

BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

Department of human anatomy

**GUIDELINES**

<i>Academic discipline</i>	HUMAN ANATOMY
Module №	2
The theme of the lesson	The veins of the head and neck
Course	I
Faculties	Medical 1,2,3,4, military, dental
The number of hours	3

### **1. The relevance of the topic:**

Knowledge of the anatomy of the veins of head and neck - a base under conditions of clinical thinking differential diagnosis for the doctor of any specialty, but, above all, dentists, neurologists and surgeons who operate in areas of the neck or head.

### **2. Specific objectives**

As a result of studies a student should know and be able to:

1. Demonstrate the upper hollow, right and left Brachiocephalic, subclavian, internal and external jugular, anterior jugular veins and venous angles.
2. Demonstrate dura mater sinuses, veins dura mater of the brain, graduation veins, vein hubchatky, superficial veins of the brain, a large vein in the brain, the cerebellum vein, upper and lower eye veins.
3. Demonstrate pterygium plexus zanyzhnoschelepnu veins, facial veins and other tributaries of extracranial internal jugular vein.
4. Demonstrate external jugular vein.
5. Identify and demonstrate anastomoses on the head and neck.

### **3. Basic level of preparation**

To engage the student should know and be able to:

1. To demonstrate the structural features of the cervical vertebrae.
2. To demonstrate the anatomical lesions of external and internal base of the skull, a combination of orbital bone nasal, temporal, infratemporal and wing-palatal pits.
3. Demonstrate the muscles of the head and muscles, fascia neck.
4. To demonstrate the parts of the brain and relief robe.
5. To demonstrate the structure of the organ.
6. Demonstrate the location of the inner ear.
7. Demonstrate wall oral, internal organs, head and neck.

### **4. Tasks for independent work during preparation for practical lessons**

4.1. Questions to control the entry level of students' knowledge

1. Name of the skull opening, which begins the internal jugular vein, and the level of its connection to the subclavian vein.
2. Name the dura mater and the sinus confluence each.
3. What are the main vein and final hole of the skull through which they pass.
4. What are the main group of veins of the brain and enter the confluence of superficial veins of the brain.
5. What are the main veins that form a large vein in the brain.
6. Name the confluence of the upper and lower eye veins.
7. Name vein (extracranial internal jugular vein inflow), which anastomoses top ophthalmic vein, and the place where this anastomosis.
8. What are the areas from which blood collects zanyzhnoschelepna Vienna.
9. Describe pterygium plexus.
10. What are the areas from which blood collects facial vein.
11. Name the muscles between which the external jugular vein.
12. What are the areas from which blood collects external jugular vein.
13. What are the areas from which blood collects anterior jugular vein.

14. Describe the jugular venous arch.
15. What are the veins that form the venous angle.

#### **4.2. The list of practical skills:**

The internal jugular vein

External jugular vein

Superior vena cava

Brachiocephalic vein (right, left)

Thoracic duct

First are the internal jugular vein, place its junction with the subclavian vein (venous angle), right and left Brachiocephalic vein, upper vena cava. Pay attention to the fact that the left Brachiocephalic vein almost twice longer than the law.

In studying the topography of the internal jugular vein found on the skull jugular hole (the starting point of the vein), the company - neurovascular bundle neck and its components (internal jugular vein, common carotid artery and vagus nerve), and again - the confluence of internal jugular vein with the subclavian vein.

Studying intracranial tributaries of internal jugular veins are grooves on the skull dura mater sinuses, wet preparations membranes of the brain - dura mater sinuses and veins of the brain dura mater, the preparations of the brain - the veins of the brain. Also found on the bones of the skull hubchatku (dyploje), which are hubchatky veins. Moreover, the skull found holes, which is the place of final major veins and - superior orbital fissure, through which the upper ophthalmic vein and the upper branch of the lower eye vein and lower orbital fissure through which passes the lower branch of the lower eye veins.

Extracranial internal jugular vein tributaries study on the corpse. Attention is drawn to the presence of anastomosis between the facial vein and angular.. It emphasizes the importance of this anastomosis in spreading infectious agent from the facial area of the cranial cavity.

