

### CNS-3 Diencephalon, lateral ventricles, third ventricle

<b>OBJECTIVES OF THE CLASS:</b>
THEORETICAL
1. to know the location and divisions of the diencephalon; 2. to know main groups of the thalamic nuclei and their function; 3. to know main functions of the hypothalamus, epithalamus, metathalamus and subthalamus; 4. to know the role of the CSF and basic principles of its circulation and the pathways of outflow;
THEORETICAL and PRACTICAL
5. to know the elements of the thalamoencephalon, hypothalamus, epithalamus, metathalamus, subthalamus; 6. to know the lateral ventricle: its location, portions, boundaries and connections; 7. to know the third ventricle: its location, boundaries, connections and recesses.

A student should be prepared theoretically for the lab class.

The information may be found in the chapters 7 and 16 (*Clinical neuroanatomy* by Snell) and in the lecture 3.

<b>DURING THE SEMINAR:</b>
<ul style="list-style-type: none"><li>– a detailed description of the diencephalon and its divisions is presented;</li><li>– a practical information about the elements of the diencephalon is given;</li><li>– the lateral ventricle with its portions, boundaries and connections is presented;</li><li>– the third ventricle with its boundaries, connections and recesses is presented.</li></ul>

<b>DURING THE PRACTICAL CLASS A STUDENT SHOULD RECOGNIZE AND IDENTIFY:</b>
<ul style="list-style-type: none"><li>– the elements of each division of the diencephalon;</li><li>– the portions and boundaries of the lateral ventricle;</li><li>– the boundaries and recesses of the third ventricle.</li></ul> <p>The student may use the list attached below as a reference of demanded structures.</p>

<b>AFTER THE CLASS A STUDENT:</b>
<ul style="list-style-type: none"><li>– should know the location and divisions of the diencephalon;</li><li>– should understand main functions of each division of the diencephalon;</li><li>– should be able to explain the role of the CSF, the pathways of its circulation and outflow;</li><li>– should be able to recognize and describe the elements of the thalamoencephalon, hypothalamus, epithalamus, metathalamus and subthalamus;</li><li>– should be able to recognize and describe the lateral ventricle, its portions, boundaries and connections;</li><li>– should be able to recognize and describe the third ventricle, its boundaries, connections and recesses.</li></ul>

At the end of the class a student should participate in the credit consisting of 6 MCQ and 4 pins in order to confirm the presence at the class and collect the points if successful.

<b>EXAMPLE QUESTIONS (choose <u>one</u> correct answer):</b>	
All the following structures belong to the hypothalamus, except: <b>A.</b> optic tract <b>B.</b> pineal gland <b>C.</b> pituitary gland <b>D.</b> mamillary body <b>E.</b> infundibulum	Anterior wall of the third ventricle contains: <b>A.</b> lamina terminalis <b>B.</b> habenular commissure <b>C.</b> body of fornix <b>D.</b> mamillary body <b>E.</b> infundibulum

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List of the structures to be practically identified and recognized by the student:

#### **DIENCEPHALON**

Thalamoencephalon

Thalamus

Anterior pole (tubercle)

Stria medullaris thalami

Pulvinar

Interthalamic adhesion =

= Massa intermedia

Hypothalamus

Optic chiasm

Optic tract

Mamillary body

Tuber cinereum

Infundibulum

Pituitary gland = Hypophysis cerebri

Anterior lobe = Adenohypophysis

Posterior lobe = Neurohypophysis

Epithalamus

Habenular trigone

Habenular commissure

Posterior commissure

Pineal body (Pineal gland)

Metathalamus

Medial geniculate body

Lateral geniculate body

#### **LATERAL VENTRICLE**

Central part (Body)

Interventricular foramen (of Monro)

Anterior horn = Frontal horn

Septum pellucidum

Genu of corpus callosum

Head of caudate nucleus

Posterior horn = Occipital horn

Calcar avis

Inferior horn = Temporal horn

Collateral trigone

Collateral eminence

Hippocampus

Pes hippocampi

Digitations hippocampi

Sulcus hippocampi

Fimbria hippocampi

Stria terminalis

Choroid plexus of the lateral ventricle

#### **THIRD VENTRICLE**

Lateral wall

Hypothalamic sulcus

Interventricular foramen

Aqueductal inlet

Cerebral (mesencephalic) aqueduct

Anterior wall

Optic recess

Triangular recess

Anterior commissure

Column of fornix

Lamina terminalis

Inferior wall (Floor of 3<sup>rd</sup> Ventricle)

Infundibular recess

Posterior wall

Pineal recess

Suprapineal recess

Posterior commissure

Habenular commissure

Superior wall (Roof of the 3<sup>rd</sup> Ventricle)

Choroid plexus of the 3<sup>rd</sup> Ventricle

Body of fornix

Trunk of corpus callosum