

RESULTS OF SURGICAL TREATMENT OF CRANIOORBITAL BRAIN TUMOR

Aliev M.A., Jabborov M.A., Manakanov A.E., Kholmurodova Kh.Kh.

Department of Neurosurgery, Samarkand State Medical University

Abstract: The problem of surgical treatment of neoplasms located in the cranio-orbital region and orbital cavity has long attracted the attention of researchers. The complexity of removing such neoplasms consists of both the dense arrangement of neurovascular and muscular structures in a small volume of the orbit, and the possible spread of the tumor into the adjacent cavities of the paranasal sinuses and the cranial cavity. A possible solution is to develop adequate surgical approaches. Historically, the development of surgery for neoplasms of the cranio-orbital region and orbit occurred in accordance with 2 approaches: extracranial and intracranial. In 1874, H. Knapp [Cited by 4], using the conjunctival superior orbitotomy developed by him, removed a retrobulbar tumor, preserving the eyeball, and in 1889 R. U. Kronlein proposed resecting the lateral wall of the orbit to remove a tumor of the muscular funnel [Cited by 4]. In 1922, the American neurosurgeon WEDandy was the first to remove a tumor from the orbit using a transcranial intradural approach, performing an osteoplastic trepanation of its upper wall from a subfrontal approach [6,7]. In Russia, the first work devoted to transcranial surgery of orbital tumors was an article by A.G. Zhagrin [2], which proposed improving the classic WEDandy approach by using an extradural approach to the orbital roof. In subsequent years, modifications to the transcranial approach concerned only the nature of the trepanation window.

Keywords: tumor, exophthalmos, extra-intracranial, muscles

Introduction: Space-occupying lesions of the orbit are a rare but clinically significant pathology that requires a comprehensive approach to diagnosis and treatment.

Their clinical manifestations depend on the location, size and nature of growth, which determines the complexity of early diagnosis. This article presents a clinical case of a patient admitted with complaints of headache, lacrimation and progressive exophthalmos of the left eye, which first appeared 20 days ago.

Despite ophthalmological treatment, the symptoms continued to increase, which required an in-depth examination. Based on the results of multispiral computed tomography (MSCT) of the brain, a space-occupying lesion in the orbit was detected, after which the patient was referred for consultation to a neurosurgeon. The article discusses the stages of diagnosis, surgical intervention and postoperative management of a patient with this pathology [8,9].

Materials and methods: Admitted The patient considers himself ill for 20 days. Does not associate the onset of the disease with any factor. The disease began with a headache. Subsequently, lacrimation and bulging of the left eye appeared.

Initially, the patient was observed by ophthalmologists and underwent the prescribed treatment, but there was no improvement. Due to progressive exophthalmos, he consulted a neurologist at the

Dzhambay District Medical Association. After conducting a CT scan of the brain, signs of a "volume process in the area of the left eye orbit" were detected, and the patient was recommended to consult a neurosurgeon.

Due to the deterioration of the patient's condition, he was hospitalized in the neurosurgical department of the multidisciplinary clinic of the Samarkand State Medical University. MRI of the brain with contrast, MR angiography, spectroscopy and tractography were performed. Based on the examination results, the diagnosis was confirmed: "space-occupying lesion in the area of the left eye orbit."

The patient was hospitalized in the neurosurgical department for surgical treatment.

MRI of the brain revealed: intra- and extracranial crano-orbital tumor in the area of the distal part of the lateral rectus muscle of the left eyeball. In the left frontobasal region of the brain, a defect in the upper wall of the orbit with infiltration and compression of the meninges was detected. Left-sided exophthalmos (Fig. 1).

State of consciousness- clear. According to the Glasgow Coma Scale - 15 points. General cerebral symptoms - present. Meningeal symptoms - not detected.

Cranial nerves: I pair (olfactory nerve)- the sense of smell is not impaired.

II pair (optic nerve)- visual acuity is reduced on the left, amblyopia.

III, IV, VI pairs (oculomotor, trochlear, abducent nerves)- eye movements are preserved, exophthalmos is noted on the left.

V pair (trigeminal nerve)- pain sensitivity at the points of branch exit is unchanged.

VII pair (facial nerve)- the face is symmetrical.