Considering the anatomy pterygoid plexus are Infratemporal hole in which it is contained. It is emphasized that the pterygium plexus collected blood. In studying the anatomy of the external jugular vein paying attention to its topography. Also determine its tributaries and the main areas from which they take blood. In this case, pay special attention to the topography of the anterior jugular vein and jugular venous arch. It is emphasized that jugular venous arch and the lower part of the anterior jugular vein, located in mizhfastsynomu nadhrudnyynomu space.

After that, attention is drawn to the fact that some areas of blood flowing neck-shoulder main vein, bypassing the internal and external jugular vein. Define the following tributaries Brachiocephalic vein that collects blood from the neck and fall immediately in this vein .

#### **4.3. Questions to control the final level of training**

1. Describe and demonstrate how to form superior vena cava and right and left brachiocephalic vein.
2. Describe and demonstrate the internal jugular vein.

3. Describe and demonstrate the sinuses of the dura mater.
4. Describe and demonstrate vein veins dura mater brain and final hubchatky vein.
5. Categorize the veins of the brain, describe and demonstrate superficial veins of the brain.
6. Describe the deep veins of the brain, veins and cerebellum brain stem and show a large vein veins of the brain and cerebellum.
7. Describe and show upper and lower eye veins.
8. Name and show extracranial internal jugular vein tributaries describe zanyzhnoschelepnu vein.
9. Describe and demonstrate pterygium plexus.
10. Opyshit and show the pharynx, and upper Yazykovo thyroid veins.
11. Describe and show the front vein.
12. Describe and demonstrate anastomosis between the upper face and ocular veins.
13. What are the areas from which the blood flowing into the internal jugular vein.
14. Describe and show the topography of external and anterior jugular veins, jugular venous arch.
15. What are the areas from which the blood flowing into the external jugular vein.
16. What are the veins that collect blood from the neck and held her right shoulder, a major vein, bypassing the internal and external jugular vein. What are the areas from which the blood flows in these veins.

Organizing content of educational material

### Head and neck veins

The bulk of venous blood from the head and neck flowing in the right and left internal jugular vein. On each side of the internal jugular vein with the subclavian vein merges to form right and left respectively brachiocephalic vein. The last two veins are connected and form the upper vena cava.

### Internal jugular vein

The internal jugular vein (v. Jugularis interna) is a direct continuation of the sigmoid sinus dura mater of the brain, it starts at the jugular foramen of the skull base. In jugular vein hole occupies most of his posterior, located in front of the tongue-pharyngeal (IX), vagus (X), an additional (XI) cranial nerves and branch of the vagus nerve and artery back. Initial internal jugular vein department is expanding, upper jugular vein bulb (bulbus superior venae jugularis). First, the internal jugular vein goes down behind the internal carotid artery, and then the side of it, and below - behind the common carotid artery. From the level of the upper edge of the thyroid cartilage and down the internal jugular vein passes with common carotid artery and vagus nerve in the common fascial sheath, forming a neurovascular bundle neck. The final section of internal jugular vein again expanding,

forming a lower jugular vein bulb (bulbus inferior venae jugularis). The top the bottom of the bulb jugular vein and place its junction with the subclavian vein

located valves. Joining at hrudnyjno-clavicular joint, the two vein of form right and left sides of the respective Brachiocephalic vein.

The junction of the subclavian and internal jugular veins is called venous angle. All tributaries of internal jugular vein is divided into two groups - intracranial and extracranial.

Intracranial tributaries of internal jugular vein

These include sinus dura mater of the brain, the brain veins, veins of the brain stem and cerebellum, vein hubchatky, graduation veins, vein dura mater of brain and ocular veins and vein maze.

### Sinuses dura mater

Sinuses dura mater (sinus durae matris) are a kind of veins that lined the inside, as well as other blood vessels, the endothelium. Their walls are formed by sheets of dura mater. The walls of the sinuses tightly stretched and not spadayutsya. Valves in the axils available.

sinus sagittalis superior runs along the top edge of the crescent of the brain, in the same furrow bedding bones of the cranial vault, the level of the blind hole frontal bone to the occipital area of internal speech, which flows into the drain sinuses (confluens sinuum). In cross-section upper boom sinus lumen has a triangular shape. From the upper boom sinus left and right side away many Bay (lacunae laterales). In the lumen of the sinus and its bays serve multiple web of grain (granulationes arachnoideae) -zernystosti Pahioni arachnoid mater of the brain through which cerebrospinal fluid is filtered in the venous bed. In the upper boom lumen open sinus vein dura mater of the brain, superficial veins of the brain, veins and final hubchatky vein.

