREBRAL ARTERY AT ITS UPPER BORDER

EACH INTERNAL CAROTID ARTERY ENTERS THE CRANIAL CAVITY THROUGH CAROTID CANAL.

IT THEN TAKES A SINUSES COURSE THROUGH THE CAVERNOUS SINUS,PIERCES THE DORSAL ROOF OF THE SINUS AND ENDS IMMEDIATELY LATERAL TO THE OPTIC CHIASMA BY DIVIDING INTO A LARGER MIDDLE CEREBRAL ARTERY & SMALLER CEREBRAL ARTERY.

Circle of Willis (Circulus arteriosus).

- ▶ The branches of basilar and internal carotid artery anastomose at the base of brain around the interPenduncular fossa, forming a six sided polygon of arteries called Circulus arteriosus.
- ▶ The circle of Willis lie in interPenduncular fossa.
- ▶ **Formation**
- ▶ **1.anteriorly – by the communicating ant cerebral arteries.**
- ▶ **2.posteriorly – by the basillar artery dividing into two post cerebral arteries**
- ▶ **3.laterally(each side)-by post communicating artery connecting the internal carotid artery with the post cerebral artery.**

Branches of vertebral artery (cranial part)

- ▶ **Posterior spinal artery**-it passes downwards on posterior surface of spinal cord after dividing into two branches: one along the medial side other along the lateral side of dorsal root of spinal Nerves.
- ▶ **Posterior inferior Cerebellar artery** - is the longest branch (of cranial part of vertebral artery).it arises From near end of dive,winds backwards around the medulla oblongata and then ascends to the pontomedullary junction
- ▶ **Anterior spinal artery** – is a small Branch .it arises near the termination of vertebral artery,it descends in front of medulla and unite with its fellow of opposite side.it forms a single median trunk that descends along the anterior longitudinal tissue of spinal cord.
- ▶ **Meningeal branch** – Are small and supply the duramotor of posterior cranial fossa.
- ▶ **Medullary artery** – are several minute vessels which supply the medulla oblongata.

Branches of Basilar Artery

- ▶ Pontine branch – are numerous short, slender paramedian Branch which pierces the pons to supply it.
- ▶ Ant. Inf. Cerebellar Artery – arises close to lower border of the pons and runs backwards.
- ▶ Labyrinthine Artery – Is a long slender branch which arises either from Basilar artery or from Ant. inferior. cerebral artery. It accompanies vestibulocochlear Nerve and enters the internal auditory meatus to supply the internal ear.
- ▶ Superior cerebellar Artery – arises close to the superior border of the pons supply the superior surface of cerebellum.
- ▶ Post Cerebral artery – passes laterally along the superior border of the pons parallel to the superior Cerebellar artery. It gives off central branch into ventral surface of midbrain and temporal lobe & occipital lobe. (Cortical branch).