VIII pair (vestibulocochlear nerve)- hearing is not impaired.

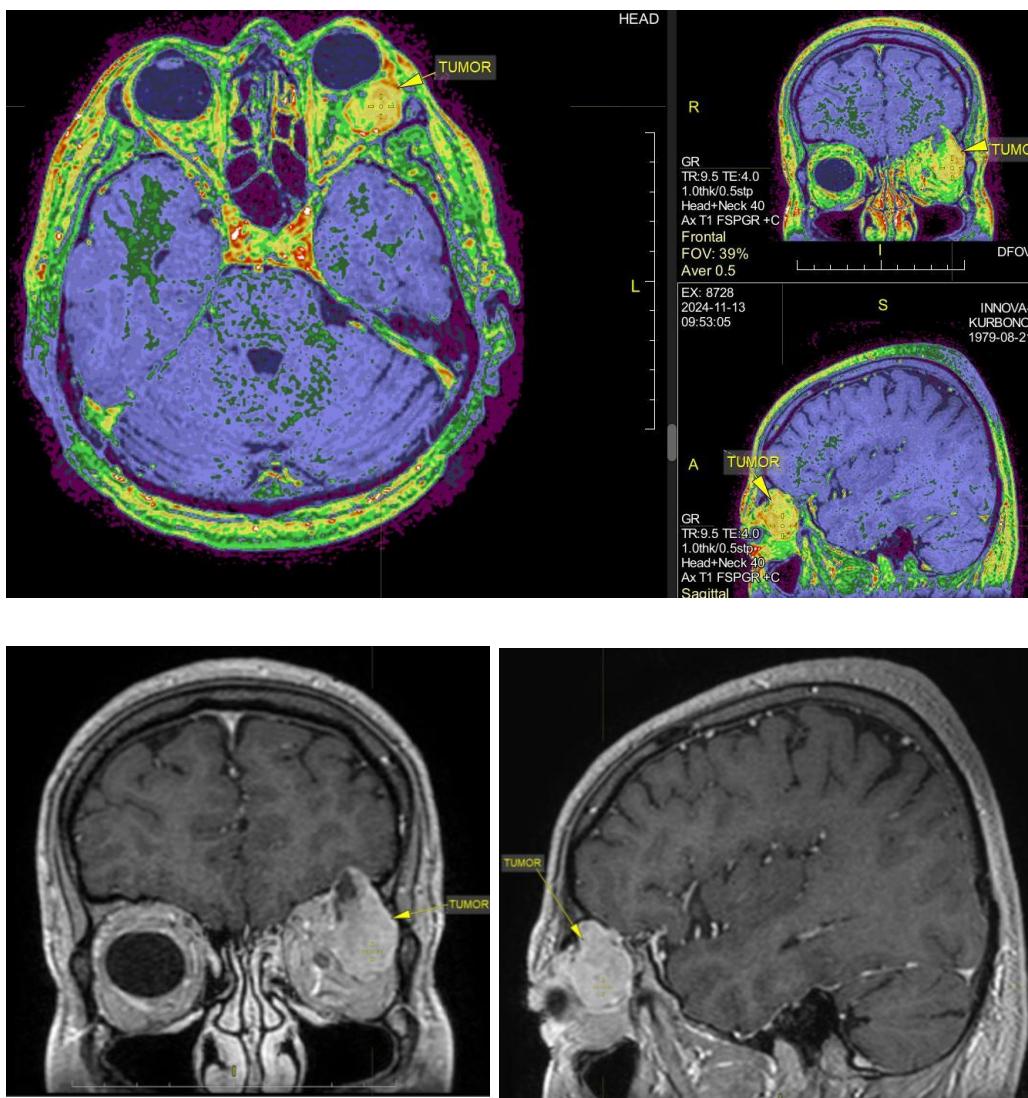
IX, X pairs (glossopharyngeal, vagus nerves)- the soft palate is symmetrical, the uvula is located along the midline.

XI pair (accessory nerve)- raising the shoulders is not limited, turning the head in both directions is not impaired.

XII pair (hypoglossal nerve)- tongue along the midline.