Lower boom sinus (sinus sagittalis inferior) is thicker in the lower free edge of the crescent of the brain from front to back. At the level of the front edge of the tent cerebellum rear end of the lower boom sinus empties into the straight sinus. In the cross section of the sinus lumen has a triangular or oval. In the lower boom sinus vein flowing sickle cortex and adjacent areas of the brain dura mater.

Straight sinus (sinus rectus) goes back along the posterior sickle connect the brain with the cerebellum tent is its derivative, and its clearance to the cross section has a rectangular shape. At the front end of the line the sinuses, except the lower boom sinus empties into a large vein of the brain (v. Magna cerebri) that collects blood from the deep parts of the brain. The rear end of the straight sinus opens into a large vein predominantly collector - drain the sinuses (confluens sinuum), located in the area of internal occipital presentation. Sometimes this sinus empties into the right or left transverse sinus.

Occipital sinus (sinus occipitalis) is in the thick edge through the cerebellar sickle his attachment to the internal occipital crest. The upper end of the occipital sinuses drain opening in the sinuses and the lower end is in the area of the rear edge of the large hole occipital bone divides into right and left edge sinuses (sinus marginales dexter et sinister). Marginal sinus surrounding behind and on the sides of a large hole occipital bone and fall into the final section corresponding sigmoid sinus, and sometimes directly into the upper bulb of internal jugular vein. So occipital sinus functions as a direct venous shunt

between drain the sinuses and the left and right sigmoid sinus (and sometimes directly to the upper bulb left and right internal jugular vein).

Stick sinuses (*confluens sinuum*) collects the venous blood from the upper and lower boom sinuses, large veins of the brain and occipital sinus. With venous sinuses drain blood flowing in the right and left transverse sinus.

Transverse sinus (*sinus transversus*) lies in the same furrow occipital scales along the back edge of the tent of the cerebellum and its clearance to cross opening has a triangular shape. Sinus goes sideways and at the mastoid angle of the parietal bone goes into the sigmoid sinus. In the transverse sinus on each side surface flow upper and lower veins occipital cortex, occipital and posterior temporal hubchatky veins, veins surrounding areas dura mater of the brain.

Sigmoid sinus (*sinus sigmoideus*) steam - right and left, lies in the same furrow on the inner surface of the parietal bone, occipital scales and mastoid process of the temporal bone. lumen in cross section has a triangular shape. Sigmoid sinus in the region of the jugular foramen enters the upper bulb of internal jugular vein. On each side of the initial division of the sigmoid sinus empties into the upper sinus rocky, and its lower part - vyrostkova exhaust Vienna. In this vein opening lap and dura mater, collecting blood from its adjacent areas.

Cavernous sinus (*sinus cavernosus*) - sauna - right and left, located on the inside of the skull .

Venous primary plexus (*plexus basilaris*) located in the area of the main slope of the occipital bone behind the back seat of the sphenoid bone and lies between the sheets of dura mater. This plexus, which is constructed of interwoven veins, anastomoses with the right and left cavernous sinus with right and left sinus rocky bottom, and below, in the area of large hole occipital bone is connected to the anterior and posterior internal vertebral venous plexus.

vv. diploicae contained in the channels bones of the cranial vault, collecting venous blood from them. It's thin, fairly broad vein riznomanitno6 forms that are interconnected, they have no valves. Most of the veins

passing through the holes in the inner plate of the skull bones, falls into dura mater sinuses and veins of the brain dura mater. Other veins after graduation vein combined with external veins of the head. Thus, through system of veins and venous sinus final dura mater of the brain combined with external veins of the head. It has clinical significance, because through these

vv. emissariae passing through holes in the bones of the skull, combining sinus dura mater of the brain to external veins of the head. Thus, through these unique venous anastomoses venous blood may partly of sinuses in the dura mater external veins of the head, or, from outside venous sinus dura mater of the brain. As mentioned above, due to venous anastomoses are infectious pathogens can penetrate from the outside in the dura mater sinuses, causing inflammation - meningitis.

