AJPMHS GLOBAL RESEARCH NETWORK

AMERICAN Journal of Pediatric Medicine and Health Sciences
Volume 03, Issue 06, 2025 ISSN (E): 2993-2149

VENOUS CEREBRAL INFARCTION AFTER REMOVAL CONVEXITAL MENINGIOMAS

Botirov M.B., Kudratov M.Sh., Yuldoshev O.F., Temirov O.U.
Department of Neurosurgery, Samarkand State Medical University

Annotation: The article presents a case from the practice of developing venous infarction of the brain after removal of convexital meningioma. This complication is of great interest due to the ambiguity of the pathophysiological processes in the development of postoperative venous infarction of the brain

Key words: meningioma, venous infarction, venous sinuses, drainage veins, postoperative complication

Introduction. Meningioma is a primary tumor of the meninges, growing from the cells of the arachnoid membrane. In terms of frequency of occurrence among primary brain tumors, meningiomas are second only to glial tumors. The five-year survival rate is 91.3% of cases.

According to the classification of brain tumors adopted by WHO in 2007, meningiomas have three degrees of malignancy (Grade I, Grade II, Grade III), where the largest proportion is Grade I (90%).

Along with the WHO classification, a tumor localization classification is also used.

Classification of meningiomas by localization

1. Parasagittal meningiomas 2. Convexital meningiomas 3. Falx meningiomas 4. Falxtentorial meningiomas 5. Meningiomas of the skull base 6. Olfactory fossa 7. Sphenoid bone 8. Tubercle sella turcica 9. Anterior clinoid process 10. Cavernous sinus 11. Petroclival meningiomas 12. Convexital surface of the cerebellar hemisphere 13. Cerebellar pontine angle

Convexital, parasagittal and falx meningiomas are more common than meningiomas of other localizations.

The development of postoperative complications associated with the removal of meningiomas occurs in 2 - 35% of cases. The type of complications is determined by the localization and degree of tumor resection. For example, meningiomas of the skull base are more likely to show signs of damage to the cranial nerves, while convexital meningiomas are characterized by vascular complications - ischemia, hemorrhage and venous infarction (VI), the latter, according to some authors, is the most common complication after surgery [3, 4, 5].

VI occurs with thrombosis or occlusion of the venous drainage system, which subsequently leads to blood stagnation in the venous system, hemorrhage and cerebral edema [6]. The main methods of diagnosing VI are neuro-visualization methods - CT and MRI of the brain, MRI venography, cerebral angiography. Postoperative VI on CT/MRI scans is visualized as areas of intracerebral hemorrhage with surrounding edema of the brain matter.

A 53-year-old woman was admitted with complaints of periodic dizziness, memory loss, and periodic numbness in the right limbs, which had been bothering the patient for 1.5 years. Before the operation, the functional activity according to the Karnofsky scale was 70%, signs of sensorimotor aphasia were neurologically observed. In addition to the main disease, there was concomitant pathology: arterial hypertension, grade 3 obesity, and type 2 diabetes mellitus.

An MRI examination revealed a convexital meningioma of the frontoparietal and temporal lobes on the right with parasagittal localization, the tumor size is 3.5 * 4.5 cm, without peritumoral edema, the VSS is intact, there is bone hyperostosis in the projection of the tumor.