Motor sphere: Movements in the limbs are preserved. Stable in the Romberg pose. Performs coordination tests. Function of the pelvic organs is not impaired.

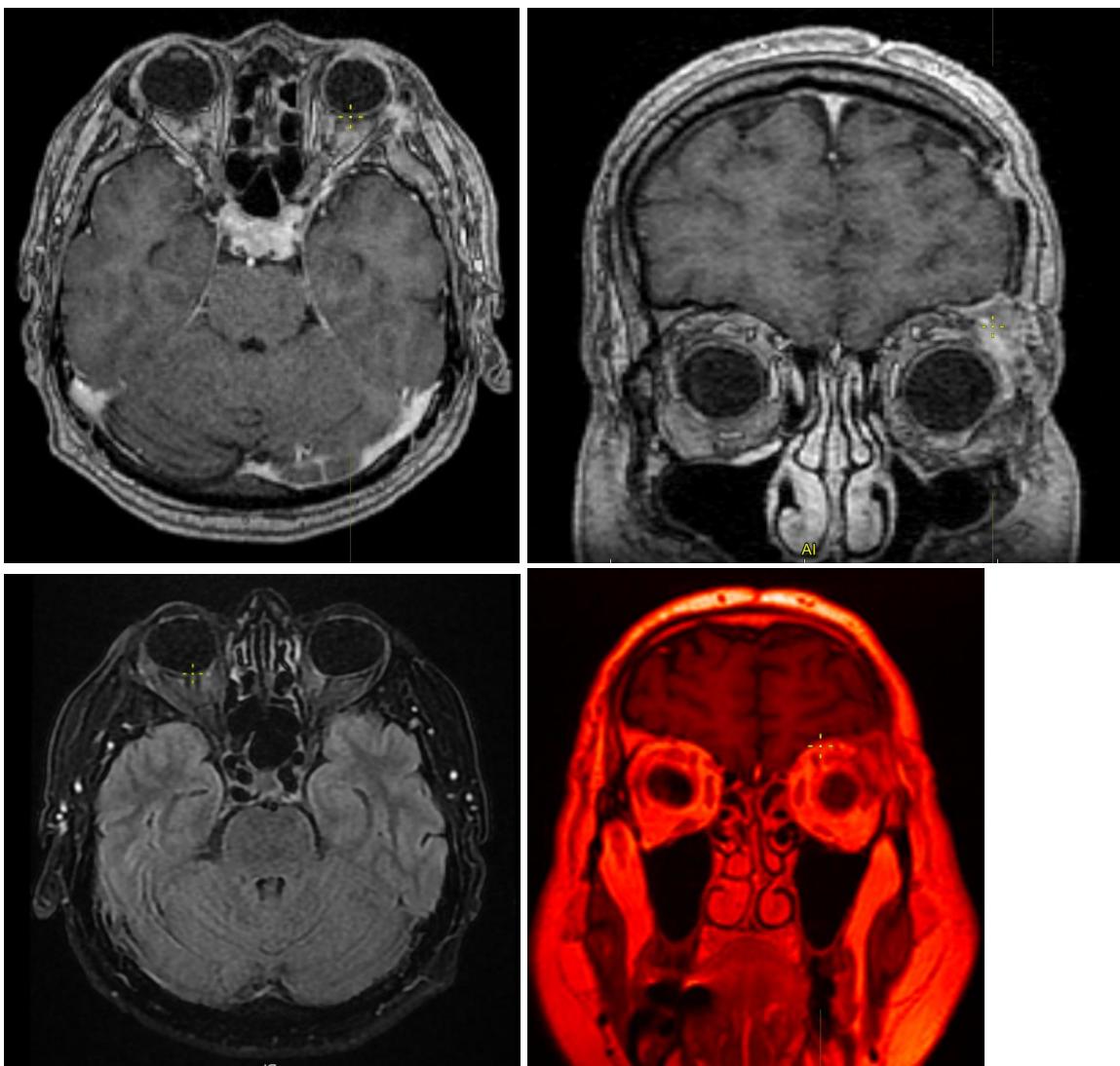
Fig. 1.



