



TRANS-SULCAL MICROSURGICAL APPROACH TO INTRA-CEREBELLAR LESIONS – TECHNICAL NOTE

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ABSTACT

Objective: We aimed at introducing in the everyday neurosurgical practices the trans-sulcus microsurgical approach to the treatment of intra-cerebellar lesions. **Materials and method:** We present 21 cases of patients with intra-cerebellar lesions treated surgically by trans-sulcal microsurgical approach at the Neurosurgical Clinic of Stara Zagora University Hospital. 11 of them are men and 10 are women, aged 27 to 75. 12 of them had glial tumors of the cerebellar hemispheres and 9 had cerebellar metastases. **Results:** The surgical interventions for the 21 patients went without any complications. In the early post-surgical period, all patients experienced a regress of the neurological deficit and improvement of the overall condition. **Conclusion:** The trans-sulcal microsurgical approach ensures less traumatic surgical interventions and preserves as much as possible the physiological and anatomical structures of the brain.

Key words: trans-sulcal approach, intracerebellar tumors – surgical treatment

INTRODUCTION

The subtentorial intra-cerebellar lesions occur less frequently compared to those in the supratentorial area. Tumors of the cerebrum occur in about 10 people out of 100 000. Approximately 15% occur in childhood. Of all intracranial tumors, 2/3 are malignant and 1/3 are benign (1). Tumors of the cerebellar hemispheres and vermis occur in adults and in children, having their specific features (2). In the last decades, the modern diagnostic possibilities of CT and MRI allow for their accurate location and the application of microsurgical techniques in the treatment of intra-cerebellar lesions allowed for improvement of the surgical approaches for subtentorial cerebellar lesions. Reaching the

lesion can occur directly via the incision of the cortex in an area where it is altered or through one of the deep cerebellar fissures (3). We aimed at introducing in the everyday neurosurgical practices the trans-sulcal microsurgical approach to the treatment of intra-cerebellar lesions.

MATERIALS AND METHOD

We present 21 cases of patients with intra-cerebellar lesions treated surgically by trans-sulcal microsurgical approach at the Neurosurgical Clinic of Stara Zagora University Hospital. 11 of them are men and 10 are women, aged 27 to 75. 12 of them had glial tumors of the cerebellar hemispheres and 9 had cerebellar metastases (**table 1**). For the surgical intervention we used Carl Zeiss surgical microscope, AESCULAP micro-set and ERBE 350 bipolar coagulator.

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Following sub-occipital craniotomy projected over the top of the process (**fig. 1**) localized prior to the surgery with CT and NMR tests, we opened the dura mater under optical enhancement. We localized and chose a sulcus (**fig. 2**) in which there were no large blood vessels. Using a micro-knife we cut the upper arachnoid layer after which we cut the sulcus

longitudinally with micro-scissors about 2-4 cm. We penetrated deeply into the sulcus to the lesion which was extirpated using bipolar forceps, aspirator and tumorfaszang (**fig. 3**). The dura matter was restored after thorough haemostasis, followed by layered restoration of muscles, fascia, hypodermic tissue and skin.

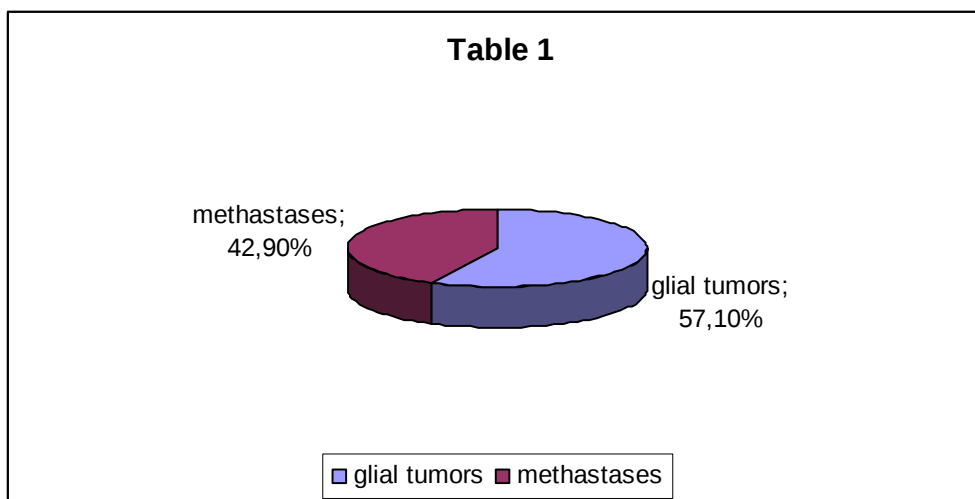


Table 1. Distribution of operated patients with intra-cerebellar lesions depending on the type of the lesion.

