Cerebral Ventricle: Vascular Anatomy

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1. Arterial relation to the ventricles, the FALSE answer is:

A. The ICA bifurcates below the frontal horn.
B. The apex of the basilar artery is situated between the temporal horns.
C. The anterior cerebral artery passes around the anterior wall of the third ventricle.
D. The posterior cerebral arteries pass below the temporal horns and atria.
E. The middle cerebral arteries pass below the frontal horns.

Answer D

– The posterior cerebral arteries pass medial to the temporal horns and atria and give rise to the posterior choroidal arteries, which pass through the choroidal fissure to supply the choroid plexus in the temporal horns, atria, and bodies.

2. Arterial relation to the ventricles, the FALSE answer is:

A. All components of the circle of Willis are located below the frontal and body of the lateral ventricle.
B. The basilar artery apex locates below the floor of the third ventricle.
C. The anterior cerebral artery passes around the floor and anterior wall of the frontal horns.
D. The anterior cerebral artery sends branches into the floor of the lateral ventricle.
E. Posterior cerebral artery supplies atria and temporal horn choroid plexus.

Answer D

– Both the anterior and posterior cerebral arteries send branches into the roof. The middle cerebral arteries pass below the frontal horns to reach the sylvian fissures and then course over the insulae, where they are lateral to the bodies of the lateral ventricle.

3. The choroidal arteries, the FALSE answer is:

A. They supply the choroid plexus of the lateral and third ventricles.
B. They arise from the internal carotid and posterior cerebral arteries.
C. They arise in the basal cisterns.
D. They reach the choroid plexus by passing through the choroidal fissures.
E. They have no supply to neural structures.

Answer E

– Each of the choroidal arteries gives off branches to the neural structures along its course.

4. Choroidal artery, the FALSE answer is:

A. Lateral ventricle choroid plexus is supplied by both anterior and posterior choroidal artery.
B. Every choroidal artery gives off branches to the neural structures along its course.
C. Anterior choroidal arteries (AChA) supply a portion of the choroid plexus in atrium.
D. Lateral posterior choroidal arteries supply the choroid plexus in the roof of the third ventricle.
E. Medial posterior choroidal artery supplies part of the choroid plexus in the body of the lateral ventricle.

Answer D

The most common pattern for the choroidal arteries is as follows: The AChA supply a portion of the choroid plexus in the temporal horn and atrium. The lateral posterior choroidal arteries supply a portion of the choroid plexus in the atrium, body, and posterior part of the temporal horn. The medial posterior choroidal arteries supply the choroid plexus in the roof of the third ventricle and part of that in the body of the lateral ventricle.

5. Choroidal arteries, the FALSE answer is:

A. AChA supply the third ventricle roof choroid plexus.
B. AChA supply the body and temporal horn choroid plexus.
C. Lateral posterior choroidal arteries supply the body and temporal horn choroid plexus.
D. The lateral posterior choroidal artery supplies the atrium choroid plexus.
E. The medial posterior choroidal artery supplies the body choroid plexus.

Answer A

See answer 4.

6. Anterior choroidal artery (AChA), the FALSE answer is:

A. It arises from the ICA.
B. It arises in the anterior incisural space.
C. It courses laterally to reach the middle incisural space.
D. It passes through the choroidal fissure near the inferior choroidal point.
E. It passes dorsally along the plexus, reaching the foramen of Monro.

Answer C

- The anterior choroidal artery arises from the ICA in the anterior incisural space and courses posteriorly to reach the middle incisural space.

7. Lateral posterior choroidal artery, the FALSE answer is:

A. Arises in both ambient and quadrigeminal cisterns.
B. Its branches enter the ventricle anterior to branches of AChA.
C. It passes through the choroidal fissure at the level of fimbria, crus, and body of fornix.
D. Arise from posterior cerebral artery or its cortical branches.
E. Send branches to choroid plexus in the body of contralateral lateral ventricle.

Answer B

- The lateral posterior choroidal artery's branches enter the ventricle behind the branches of the anterior choroidal artery.

8. Medial posterior choroidal artery, the FALSE answer is:

A. Most frequently arises as 6 to 9 branches.
B. Arises from posterior cerebral artery in the interpeduncular and crural cisterns.
C. Courses in velum interpositum adjacent to internal cerebral veins.
D. Supplies choroid plexus in the roof of the third ventricle.
E. Supplies choroid plexus in the contralateral lateral ventricle.

Answer A

- The medial posterior choroidal arteries most frequently arise as one to three branches.

9. Deep venous drainage of the brain, the FALSE answer is:

A. Collects into channels in a subependymal location through walls of lateral and third ventricles.
B. Veins from frontal horn, body, and surrounding gray and white matter drain into basal vein.
C. Veins from temporal horn and adjacent periventricular structures drain into basal veins.
D. Veins draining atrium and adjacent parts of the brain drain into the basal vein.
E. Venous channels converge on the internal cerebral, basal, and great veins.

Answer B

- The veins from the frontal horn, the body of the lateral ventricle, and the surrounding gray and white matter drain into the internal cerebral vein.

10. Ventricular artery and veins, the FALSE answer is:

A. In lateral ventricle surgery, veins provide orienting landmarks more than arteries.
B. On angiograms, arteries provide a less accurate estimate of the site and size of a lesion.
C. The ventricular veins are divided into medial and lateral groups.
D. Veins are more adherent to the ependymal and pial surfaces of the brain than arteries.
E. Arteries are larger and are easily visible through the ependyma.

Answer E

- The veins are larger and are easily visible through the ependyma.