Results: The patient underwent a planned operation using the frontolateral method: osteoplastic trepanation in the frontal region on the left. Microsurgical total removal of the intra- and extracranial crano-orbital space-occupying lesion in the distal part of the lateral rectus muscle of the left eyeball was performed. Under general endotracheal anesthesia, a horseshoe-shaped incision of the skin and subcutaneous fat with the base directed upward was made in the frontal region of the head. The edge of the skin-aponeurotic flap was moved towards the face and fixed. Hemostasis. Four burr holes were made in the frontal region, after which osteoplastic trepanation was performed using the standard method. The bone flap was carefully separated from the dura mater (DMA) and preserved for subsequent reconstruction. The bleeding was stopped by ligation of the dura mater vessels, its tension to the periosteum with fixation in the form of a "tent", bipolar coagulation, treatment with hydrogen peroxide (H_2O_2) and the use of hemostatic materials (Surgicell). Further stages of the operation were performed under an electron neurosurgical microscope. The tumor was totally removed by a microsurgical method with careful isolation from the vessels, muscles and dura mater. Bleeding from the dura mater was stopped by bipolar coagulation and a tension suture. A vinyl chloride drain was installed in the epidural space.

Final stage: The bone flap is put in place. The muscles, aponeurosis and skin are sutured layer by layer. Iodine-alcohol compression and an aseptic bandage are applied [Pic 2].

Pic 2. MRI of the brain after removing tumor totally



Histological material: Left-sided cranio-orbital tumor

Ready histological block No. 6871-74.

Microscopic description. Histopreparations reveal neoplastic tissue represented by islets/nested cell clusters, in places with signs of squamous cell metaplasia with the formation of keratinization foci. Cell nuclei are moderately hyperchromatic, with a low degree of atypia and rare mitoses. The tumor stroma is represented by a mesenchymal-like component consisting of myxoid, chondroid or fibrous tissue. Focal inflammatory infiltration and areas of necrosis are noted. At the same time, in individual foci, pronounced intraductal proliferation and epithelial dysplasia are determined. The histological picture is most characteristic of pleomorphic adenoma.

Conclusion. This clinical case demonstrates successful diagnostics and surgical treatment of a space-occupying lesion in the orbit. The patient underwent a planned frontolateral osteoplastic trepanation in the frontal region on the left. Using microsurgical technologies, it was possible to completely remove the intra- and extracranial cranio-orbital space-occupying lesion in the distal part of the lateral rectus muscle of the left eye. The operation was performed without intraoperative complications, adequate hemostasis was achieved. The use of modern microsurgical methods made it possible to minimize the trauma of the intervention and ensure a favorable postoperative period. This case emphasizes the importance of timely diagnostics and a multidisciplinary approach to the treatment of complex neuro-ophthalmological pathologies.

BIBLIOGRAPHICAL LIST

1. Gorokhov A. A. Otoneurosurgery.—SPb.: Peter, 2000.—186 p.
2. Zhagrin A.G. On the issue of surgical access for the removal of cranio-orbital tumors // Vopr. neurosurg.—1955.—№ 3.—P. 37–43.
3. Sozon-Yaroshevich A. Yu. Anatomical and clinical substantiation of surgical approaches to internal organs.—L.: Medgiz, 1954.—P. 7–80.
4. Cherekaev V.A., Belov A.N., Vinokurov A.G. Surgery of hyperostotic cranio-orbital meningiomas.—M., 2005.—P. 17.
5. Cushing H., Eisenhardt L. Meningiomas: their classification, regional behavior, life history and surgical end results.—Springfield.—1938.—P. 73.
6. Dandy WE Prechiasmal intracranial tumors of the optic nerves // Amer. J. Ophthalm.—1922.—Vol. 5.—P. 169–188.
7. Natori Y., Rhoton AL Transcranial approach to the orbit. Microsurgical anatomy // J. Neurosurg.—1994.—Vol. 81.—P. 78–86.
8. Aliev, M.A., et al. "Use of Magnetic Resonance Spectroscopy for the Diagnosis of Brain Tumor Recurrence." Journal of Applied Spectroscopy 89.5 (2022): 898-904.
9. Djalolov DA et al. Features of microflora in the etiological structure of diffuse appendicular peritonitis // Issues of Science and Education. - 2018. - Vol. 8. - No. 2. - P. 116.