There are even large veins:

- (v. *Emissaria parietalis*) passes through the parietal hole bones of the same name;
- (v. *Emissaria mastoidea*) passes through papillary temporal bone hole;
- (v. *Emissaria condylaris*) held in vyrostkovomu channel occipital bone;

- (v. Emissaria occipitalis) passes through a hole in the occipital scales.
- Also, the final veins include venous plexus surrounding vessels and nerves holes in the skull base, namely:
- (plexus venosus canalis nervi hypoglossi) surrounds the hypoglossal nerve (XII cranial nerve) in the same channel occipital bone;
  - (plexus venosus foraminis ovalis) in the area surrounding the foramen ovale sphenoid bone mandibular nerve, connecting the cavernous sinus dura mater with wing venous plexus;
  - (plexus venosus caroticus internus) surrounds a rocky part of the internal carotid artery in the sleepy channel temporal bone, it combines cavernous sinus dura mater with wing venous plexus.

### The veins of the dura mater of the brain

The veins of the brain dura mater (vv. Meningeae encephali) accompanied by corresponding pairs arteries, they have no valves. Vein anastomoses with each other and open the next sinus dura mater of the brain. Is the largest stem Obolon average vein (v. Meningea media), accompanying the artery of the same name and anastomoses with wedge-parietal sinus. Coming out of the cranial cavity through the hole bearded sphenoid bone, falls into this vein pterygoid venous plexus.

By the orbital veins (vv. Orbitale) are two large vein - upper and lower eye vein<sup>9</sup> valves are not. Tributaries of venous blood collected from the structures of the nasal and frontal areas, eyeball, bones lattice additional structures of the eye in particular on the lacrimal apparatus, eyelids, conjunctiva, external muscles of the eyeball.

(v. Ophthalmica superior) larger than the lower eye vein. It runs from the medial corner of the eye back to the top edge of the medial wall of the eye socket, accompanying artery (a branch of ophthalmic artery). Then through the upper orbital fissure enters the middle cranial fossa, which opens in the anterior cavernous sinus dura mater.

Wear eye vein collects blood from lesions located in the orbit (eyeball from its external muscles, lacrimal glands, optic nerve), as well as the lattice of bones and mucous membrane, from the eyelids and connective membrane of the eye (conjunctiva ) from the tissues of the nose and areas that are adjacent to it.

In the area of the upper medial corner of the eye ophthalmic vein anastomoses with the facial vein. This anastomosis is of great clinical importance, since in various pathological processes around the nose (especially in the area located between the nose and oral cleft) infectious agents can get in the eye veins in the cavernous sinus and other dura mater, causing inflammation – meningitis

### The veins of the brain

The veins of the brain (vv. Encephali) divided into superficial and deep veins of the brain, veins of the brain stem and cerebellar veins

Superficial veins of the brain (vv. Superficiales cerebri) consist of upper and lower veins of the brain and the average surface veins of the brain. They collect

blood from the surface of the cerebral hemispheres. Superficial veins of the brain fall into the sinus dura mater.

(vv. Profundae cerebri). By the deep veins of the brain are such large vessels: the right and left main veins (vv. basales dextra et sinistra), right and left inner veins of the brain (w. Internae cerebri dextra et sinistra) and the large veins of the brain (v. Magna cerebri) - vein of Galen, which is odd. They collect venous blood from the white matter of the cerebral hemispheres and their main nuclei walls of ventricles and vascular plexus.

The main vein (v. Basalis) formed on the lower surface of the frontal lobe of the cerebral hemisphere in the anterior pierced material. its initial tributaries vein is the front of the brain and secondary deep vein of the brain. The front of the brain vein accompanies the anterior cerebral artery (a. cerebri anterior). The average deep veins of the brain accompanied by middle cerebral artery (a. Cerebri media). The right and left main veins empty into the large veins of the brain.

Inside the brain vein (v. Interna cerebri) formed in the region of the interventricular hole. Then she goes back. The right and left inner veins of the brain are interconnected to form a large vein in the brain.