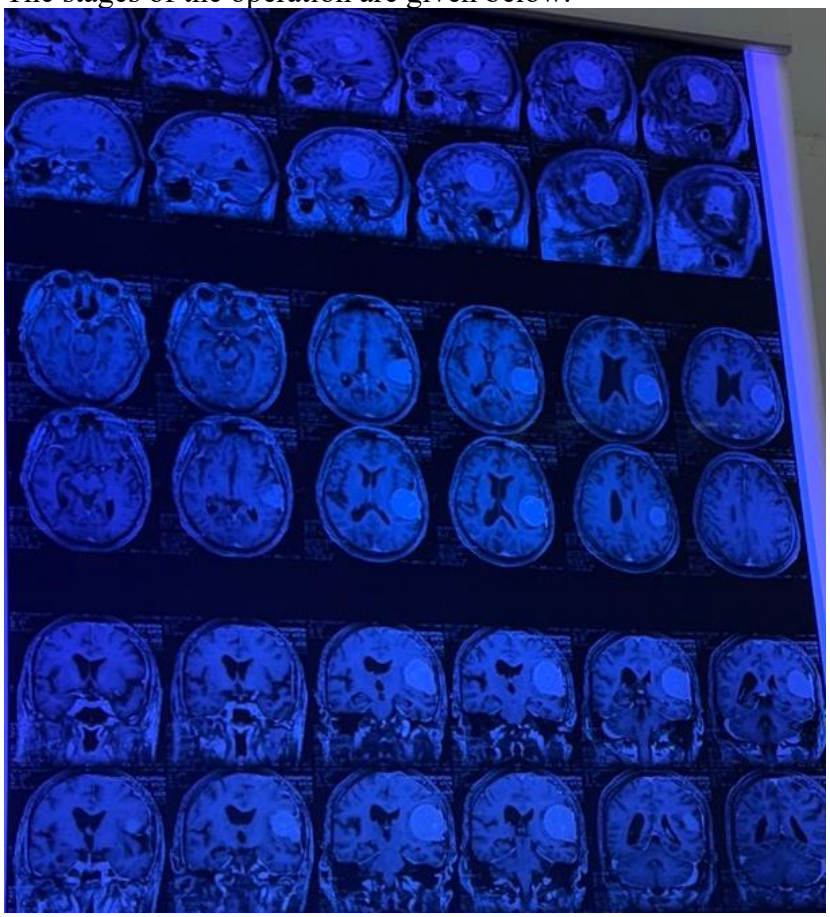
Corticosteroids were prescribed for anti-edematous purposes 3 days before surgery. Surgery: total tumor removal according to Simpson type 1. During surgery, attention was drawn to the rich

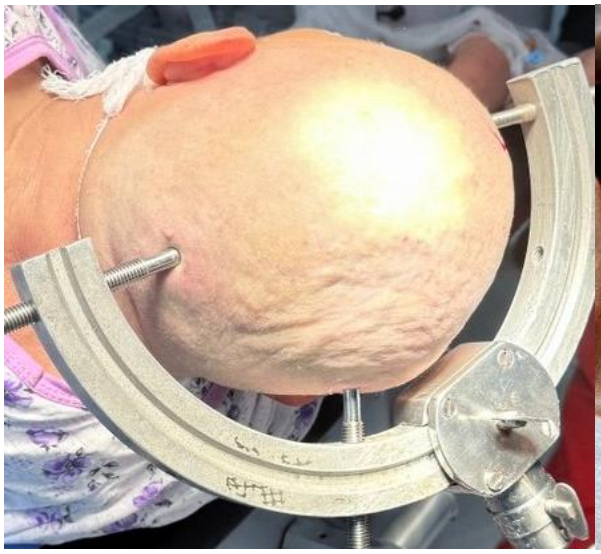
venous vascularization of the peritumorous area and the adhesion of the cortical veins to the arachnoid membrane.

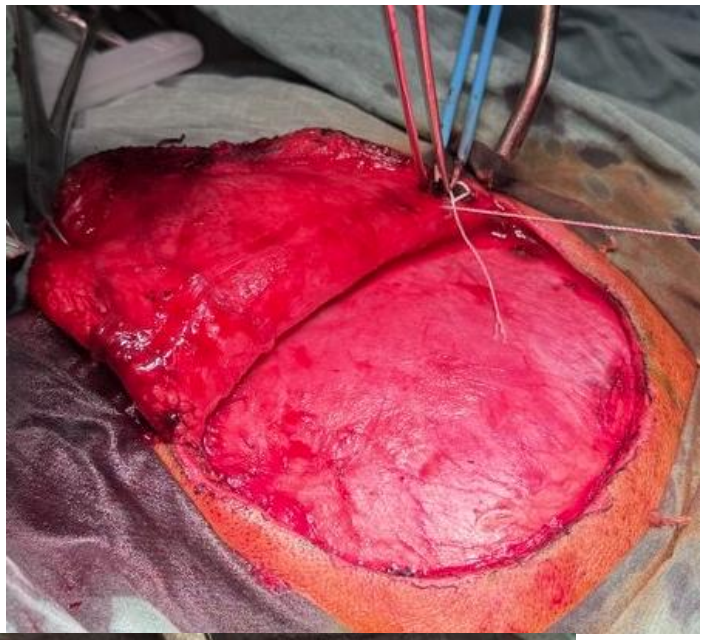
All adjacent veins in the tumor area were preserved during the operation, and the veins flowing into the tumor were excluded. The affected bone was removed, primary plastic surgery of the bone defect was performed with bone cement. Histological conclusion: benign meningioma, meningotheliomatous variant, G=I. After the operation, during the first two

