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Third Ventricle: Anatomy

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1. Third ventricle location, the FALSE answer is:

A. It is below the corpus callosum.
B. Above the sella turcica, pituitary gland, and midbrain.
C. Between the two halves of the thalamus.
D. It is related to the circle of Willis and the great vein of Galen.
E. Between the body of the lateral ventricles.

Answer E

- The third ventricle is located below the lateral ventricles.

2. Complications related to third ventricular wall manipulation, the FALSE answer is:

A. Disturbances in the temperature control.
B. Disturbances in the hypophyseal secretion.
C. Visual loss.
D. Sympathetic dysfunction.
E. Memory loss.

Answer D

- Manipulation of the walls of the third ventricle may cause hypothalamic dysfunction.

3. Symptoms correlated to the third ventricle's wall manipulation, the FALSE answer is:

A. Disturbances of consciousness.
B. Loss of temperature control.
C. Visual loss due to damage of the optic chiasm and tracts.
D. Memory loss due to injury to the columns of the fornix.
E. Auditory system dysfunction.

Answer E

- Disturbances of consciousness, temperature control, respiration, and hypophyseal secretion, visual loss due to damage of the optic chiasm and tracts, and memory loss due to injury to the columns of the fornix in the walls of the third ventricle.

4. The third ventricle roof anatomy, the FALSE answer is:

A. It forms a gentle upward arch.
B. It has three layers.
C. The choroidal fissure is located in its lateral margin.

D. The upper layer of the anterior part is formed by the body of the fornix.
E. Septum pellucidum is attached to the upper surface of the body of the fornix.

Answer B

- The roof has four layers: one neural layer formed by the fornix, two layers made by tela choroidea, and a layer of blood vessels between the sheets of tela choroidea.

5. Tela choroidea of the third ventricle, the FALSE answer is:

A. It has three layers in the roof of the third ventricle.
B. It is situated below the fornix.
C. It consists of thin, semi-opaque membranes.
D. It is derived from the pia mater.
E. The internal cerebral vein runs between its layers.

Answer A

- The tela choroidea forms two layers in the roof of the third ventricle.

6. The roof of the third ventricle, the FALSE answer is:

A. Its vascular layer is located below the two layers of the tela choroidea.
B. Its vascular layer contains the medial posterior choroidal artery.
C. The internal cerebral veins are found in the vascular layer.
D. Parallel strands of choroid plexus project from the inferior layer of tela choroidea.
E. It has three layers, two of them formed by tela choroidea and one by the fornix.

Answer A

- The vascular layer is located between the two layers of the tela choroidea.

7. Regarding the anatomy of the third ventricle, the FALSE answer is:

A. Velum interpositum lay between the layers of tela choroidea in its roof.
B. Both layers of tela choroidea are attached to the lower surface of the fornix.
C. Striae medullaris extends from the foramen of Monro to the habenular commissure.

D. Suprapineal recess is located between layers of the tela choroidea and pineal body.
E. Parallel strands of the choroid plexus in its roof are attached to the lower layer of the tela choroidea.

Answer B

- The lower wall has an anterior part that is attached to the small ridges on the free edge of the fiber tracts, called the striae medullaris thalami.

8. The internal cerebral veins, the FALSE answer is:

A. They drain the frontal horn and body and run in the velum interpositum.
B. They are formed by veins that drain the frontal horn.
C. They arise just anterior to the foramen of Monro.
D. They exit the velum interpositum above the pineal body.
E. They unite to form the greater vein of Galen in the quadrigeminal cistern.

Answer C

- The internal cerebral veins arise in the anterior part of the velum interpositum, just behind the foramen of Monro.

9. The velum interpositum, the FALSE answer is:

A. It is usually a closed space.
B. Its major opening is situated between the splenium and pineal body.
C. It tapers to a narrow apex behind the foramen of Monro.
D. It communicates with the quadrigeminal cistern forming cisterna velum interpositum.
E. Cavum vergae is a space above the velum interpositum.

Answer B

- The velum interpositum is usually a closed space that tapers to a narrow apex just behind the foramen of Monro, but it infrequently has an opening situated between the splenium and pineal body.

10. The floor of the third ventricle, the FALSE answer is:

A. It extends from the optic chiasm to the aqueduct of Sylvius.
B. Its anterior half is formed by diencephalic structures.
C. The whole floor is formed by mesencephalic structures.
D. The inferior surface of the chiasm forms its anterior part.
E. The superior surface of chiasm forms the lower part of the anterior wall.

Answer C

- The anterior half of the floor is formed by diencephalic structures, and the posterior half is formed by mesencephalic structures.