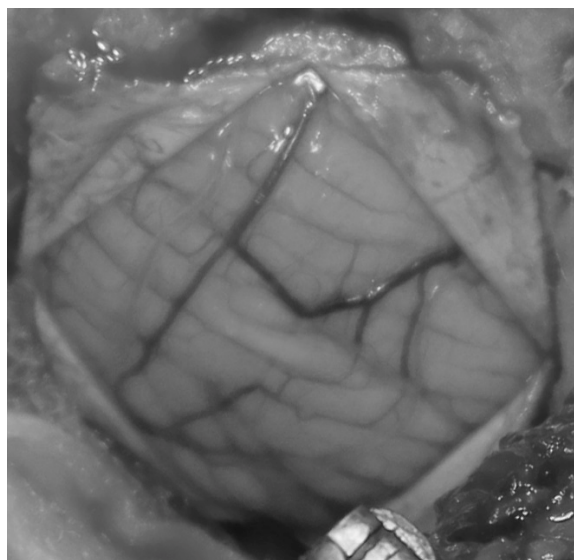


Fig. 1. Sub-occipital craniotomy projected over the top of the process.

RESULTS AND DISCUSSION

The surgical interventions for the 21 patients through trans-sulcal microsurgical approach went without any complications. (**fig. 4 and fig. 5**). In the early post-surgical period, all patients experienced a regress of the neurological deficit and improvement of the overall condition. Using of trans-sulcal approach, help to preserve as much as possible the functional and anatomical structures of the

brain (4, 5) without causing an additional trauma. Excision of the lesion should be done under a microscope by observing the rules of microsurgical technique (2). A thorough knowledge of micro anatomy is necessary both in selecting appropriate sulcus access to the lesion, and the safer and less invasive surgery (6). The surgical approach provide minimal discomfort for patients with more rapid recovery in the postoperative period.

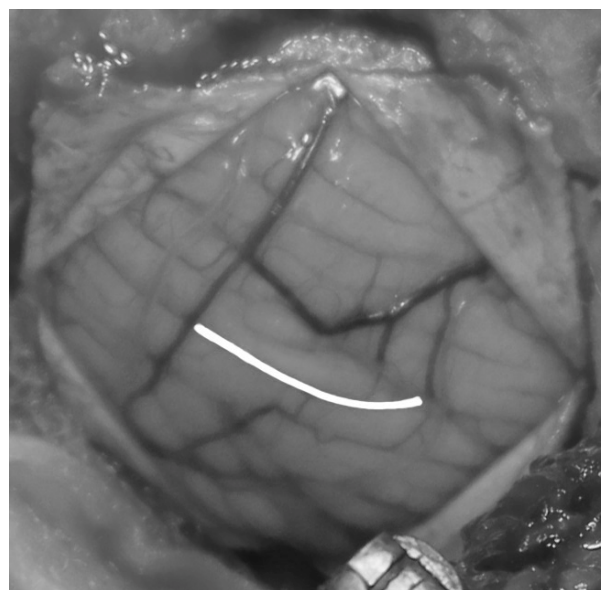


Fig. 2. Localizing and choosing of a sulcus

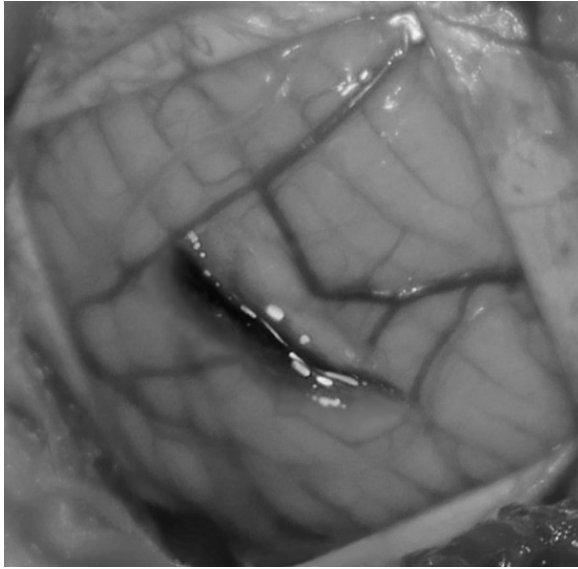


Fig. 3. The sulcus after the dissection.



Fig. 4. Pre – operative CT



Fig. 5. Post-operative CT

CONCLUSIONS

1. The trans-sulcal microsurgical approach ensures less traumatic surgical interventions.
2. Preserves as much as possible the physiological and anatomical structures of the cerebellum.
3. The surgical intervention creates the least amount of discomfort for the patient.
4. The recovery post-surgical period is fast and with minimum complications.

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