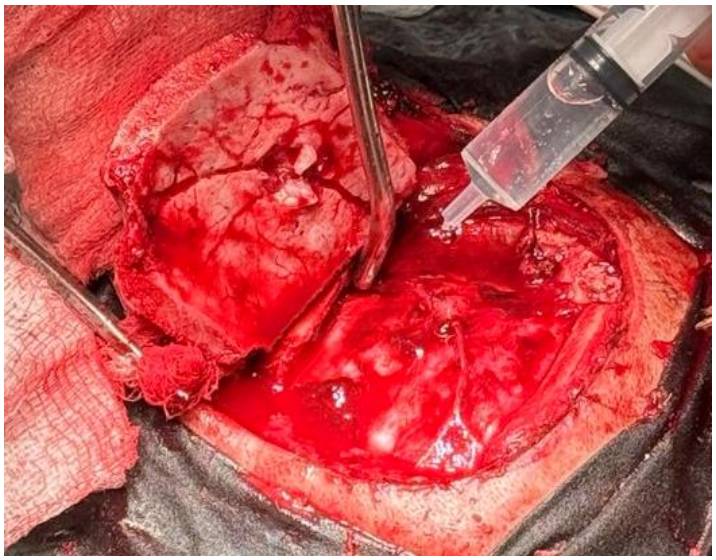
The patient's condition was assessed as stable for 24 hours, the severity of the condition corresponded to the severity of the operation, the neurological status was normal. The patient's condition worsened on the 3rd-4th day, when a neurological deficit appeared in the form of left-sided hemiplegia, anosognosia of hemiplegia, paresis of gaze to the left, as well as a decrease in the patient's criticism and adequacy, which indicated extensive damage to the frontal and parietal lobes. A CT scan of the brain was performed, where VI was visualized in the right frontal and parietal lobes, with foci of hemorrhage