Large veins of the brain (v. Magna cerebri) - formed by the confluence of major veins and internal veins of the brain. V. magna cerebri flows into the straight sinus dura mater.

The veins of the brain stem (vv. Trunci encephali). By veins brainstem are vein bridge and the medulla oblongata. These veins collect blood from the midbrain, bridge, medulla and cerebellum certain areas. They fall into the main vein, a large vein in the brain or sinus dura mater.

Cerebellar veins (vv. Cerebelli). The main vein of the cerebellum - a top and bottom vein worm and cerebellum. They collect blood from most of the cerebellum.

The upper vein worm and fall into the cerebellum straight sinus and dura mater of the brain large vein (vein of Galen).

The lower vein worm and fall into the cerebellum and lower lateral sinus rocky dura mater.

Extracranial internal jugular vein tributaries

Extracranial internal jugular vein tributaries collecting venous blood from areas of facial skull soft tissues of the head, organs, muscles and skin of the neck.

In the internal jugular vein venous flow into these vessels.

Pharyngeal vein (w. Pharyngeae). They collect blood from the pharyngeal plexus (plexus

pharyngeus), located on the rear and side surfaces of the pharynx. These veins empty into the internal jugular vein or in its other tributaries.

In pharyngeal plexus flowing blood from the throat, soft palate, auditory tube, the back of the dura mater of the brain.

Pharyngeal plexus anastomoses with wing and vertebral venous plexus.

Lingual veins (v. Lingualis). It collects blood from the tongue, sublingual and submandibular salivary glands. Lingual veins accompanying the artery of the same name. It falls into the internal jugular vein or vein in the front. Lingual

veins formed in the area of the tongue with a tongue spynkovyh veins (vv. Dorsales linguae), deep vein tongue (v. Profunda linguae), sublingual vein (v. Sublingualis). These veins form the trunk lingual veins merging together or fall apart in the internal jugular vein or vein in the front.

Upper thyroid vein (v. Thyroidea superior). Usually begins two shafts accompanying the artery of the same name. This vein empties into the internal jugular vein.

Sometimes one of the shafts of the upper side of the thyroid vein is independently empties into the internal jugular vein. In this case, the vessel called middle thyroid vein (v. Thyroidea media).

#### Facial vein (v. Facialis).

It begins in the medial corner of the eye area angular vein (v. Angularis). V.angularis anastomoses with the upper ocular vein. A top ophthalmic vein empties into the cavernous sinus dura mater of the brain. Remember that through the venous anastomosis infectious agents in certain pathological conditions can enter the sinus dura mater, causing inflammation - meningitis.

Facial vein goes from the medial corner of the eye from top to bottom. Reaching the lower edge of the body of the mandible, it goes around it at the front edge of the chewing muscles, is back on the outer surface of the submandibular salivary gland. Then the facial vein or vein merges with or independently flows into the internal jugular vein.

Facial vein collects blood from the soft tissue of the frontal and facial areas and areas submandibular triangle of the naso-lacrimal ducts, parotid salivary gland and chewing muscles, mucous membrane and the walls of the maxillary sinus, posterior maxillary teeth dental arch, the back of the alveolar bone upper jaw and gums that cover it, the tonsils, the side wall of the pharynx and soft palate, muscles and mucous membrane of the bottom of the mouth, sublingual and submandibular salivary glands.

superficial temporal vein. It goes down in front of the ear, piercing parotid glands, then passes behind the branches of the lower jaw and the side of the external carotid artery. At the level of mandibular angle vein turns back and flows into the front vein or internal jugular vein. tributary veins are the following vessels:

- superficial temporal vein (v. Temporalis superficialis). It collects blood from soft tissue parietal and temporal areas of the head.
- middle temporal vein (v. Temporalis media). It is formed deep in the temporal muscle, collecting blood from him, opens in vein or superficial temporal vein.
- transverse vein face (v. Transversa faciei). It collects blood from the lateral surface of soft tissue face.
- maxillary veins (vv. Maxillares). They are 2-3 vessels. These veins collect blood from the pterygoid plexus..

In the maxillary vein opened lower alveolar vein (v. alveolaris inferior), accompanying the artery of the same name by collecting blood from the teeth and the structures of the mandible.

