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MORPHO-FUNCTIONAL ASPECTS OF THE DEEP VEINS OF THE HUMAN BRAIN

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Resume. The paper considers the spatial localization in the human brain of various spectral features that are found in various disorders. A method is proposed for the accurate quantitative analysis of this activity according to encephalography data.

Keywords: anatomy, deep vein, pathological activity of the human brain.

Relevance. Vascular diseases of the brain remain one of the main problems of modern medicine, making a significant contribution to the overall structure of mortality and disability of the world's population. In parallel with the improvement of methods of diagnosis and treatment of patients with cerebrovascular pathology, the incidence of cerebral circulatory disorders is increasing [4]. According to a number of researchers, this is due to an increase in the number of patients with arterial hypertension. Currently, the treatment of patients with cerebrovascular pathology is mainly symptomatic, rarely pathogenetic, and has practically no effect on the etiology of the disease, which in most cases remains not fully understood [1].

In this regard, a more detailed and at the same time comprehensive study of the cerebral vessels remains relevant, since even minor features of the anatomy of the cerebral vessels can be decisive in the development of cerebrovascular pathology. The results of the morphological studies of the cerebral vessels are more concerned with the arterial system, while less attention is paid to the cerebral veins, the total number of which exceeds the number of arteries. At the same time, it is obvious that the system of "inflow" of blood cannot be a comprehensive and main target in the development of cerebrovascular pathology, and the system of "outflow" remains intact [6]. With the improvement of modern imaging techniques for the study of cerebral vessels, such as cerebral angiography, multispiral computed angiography, magnetic resonance angiography, transcranial ultrasound Dopplerography, neurologists, neurosurgeons and doctors of functional diagnostics are increasingly making diagnoses such as cerebral venous insufficiency, venous encephalopathy, thrombosis of veins and venous sinuses of the brain. In this regard, for the diagnosis of pathology of the venous system of the brain, it remains extremely important to know the variant anatomy of this system, and primarily the deep cerebral veins, which carry out the outflow of venous blood from subcortical stem structures [2]. Currently, the most common topographic

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anatomical variants of deep veins of the brain are presented in many domestic and foreign manuals, while the extreme variants of anatomy and constitutional features have not been studied sufficiently [3]. At the same time, knowledge of the variants of the anatomy of the venous system of the brain, including deep cerebral veins, is not only of important fundamental, but also of practical interest, primarily for neurosurgeons, as a possible source of massive bleeding during operations on the base of the brain and in the cavity of the lateral and third ventricles [5]. Taking into account the urgency of the problem and the lack of information about the constitutional features of the variant anatomy of deep cerebral veins, the purpose and objectives of the study are set. The purpose of the study. Identification of the variant anatomy of the deep veins of the brain in male corpses with different head shapes.

Research materials and methods. The study was conducted on 80 corpses of men of the second mature (30-60 years old) and elderly (61-75 years old), who died from causes unrelated to damage to the central nervous system, and 6 corpses of men of the second mature and elderly, who died from hypertensive intracerebral hemorrhages.

The results of the study. The variant anatomy of the deep veins of the male brain corresponds to the shapes of the head. Dolichocephals are characterized by the largest length of deep cerebral veins having a longitudinal direction (the length of the basal vein is 42 mm, the length of the internal cerebral vein is 44 mm) in comparison with brachycephals (the length of the basal vein is 39 mm, the length of the internal cerebral vein is 35-36 mm) and mesocephals (the length of the basal vein on the left is 40 mm, the length of the internal the cerebral vein is 41 mm). Brachycephals have the largest length of veins located transversely (the length of the deep middle cerebral vein is 14 mm) in comparison with dolichocephals (the length of the deep middle cerebral vein is 11 mm) and mesocephals (the length of the deep middle cerebral vein is 11 mm). The diameter of the internal cerebral vein and basal vein in all forms of the head increases from the initial sections to the confluence with the large cerebral vein by 2-3 mm. The number of tributaries of the deep cerebral veins, their formation and confluence is variable and does not depend on the shape of the head. The closed large venous circle of the brain occurs with different frequency in corpses with different head shapes: in brachycephalians - 44.68 ± 7.25% of cases, in dolichocephalians - 51.51 ± 8.69% of cases, in mesocephalians - 27.50 ± 7.06% of cases. A closed small venous circle occurs relatively constantly in all forms of the head: in brachycephalians - 70.21 ± 6.32% of cases, in dolichocephalians - 75.75 ± 7.46% of cases, in mesocephalians - 97.50 ± 2.46% of cases. The predominance of the dorsal pathway of venous outflow from subcortical structures of the brain (the diameter of the internal cerebral vein is 1.5-3 times the diameter of the basal vein) has brachycephals on the left - in 21.27 ± 5.96%, on the right - in 12.77 ± 4.86% of cases, mesocephals on the left and right - in 30.00 ± 7.24% of cases, dolichocephals on the left - in 30.31 ± 7.99%, on the right - in 33.33 ±

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8.20% of cases. In other cases, there are equivalent basal and dorsal venous outflow pathways from subcortical structures of the brain. With a brachycephalic head shape, the length and diameter of the deep veins of the brain in men who died from intracerebral hemorrhages does not differ from the length and diameter of the deep cerebral veins in men with a brachycephalic head shape who died from causes unrelated to damage to the central nervous system.

Conclusion. Data on the variant anatomy of the deep veins of the human brain, taking into account constitutional features, complement the available information in the field of human anatomy. This information can be used during the training of medical students. Based on the study in the preoperative period, according to the shape of the patient's head, the neurosurgeon will be able to assume with a certain degree of probability about the constitutional features of the deep veins of the brain, which is extremely important during operations on the base of the skull and ventricles of the brain. The obtained data on the variant anatomy of the cerebral veins can be used by radiologists to interpret the data of MRI-angiography, MSCT angiography of the brain.

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