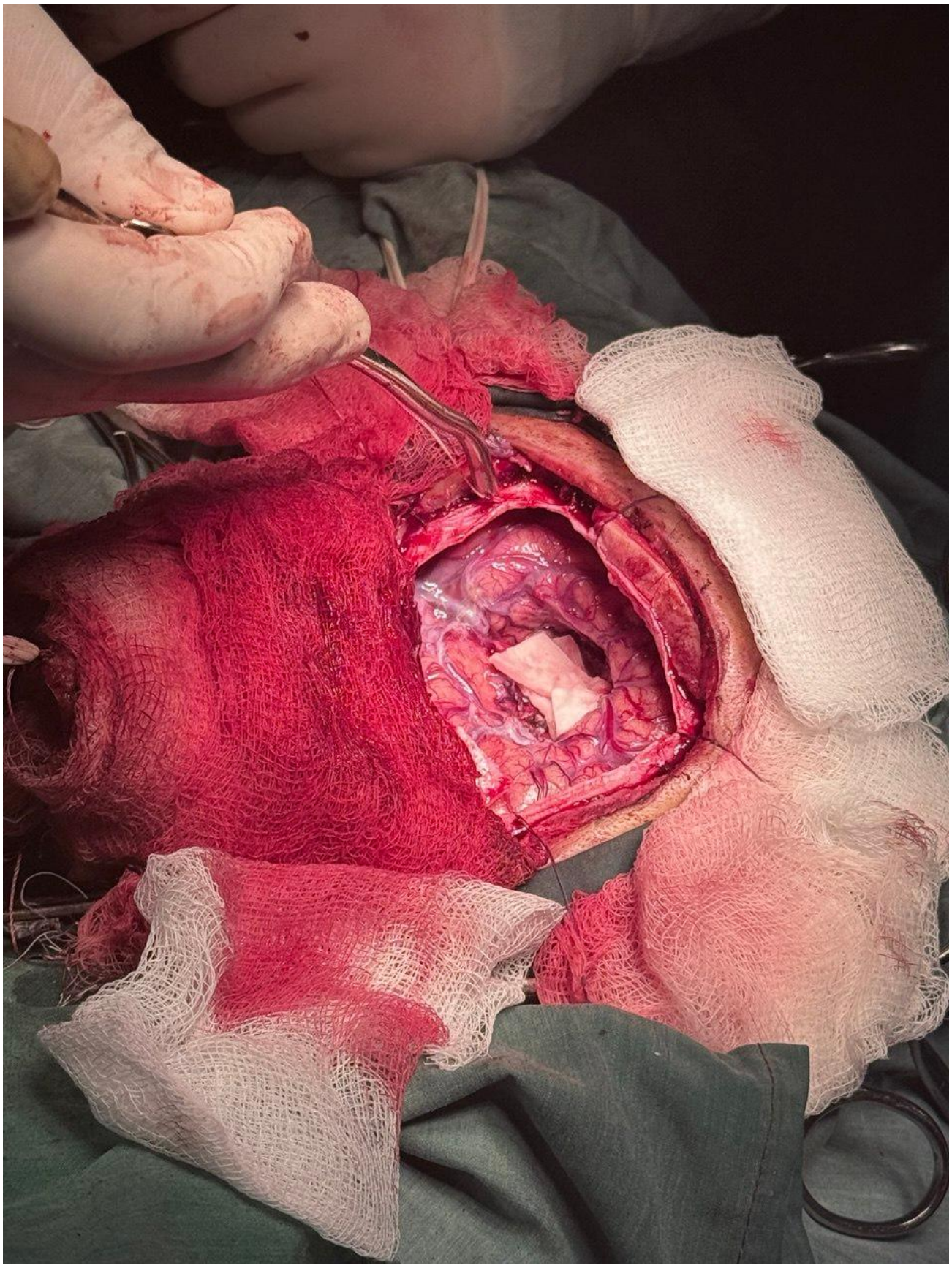
The stages of the operation are given below.