11. The third ventricle region, the FALSE answer is:

A. Part of the tegmentum forms the most posterior part of the floor.
B. The optic tracts course its floor toward the lateral margins of the midbrain.
C. Mammillary bodies are located in space limited posteriorly by optic tracts.
D. The hypothalamic infundibulum is located between the optic chiasm and the tuber cinereum.
E. Axons of the infundibulum extend to the posterior hypophysis.

Answer C

- The infundibulum, tuber cinereum, mammillary bodies, and posterior perforated substance are located in the space limited anteriorly and laterally by the optic chiasm and tracts and posteriorly by the cerebral peduncles.

12. Tuber cinereum, the FALSE answer is:

A. It is a prominent mass of hypothalamic gray matter.
B. It merges anteriorly into the infundibulum.
C. The median eminence is formed by the tuber cinereum.
D. The mammillary bodies are located anterior to the tuber cinereum.
E. The tuber cinereum around the base of the infundibulum is raised.

Answer D

- The mammillary bodies form paired, rounded prominences posterior to the tuber cinereum.

13. The third ventricle floor, the FALSE answer is:

A. The posterior perforated substance is a depressed, punctuated area of gray matter.
B. Its posterior part extends posteriorly and superiorly to the medial part of cerebral peduncles.
C. Mammillary bodies on their inner surfaces are posterior to the infundibular recess.
D. Its part between the mammillary bodies and the aqueduct of Sylvius has a smooth surface.
E. Its smooth surface lies on both sides of the posterior perforated substance.

Answer E

- The part of the floor between the mammillary bodies and the aqueduct of Sylvius has a smooth surface that is concave from side to side. This smooth surface lies above the posterior perforated substance anteriorly and the medial part of the cerebral peduncles and the tegmentum of the midbrain posteriorly.

14. The anterior wall of the third ventricle, the FALSE answer is:

A. It extends from the foramina of Monro above to the optic chiasm below.
B. Its upper third is hidden by the rostrum of the corpus callosum.
C. Its visible part on the surface is formed by optic chiasm and lamina terminalis.
D. The lamina terminalis is an arachnoid membrane.
E. The lamina terminalis extends between the optic chiasm and the rostrum of the corpus callosum.

Answer D

- The lamina terminalis is a thin sheet of gray matter and pia mater that attaches to the upper surface of the chiasm and stretches upward to fill the interval between the optic chiasm and the rostrum of the corpus callosum.

15. The anterior wall of the third ventricle compartments, the FALSE answer is:

A. The fornix is superior to the foramina of Monro.
B. The lamina terminalis is superior to the anterior commissure.
C. The foramina of Monro is superior to the anterior commissure.
D. The optic recess is superior to the chiasm.
E. The lamina terminalis is superior to the optic recess.

Answer B

- When viewed from within, the boundaries of the anterior wall are formed, from superior to inferior, by the columns of the fornix, foramina of Monro, anterior commissure, lamina terminalis, optic recess, and optic chiasm.

16. The foramina of Monro, the FALSE answer is:

A. On each side, it is located at the junction of the roof and the anterior wall.
B. In the lateral ventricle, it opens between the fornix and the thalamus.

C. It is bounded anteriorly by the posterior pole of the thalamus.
D. Its size and shape depend on the size of the ventricles.
E. It extends below the fornix into the third ventricle as a single channel.

Answer C

- The foramen of Monro is bounded anteriorly by the junction of the body and the columns of the fornix and posteriorly by the anterior pole of the thalamus.

17. The structures that pass through the foramen of Monro, the FALSE answer is:

A. The choroid plexus.
B. The medial posterior choroidal arteries.
C. Thalamostriate vein.
D. Posterior choroidal vein.
E. Septal veins.

Answer D

- The structures that pass through the foramen are the choroid plexus, the distal branches of the medial posterior choroidal arteries, and the thalamostriate, superior choroidal, and septal veins.

18. The posterior wall of the third ventricle, the FALSE answer is:

A. It extends from the suprapineal recess above to the aqueduct of Sylvius below.
B. The pineal body is one of its components.
C. The shape of the orifice of the aqueduct of Sylvius is triangular with the base of the triangle is on the midbrain.
D. Suprapineal recess projects between the pineal gland and tela choroidea.
E. The stalk of the pineal gland has an upper and a lower lamina.

Answer C

- The shape of the orifice of the aqueduct of Sylvius is triangular. The base of the triangle is on the posterior commissure and the other two limbs are formed by the central gray matter of the midbrain.

19. The Pineal gland, the FALSE answer is:

A. It projects posteriorly into the quadrigeminal cisterns.
B. It is concealed by the quadrigeminal plate posteriorly.
C. It is concealed by the splenium of the corpus callosum above.

D. It is concealed by the thalamus laterally.
E. It is concealed by the vermis of the cerebellum inferiorly.

Answer B

- The pineal gland is concealed by the vermis and quadrigeminal plate inferiorly.