11. The venous system of the ventricles, the FALSE answer is:

A. The medial group of veins in the frontal horn consists of the anterior septal veins.
B. The lateral group in the frontal horn consists of the anterior septal vein, thalamocaudate, and posterior caudate veins.
C. The medial group of veins in the atrium and occipital horn consists of medial atrial veins.
D. The lateral group of veins in the atrium and occipital horn consists of lateral atrial veins.
E. The roof and lateral wall of the lateral ventricle is drained by transverse hippocampal veins.

Answer E

- The floor of the lateral ventricle is drained by the transverse hippocampal veins while the roof and the lateral wall are drained predominantly by the inferior ventricular vein.

12. Colloid cysts, the FALSE answer is:

A. Most colloid cysts are supplied by branches of the anterior choroidal artery.
B. The internal cerebral vein has been commonly described as showing an anterior hump, with flattening and depression in its posterior two-thirds.

C. Hydrocephalus can cause outward bowing of the thalamostriate veins in the frontal venous phase.
D. Hydrocephalus can cause the increased sweep of the pericallosal artery in the lateral arterial phase.
E. Upward convexity in the initial segment of the internal cerebral vein is highly suggestive.

Answer A

– Most colloid cysts are supplied by branches of the posterior medial choroidal artery.

13. Medial ventricular veins, the FALSE answer is:

A. Ventricular veins drain into the internal cerebral, basal, and great veins.
B. The medial group consists of the anterior caudate vein in the frontal horn.
C. The lateral group includes thalamostriate, posterior caudate, and thalamocaudate veins in the body.
D. The lateral group includes atrial veins in the atrium and occipital horn.
E. Inferior ventricular and amygdalar veins are located in the temporal horn.

Answer B

– The lateral group of the medial ventricular veins consists of the anterior caudate vein in the frontal horn.

14. Lateral ventricular veins, the FALSE answer is:

A. Anterior septal veins are located in the frontal horn.
B. Posterior septal veins are located in the body.
C. Medial atrial veins are located in the atrium.
D. Transverse hippocampal veins are located in the occipital horn.
E. Transverse hippocampal veins drain into the anterior and posterior longitudinal hippocampal veins.

Answer D

– Transverse hippocampal veins are located in the temporal horn.

15. Anterior septal vein, the FALSE answer is:

A. Initially runs posteromedially on the anterior wall of the frontal horn and behind the genu of the corpus callosum.
B. At the anteromedial corner of the frontal horn, it runs backwards along the septum pellucidum and continues backwards along its lower border.

C. It follows the lateral border of the anterior column of the fornix.
D. It joins the internal cerebral vein at the anteroinferior margin of the foramen of Monro.
E. The anterior septal vein crosses the roof of the frontal horn and the body of the lateral ventricle, as well as the septum pellucidum.

Answer D

- The anterior septal vein joins the internal cerebral vein at the posterosuperior margin of the foramen of Monro.

16. Venous angle of the brain, the FALSE answer is:

A. It is composed of the anastomosis of the thalamostriate and the anterior septal veins.
B. It is located along the posterior edge of the foramen of Monro.
C. False venous angle describes a TSV joining the ASV beyond the foramen of Monro.
D. It is also referred to as the "sharp angle."
E. At this point, the striothalamic vein turns laterally and superiorly.

Answer E

- At the venous angle, the striothalamic vein turns medially and slightly inferiorly.

17. Thalamostriate vein, the FALSE answer is:

A. Receives several transverse caudate veins on its way toward the foramen of Monro.
B. Is the largest tributary of the internal cerebral vein.
C. Runs around the posterior tubercle of the thalamus at the level of the foramen of Monro.
D. Receives a vein from the head of the caudate nucleus.
E. Joins the internal cerebral vein at the posterosuperior margin of the foramen of Monro.

Answer C

- The thalamostriate vein runs around the anterior tubercle of the thalamus at the level of the foramen of Monro.

18. Basal veins of Rosenthal, the FALSE answer is:

A. Are paired, paramedian veins which originate on the medial surface of the temporal lobe.
B. Pass lateral to the midbrain through the interpeduncular cistern to drain into the vein of Galen.
C. Are closely related to the posterior cerebral arteries (posterior cerebral arteries).

D. Originate in the perimesencephalic cistern.
E. Drain to the straight sinus and, subsequently, the confluence of sinuses.

Answer B

- The basal veins of Rosenthal Pass lateral to the midbrain through the ambient cistern to drain into the vein of Galen.

19. Internal cerebral veins, the FALSE answer is:

A. Are situated at the midline during the posterior transcallosal approach to the pineal recess.
B. Upon reaching the pineal recess, they pass along the superolateral aspect of the pineal body.
C. Unite superior to the splenium to form the vein of Galen.
D. Are paired, paramedian veins that course posteriorly along the roof of the third ventricle.
E. Usually, drain the thalami and periventricular white matter.

Answer C

- The internal cerebral veins unite inferior to the splenium to form the vein of Galen.

20. PICA, the FALSE answer is:

A. The first three branches are the predominant feeding vessels for fourth ventricular tumors.
B. Five segments are: anterior medullary, lateral medullary, tonsillomedullary, telovelotonsillar, and cortical.
C. Most of PICAs originate from the vertebral artery extradurally.
D. The caudal loop is between the lower cranial nerves and the pole of the tonsil.
E. The cranial loop is between the rostral pole of the tonsil and the inferior medullary velum.

Answer C

- Up to 20% of PICAs originate from the vertebral artery extradurally.