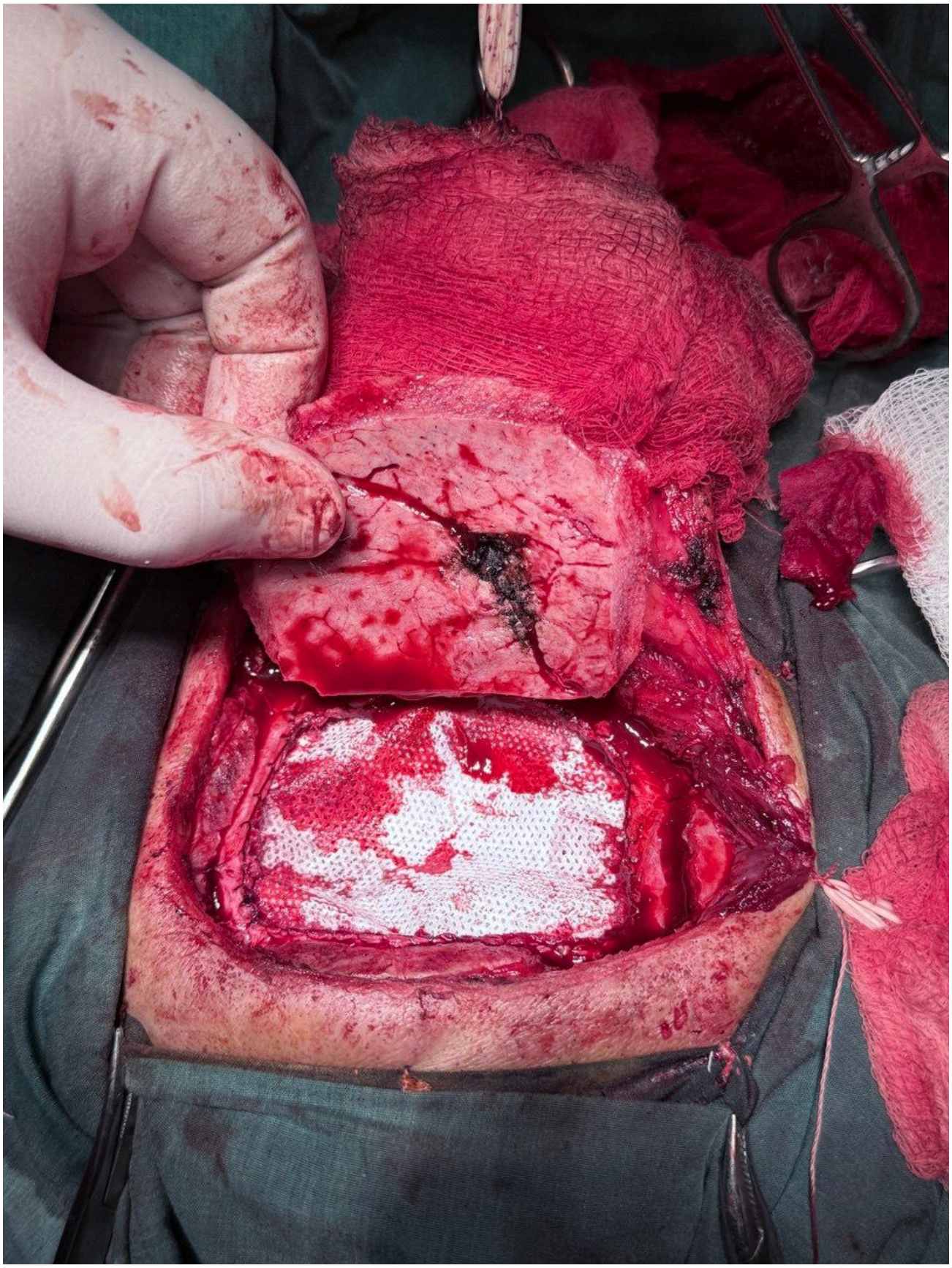


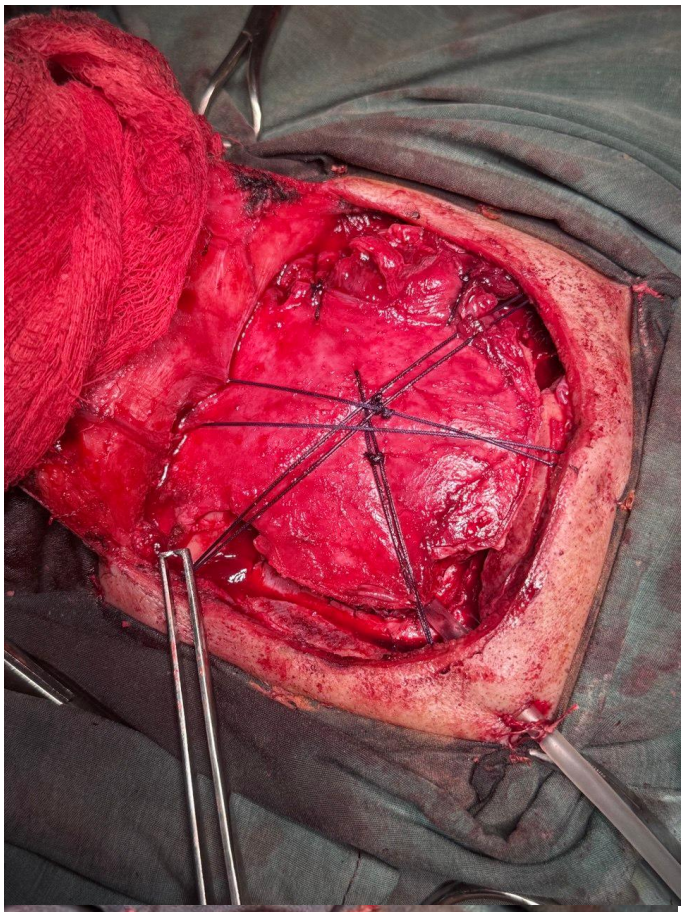












In dynamics, on the 5-6th day after the operation, the clinical picture of type 2 diabetes mellitus was added, which indicated the spread of venous edema to the diencephalic region. Considering the preservation of consciousness and the intactness of the lesion of the brainstem structures, the tactics of dynamic observation and drug treatment were chosen. The treatment was aimed at reducing intracranial pressure (dexamethasone, mannitol in combination with furosemide), treating diabetes insipidus (minirin), improving cerebral microcirculation (pentoxifylline, L-lysine

escinate, euphyllin, proserin). Vasotonic drugs (detralex) and anticoagulants (fraxiparin) were also used. On the 7th day after the operation, the patient was prescribed exercise therapy. On the 7-8th day after the operation, the patient showed positive dynamics, the neurological deficit began to regress. Restoration of motor functions began with the distal parts of the lower extremities. On the 10th day, a control MRI examination of the brain was performed, where venous edema of the frontal and parietal lobes persisted. After stabilization of the patient's condition, early rehabilitation treatment (massage, therapeutic exercise) was prescribed. The patient was discharged on the 27th day after the operation in a satisfactory condition, without neurological deficit. In dynamics after 5 months after
surgical intervention on MRI scans areas of gliotic changes in the brain matter are determined (Figure 4). The outcome of the disease according to the Glasgow scale (GOS) is 5 points (good recovery – return to normal life).
Analyzing our case, the patient had predisposing factors to the development of venous infarction, these are parasagittal location and large tumor size (4.5 cm). The intraoperative risk factor was the presence of adhesions of the cortical veins with the arachnoid membrane. The development of VI in the patient after tumor removal led to severe neurological symptoms in the form of hemiplegia, anasognosia, gaze paresis in the opposite direction from the lesion, as well as a decrease in