20. The lateral wall of the third ventricle, the FALSE answer is:

A. It is not visible on the external surface of the brain.
B. It is formed by the thalamus superiorly.
C. It is formed by the hypothalamus superiorly.
D. Its surfaces are connected by masa intermedia.
E. The inferior limit of the upper surfaces is the striae medullaris thalami.

Answer C

- The lateral wall of the third ventricle is formed by the hypothalamus antero-inferiorly.
- The hypothalamic and thalamic surfaces of the lateral wall of the third ventricle are separated by the hypothalamic sulcus, which is a groove that is often ill-defined and extends from the foramen of Monro to the aqueduct of Sylvius.

21. The lateral wall of the third ventricle, the FALSE answer is:

A. Hypothalamic and thalamic surfaces are separated by the hypothalamic sulcus.
B. The superior limit of the thalamic surface is marked by the striae medullaris.
C. The striae medullaris extends forward from the habenulae.
D. The habenulae are found on the surfaces of the thalamus.
E. The habenulae are connected by posterior perforated substance.

Answer E

- The habenulae are connected across the midline in the rostral stalk of the pineal gland by the habenular commissure.

22. The tentorial incisura, the FALSE answer is:

A. The third ventricle is situated below the tentorial incisura.
B. Its base is located in the dorsum sellae.
C. The body of the lateral ventricle is directly above its central part.
D. The midbrain is situated in the center of the incisura.
E. The area between the midbrain and the free edges is divided into two spaces.

Answer E

- The area between the midbrain and the free edges is divided into (a) an anterior incisural space located in front of the brainstem; (b) paired middle incisural spaces situated lateral to the midbrain; and (c) a posterior incisural space located behind the midbrain.

23. The tentorial incisura spaces, the FALSE answer is:

A. The anterior space extends upward around the optic chiasm.
B. The middle space contains the interpeduncular and the chiasmatic cistern.
C. The chiasmatic cistern communicates with the cisterna laminae terminalis.
D. The middle space is related to the temporal part of the choroidal fissure.
E. The posterior space is the site of the crural and ambient cisterns.

Answer B

- The anterior incisural space contains the interpeduncular cistern, which is situated between the cerebral peduncles, and the chiasmatic cistern, which is located below the optic chiasm.

24. Basal cisterns, the FALSE answer is:

A. The ambient cistern is demarcated medially by the pulvinar.
B. The ambient cistern is demarcated laterally by fimbria.
C. The cisternal side of the choroidal fissure is located in the ambient cistern.
D. The crural cistern cannot be reached through the choroidal fissure.
E. The crural cistern can be exposed from the temporal horn.

Answer A

- The ambient cistern is a narrow communicating channel demarcated medially by the midbrain, above by the pulvinar, and laterally by the parahippocampal and dentate gyri, and the fimbria of the fornix.

25. Quadrigeminal cistern, the FALSE answer is:

A. It is situated at the posterior incisural space.
B. Its anterior and lateral walls junction lies at the choroid fissure.
C. Its lateral walls separate the cistern from the occipital horn.
D. Each lateral wall has anterior and posterior parts.
E. The anterior lateral wall formed by the crus of the fornix.

Answer C

- The lateral walls of the quadrigeminal cistern separate the cistern from the atria. Each lateral wall has anterior and posterior parts: the anterior part is formed by the crus of the fornix and the posterior part is formed by the part of the medial surface of the occipital lobe situated below the splenium.

26. The Quadrigeminal cistern, the FALSE answer is:

A. The suprapineal recess of the third ventricle bulges into it.
B. Its lateral part of the anterior wall is formed by the part of the pulvinar.
C. Its medial part of the anterior wall is formed by the quadrigeminal plate.
D. Below colliculi, it extends into the cleft between the pons and cerebellum.
E. The trochlear nerve does not pass the quadrigeminal cistern.

Answer D

- Below the colliculi, the cistern extends into the cleft between the midbrain and cerebellum called the cerebellomesencephalic fissure. This fissure cannot be reached through the choroidal fissure. The trochlear nerves arise below the inferior colliculi and course laterally around the midbrain and below the pulvinars to enter the ambient cistern.

27. The Quadrigeminal cistern, the FALSE answer is:

A. Its roof is formed by quadrigeminal plate.
B. Its arachnoid envelope is continuous anteriorly with velum interpositum.
C. The venous structures are found in the superomedial part of the cistern.
D. The large arteries are found in the inferolateral part of the cistern.
E. It opens into ambient cistern and cavum vergae.

Answer A

- The roof of the cistern is formed by the lower surface of the splenium and the broad membranous envelope that surrounds the great vein and its tributaries.