(plexus pterygoideus). It contains a section infratemporal fossa and is located on the surface of the lateral and medial pterygoid muscles. In this venous plexus

blood from flowing buccal and all masticatory muscles, temporomandibular joint from the front surface of the ear, external auditory canal, tympanic membrane, mucosa of the tympanic cavity, auditory, mastoid cells from nasal mucosa cavities of the brain dura mater middle cranial fossa from the parotid salivary gland.anastomoses with cavernous sinus dura mater of the brain through the foramen ovale venous plexus.

### External jugular vein

External jugular vein (v. Jugularis externa) is formed in the area under the ear near the front edge muscle at the angle of the mandible at the confluence of two major tributaries - front and back. Forward is a tributary of the anastomosis vein, which empties into the internal jugular vein and the posterior tributary is back ear vein, which anastomoses with the occipital vein that usually flows into the vertebral vein.

External jugular vein goes down on the outer surface subcutaneous covered neck muscles. It empties into the final department of Internal veins or venous angle formed by the confluence of the subclavian and internal jugular veins. Sometimes this vein empties into the subclavian vein.

In the external jugular vein flow into these vessels:

- (v. auricularis posterior). It collects blood from the soft tissues of the mastoid area and plot, located behind the ear, and on its back surface. At the level of mandibular angle, it flows into the external jugular vein. Rear ear vein anastomoses with the occipital vein and vein mastoid discharge;
- (v. Jugularis anterior). It is formed of small veins collecting blood from soft tissue areas. Then go down the outer surface sublingual oral muscles, and the anterior surface muscle. Then the anterior jugular vein pervades cervical fascia and enters space, side and back.

### Brachiocephalic veins

The right and left (vv. brachiocephalicae dextra et sinistra). Each brachiocephalic veins formed at the upper opening of the chest at the confluence of the subclavian and internal jugular veins. The junction of these vessels is called venous angle (angulus venosus). In the right venous angle in most cases runs into the right external jugular vein and the right lymphatic duct and the left venous angle - left external jugular vein and thoracic duct (lymphatic). Brachiocephalic veins have valves.

Right shoulder-cephalic vein (v. Brachiocephalica dextra). It is shorter than half the left, has a length of about 3 cm. formed behind the right-clavicular joint. Vienna goes down almost vertically on the inner surface of the sternum right handles, adjacent to the dome of the right parietal pleura. At the level of the connection right rib and sternum cartilage from his right shoulder-cephalic vein connects with the left shoulder-the main vein, forming the upper vena cava.

Left Brachiocephalic vein (v. Brachiocephalica sinistra) two times longer than the law, has a length of 5.6 cm. At the level of the connection right rib and sternum cartilage left Brachiocephalic vein almost at right angles connected to the right shoulder, the main vein, forming the upper vena cava .Lower thyroid veins (w. thyroideae inferiores). there may be three on each side. They collect blood from the unpaired thyroid plexus (plexus thyroideus impar). This venous

plexus located on the front surface of the cervical trachea and lower sections of the thyroid gland. He flowing blood from the thyroid and parathyroid glands, larynx, pharynx, trachea, esophagus, muscles.

(v. Vertebralis). It originates in the occipital area near the rear semicircle large hole. Then this vein enters the transverse hole of the first cervical vertebra, goes down, accompanying the vertebral artery and forming around the venous plexus. Coming out of the hole cross-VI cervical vertebra (sometimes VII cervical vertebra) going forward .In vertebral veins empty into the vessels that collect blood from the occipital bone, deep neck muscles, cervical parts of the deep muscles of the back, from the internal vertebral venous plexus.

(v. Cervicalis profunda; v. Colli profunda). It collects blood from the muscles and fascia occipital area. Deep vein runs down the neck behind the transverse processes of the cervical vertebrae and falls mainly in the final section vertebral veins or brachiocephalic vein near the eye vertebral veins.