criticism and adequacy of the patient. In MRI and CT studies, the affected area corresponded to the border of the cerebral edema, the hemorrhage site was outside the surgical intervention area. All these signs correspond to venous infarction.
The chosen tactics were aimed at pathogenetic treatment: corticosteroids, diuretics, vasotonics, vascular drugs and anticoagulants.
In addition to drug treatment, early rehabilitation treatment (exercise therapy, massage) led to rapid improvement of the condition. Unfortunately, the outcomes of VI are not always satisfactory.

Conclusions

1. During the planning of the operation, it is necessary to take into account the predisposing risk factors for the development of viral infections. 2. The main methods for diagnosing viral infections are CT/MRI of the brain, MRI venography and cerebral angiography. 3. To date, there are no clear and unified recommendations on the treatment tactics for patients with viral infections. 4. This pathology requires further research and development of methodological recommendations for the management of patients.

LIST OF REFERENCES

1 Handbook of Neurosurgery, Mark S.
Greenberg. New York, 2010. 2 Neuro-oncology, Mark Bernstein, Mitchel S.
Berger New York, 2008. 3 Pre-Operative Factors Affecting Resectability of Giant Intracranial Meningiomas, Alfredo Quiñones-Hinojosa, Tania Kaprealian, Kaisorn L. Chaichana, Nader Sanai, Andrew T. Parsa, Mitchel S. Berger, Michael W. McDermott. The canadian journal of neurological sciences, 2009 4 Kallio M, Sankila R, Hakulinen T, Jääskeläinen J. Factors affecting operative and excess long-term mortality in 935 patients with intracranial meningioma.
Neurosurgery 1992; 31:2. 5 Prognosis of the surgical treatment of parasagittal meningioma, Skudas G, Tamasauskas A.
Medicina (Kaunas). 2002;38(11):1089-96. 6 Cerebral Venous Infarction: The Pathophysiological Concept Schaller B. • Graf R.
Cerebrovasc Dis 2004;18:179–188 7 Incidence, risk factors, and outcome of venous
infarction after meningioma surgery in 705 patients, Michael E. Sughrue, Martin J. Rutkowski, et.al