GOOD MORNING
VENTRICULAR SYSTEM OF BRAIN

PRESENTED BY
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IT CONSIST OF 4 CAVITIES CALLED VENTRICLES---------I,II COLLECTIVELY CALLED LATERAL VENTRICLES,III AD IV VENTRICLE.
LATERAL VENTRICLE

- I AD II TOGETHER CALLD LATERAL VENTRICLE.
- Largest ventricle ad occupy largest components of the system.
- 2 irregular cavities situated one in each cerebral hemisphere.
- each communicate with 3rd thru interventricular foramen (FORAMEN OF MONRO)
PARTS

- CENTRAL PART (BODY), 3 HORNS.
- ANTERIOR, POSTERIOR AD INFERIOR HORN
- ANTERIOR OR FRONTAL HORN
- POSTERIOR OR OCCIPETAL HORN
- INFERIOR OR TEMPORAL HORN
CENTRAl PART

IT EXTENDS FROM INTERVENTRICULAR FORAMEN INFRONT TO CORPUS CALLOSUM BEHIND.

ROOF-------UNDERSURFACE OF CORPUS CALLOSUM.

FLOOR-------(from lateral to medial) 1- caudate nucleus (part of basal ganglia) 
                   2- striae terminalis
                   3- thalamostriate vein
                   4- lateral portn of upper surface of thalamus

MEDIAL WALL------Septum pellucidum ad body of fornix
Part of lateral ventricle situated in front of interventricular foramen and extends into frontal lobe

Triangular shape
Posterior horn

- Lies behind corpus callosum ad extends into occipetal lobe
- May b absent or of variable size
- Lrgst horn ad extends to temporal lobe
- Starts at juntn of central part wth postr horn
Third ventricle

- CAVITY OF DIENCEPHALON
- MEDIAN CLEFT B/W TWO THALAMI
Communicate with lateral ventricle thru Foramen of monro

With fourth thru cerebral aqueduct (AQUEDUCT OF SYLVIUS)

RECESS-------pineal suprapineal, infundibular, ad optic recess.
boundaries

• Anterior wall------lamina terminalis, antr commissure, antr colmn of fornix.

• Posterior wall-----pineal body, postr commissure ad cerebral aqueduct

• Lateral wall------medial surface of thalamus, hypothalamus, ad hypothalamic sulcus
Floor-----hypothalamic structures 1-optic chiasma

2-tubercinerium 3-pituitary stalk 4-mamillary bodies 5-poster perforated substance ad tegmentum
Applied anatomy-3rd v

- Is a narrow space ad easly gets bstrd by tumors cause incrsd ICT in adults ad hydrocephalus in children.
- Any obstructn cause diltn superior to it.
- Diltn of third v----obstrn at lower level.
- Diltn of both lateral ventr-----obstrn at 3rd v
- Unilateral diltn of lateral ventricle----obstrn at interventricular foramen
- Distn of whole ventr system-----obstrn at F.MAGENDI ad F.LUSCHKA
FOURTH VENTRICLE

Diamond shape when viewed superly ad tent shaped when viewed laterally.
Last ad lowest ventricle.
Cavity of hindbrain.
Situated b/w pons ad medulla infront ad cerebellum behind.
Communications

- With 3rd v thru cerebral aqueduct.
- Inferiorly communicate with central canal of medulla ad s.c.
- Dorsally---median apperture(FORAMEN OF MAGENDI) ad lateral apperture(FORAMEN OF LUSCHKA) communicate wth subarachneoid space.
ROOF----tenet shaped, projects into cerebellum.

FORMED BY SUPR. CEREBELLAR PEDUNCLE, SUPR. INF. MEDULLARY VELOM, TELA CHORIOIDEA OF 4th V.

FLOOR------called RHOMBOIDAL FOSSA bcoz of it rhomboidal in shape.
Rhomboidal fossa-contents

- Median sulcus—divides it into rt ,lt.
- Median eminence—elevation on either side of sulci
- Substantia ferruginea
- Depressions---sup.&inf fovea
- Facial colliculus----produced by abducent nuclei&fibres of facial N.

VAGAL TRIANGLE---dorsal nucleus of vagus.

HYPOGLOSSAL TRIANGLE-----hypoglossal nucleus.

VESTIBULAR AREA--cochlear nucleus &cochlearN
CSF produced by choroid plexus of ventricles and circulates through the subarachnoid space and ventricles, before being absorbed into the dural venous sinuses.

Choroid plexus is located in the roof of the 3rd & 4th ventricle and inferior horn of lateral ventricle.

Choroid plexus of lateral ventricle is the largest and most important producer of CSF.

Choroid plexus is composed of highly vascular tissue called TELA CHOROIDEA.
Cisterns

- Defn---closed space act as reservoir of fluids like csf.
- SUBARACHENOID CISTERNNS-----at the base of brain, the arachnoid is widely separated from pia ad forms large pools of csf—continues with subarachnoid space of s.c.
- CEREBELLOMEDULLARY CISTERNNS---situated in space b/w medulla ad cerebellum. it receives csf from median apperture of 4\textsuperscript{th} V & conts wth subarachnoid space.
Dilatation of ventricls and thus seperation of bones due to excess of csf.

- overpdtn of csf
- obstrutn
- interference in its absorptn.
- INTERNAL HYDROCEPHALUS---accumulation of intraventricular fluid.

- EXTERNAL HYDRO.----accumulation in subarachnoid space
The "shunt"

Tube into brain

Shunt pump

Cavities filled with spinal fluid

tube goes down neck into the abdomen
Note…….

- CSF blockage or block in ventricular system cause dilatn superior to it.
- Any change in intracranial contents will b reflected by change in intracranial pressure----MONRO-KELLIE DOCTRINE.
- LUMBAR PUNCTURE----B/W L3 &L4.
EFFECT OF IV ON CSF

- When 50ml of 10% NaCl iv, csf pressure fall 4 two hrs, due to absorptn of fluid in csf into plasma. temporary as Na+ ad Cl- moves into csf.
- Value in condtn of incrse ICT— papilloedema relieved, consciousness regained, intracranial operatns made easier as bulging of brain prevented........
normal CT scan

- The shape of the ventricles is quite distinctive and they are shown outlined in green and orange. The presence of the third ventricle in the midline is one of the first things to look for. If the third ventricle is either not visible, or shows signs of shift away from the midline, this suggests that there is an abnormality. The basal cisterns is the fluid filled space around the back of the midbrain outlined here in purple. Blood clots, or swelling of the brain may cause this to become narrowed, or not visible altogether. Note in this scan, that the frontal horns of the lateral ventricles are symmetrical, with the septum between them in the midline.
Obliteration of 3rd Ventricle (not seen - refer to normal CT scan)

The true midline has been outlined by yellow dots and you can see that the frontal horns of the lateral ventricles have been pushed over to the left. In addition, the third ventricle is now not visible and it is also extremely difficult to make out the basal cisterns. This haematoma requires surgical evacuation, otherwise deterioration of the patient's condition is inevitable.
• Its exact functional importance is not clear.

• It is a prominent bundle of axons interconnecting ipsilateral (i.e. same side) regions of certain limbic parts of the forebrain.

• Most of the fibers are axons of pyramidal neurons in the hippocampus.