Tributaries brachiocephalic veins that collect blood from the body (not related to the veins of the head and neck): internal mammary veins (vv. Thoracicae internae), right highest intercostal vein (v. Intercostalis suprema dextra), left upper intercostal vein (v. intercostalis superior sinistra, fine veins through which blood flows from the veins of 1seredostinnya {zahrudnynnoyi cancer (vv. thymicae), oserdni veins (vv. pericardiacae), oserdno-diaphragm veins (vv. pericardiaco-phrenicae), mediastinumveins (vv. mediastinales), tracheal veins (vv. tracheales), bronchi veins (vv. bronchiales),esophageal veins (vv. oesophageales).

## **LITERATURE**

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[www.anatom.ua](http://www.anatom.ua)

## Tests "STEP - I»

Theme: The veins of the head and neck

1. The patient, 28 years, when there tracheotomy bleeding. Which vein was injured during operation?

- A. V.thyroidea inferior.
- B. V.laryngea superior.
- C. V.jugularis externa.
- D. V.thyroidea ima.
- E. V. laryngea inferior.

2. Patient, 25, appealed to the doctor with complaints high temperature, sharp head pain and swelling in the area, backs and wings of the nose. The doctor examined the patient and said that dangerous squeeze pustules on the face, especially in the area of nasolabial triangle. Because venous anastomosis which infection can spread into the cavity of the skull?

- A. Anastomoses veins face with eye veins.
- B. Anastomoses face with veins v. retromandibularis.
- C. Anastomoses veins with the front face ear veins.
- D. Anastomoses veins face with occipital vein.
- E. Anastomoses veins face with medium and deep temporal veins.

3. The patient, 68 years after the removal of the second large lower teeth developed meningitis. The doctor found that the infection came to

dura mater of the brain along secondary veins. Which is a tributary veins v.meningea media?

- A. V.facialis.
- B. V.jugularis externa.
- C. V.jugularis anterior.
- D. V.jugularis interna.
- E. V.retromandibularis.

4. Male, 34 years old, shaving, injured abscess in the region of the mastoid process. By two days later he was taken to hospital with a diagnosis of inflammation of the brain. For venous reservoir which, most likely, the infection penetrated the cranial cavity?

- A. V. facialis.
- B. Vv. labyrinthi.
- C. Vv. tympanicae.
- D. V emissaria mastoidea.
- E. Vv. auricularis.

5. The patient, 27, appealed to the doctor with a complaint the presence solid tumors front of the tragus of the ear shell. Dental surgeon removing a tumor, saw operating wound vein. What was this vein?

- A. V.retromandibularis.
- B. V.facialis.
- C. V.jugularis interna.
- D. V.jugularis externa.

E. V.auricularis posterior.

6. Male, 25, appealed to the dentist complaining of inability to open the mouth. Doctor revealed hematoma in the infratemporal fossa and found that sick three days ago removed the top third large molar tuberal under anesthesia. Doctor concluded that injured:

A. V. facialis.

B. Vv.maxillares.

C. Plexus venosus pterygoideus.

D. V.jugularis externa.

E. V. transversa faciei.

7. Surgeon cut wound in the victim the neck above the sternum, prevented bleeding vessels which lies between the surface and deep plates fascia own neck. Which vessel likely been affected?

A. V.thyroidea inferior.

8. Arcus venosus juguli.

C. V.thyroidea superior.

D. V.jugularis interna.

E. V.jugularis externa.

8. The victim, 41 year superficial incised wound of the neck in the middle section muscle, accompanied by bleeding. Which of the injured neck veins?

A. The external jugular.

B. Anterior jugular.

C. Internal jugular.

D. Occipital.

E.Subscapulares.

9. The patient, 68 years, (tumor observed cyanosis, saphenous venous expansion and swelling of soft mesh tissues of the face, neck, and upper trunk upper extremities. What is compressed venous trunk tumor?

A. Subclavian vein.

B. External jugular vein.

C. Superior vena cava.

D. The internal jugular vein.

E. Anterior jugular vein.

10. The patient, 29 years old, complains of pain and swelling in anterior upper part of the nasal cavity. At examining doctor found a boil. This inflammation process may be more difficult in the future vein thrombophlebitis eye socket opening in cavernous sinus. What are veins?

A. V.opthalmica superior.

B. V.supraraorbitalis.

C. Vv.maxillares.

D. Vv.suprathrochleares.

E. V.opthalmica inferior