



Totally, last year the author operated 56 brain hemisphere gliomas of various degree of malignancy. Surgery outcomes in terms of tumor removal completeness and quality of life preservation in our patients will be presented during the conference. In addition, the pitfalls of practical intraoperative monitoring will be discussed.

Conclusions: The implementation of the IOM in eloquent areas glioma surgery in Mechnikov Dnipropetrovsk Regional Clinical Hospital marked the beginning of conceptual transition from surgery under visual control to the resection supported by eloquent areas mapping.

KEYWORD: IOM, glioma surgery, eloquent area, eloquent zona, results.

Pearls and pitfalls in caudal cranial nerve schwannomas surgery

Andrii Hryhorovych Sirko^{1,2*}

¹ Mechnikov Regional Hospital, Dnipro, Ukraine

² Neurology and Neurosurgery Department, Dnipropetrovsk State Medical University, Dnipro, Ukraine

Перлини та підводні камені в хірургії шванном каудальних черепних нервів

Сірко Андрій Григорович^{1,2*}

¹ КП «Дніпропетровська обласна клінічна лікарня ім. І.І. Мечникова» ДОР, Дніпро, Україна

² ДЗ «Дніпропетровська державна медична академія МОЗ України», Дніпро, Україна

Background: Caudal cranial nerves schwannomas (CCNS) are quite rarely encountered in neurooncology, but represent certain difficulties for a surgeon, while treatment outcomes cannot be considered successful. Tumors grow from one of the following cranial nerves: glossopharyngeal, vagus, and accessory nerves. Such tumors make up to 2.9-4.0% of all intracranial schwannomas.

The aim of our study: Analysis of own CCNS case study and modern literature on this matter with subsequent formulation of current approaches to surgical treatment of this type of tumors.

Methods: 6 CCNS patients were operated for the last 5 years (2016-2020) in the Neurosurgery Clinic at Mechnikov Hospital (Dnipro, Ukraine). One patient had been previously not quite successfully operated in another clinic (the operation ended with biopsy due to bleeding and evident bradycardia). Subsequent insertion of a ventriculoperitoneal shunt resulted in a short-term effect, which required reoperation in our clinic. Another patient had been previously operated in another clinic, where the extracranial (cervical) part of the tumor was removed. All operations were carried out by the author of the study. Brain MRI (1.5 T in T1, T2, Flair, DWI, and T1 modes with intravenous enhancement) and helical computed tomography angiography were performed preoperatively for all patients.

Results: Two women and four men were operated. The average age was 41.3±3.8. Three tumors were right-side and three left-side. All patients had headache, vertigo, hearing deficiency, and coordination dysfunction. Three patients had bulbar palsy, horizontal and vertical nystagmus. Retrosigmoid approach was used in all cases. In two case, the surgery was performed with endoscopic assistance and neuronavigation control. Intraoperative neurophysiological monitoring of cranial nerves function was performed in all patients. Total removal of intracranial part of a tumor was carried out in all cases. A histopathology report confirmed the presence of a benign schwannoma (grade I) in 5 cases and anaplastic schwannoma (grade III) in 1 case. External ventricular drainage was carried out for postoperative acute hydrocephalus treatment in 1 patient. Facial nerve palsy occurred

postoperatively in 1 case. 3 patients had temporary bulbar palsy progression, which required nasogastric tube placement. Only one patient had stable bulbar disorders, which required tracheostomy tube placement.

Conclusion:

- 1) Retrosigmoid approach is optimal for removing type A, B1, and B2 tumors and extracranial part of type D tumors.
- 2) Given the CCNS location, even in case of preserved integrity of structures surrounding a tumor, postoperative period involves the risk of postoperative complications (occlusal hydrocephalus) and new neurologic impairment.
- 3) Intraoperative neuromonitoring of cranial nerves function is an important stage of a surgery.
- 4) Using angled endoscopes for assistance allows removing a jugular foramen tumor. It is appropriate to use transcervical approaches to remove an extracranial part of a tumor.

Mortality and functional outcome predictors in combat-related penetrating brain injury treatment in a specialty civilian medical facility

Andrii Hryhorovych Sirko^{1,2*}, Serhii Anatoliiovych Ryzhenko¹, Liudmyla Antonivna Dzyak²
Mykola Oleksandrovych Zorin²

¹Neurosurgery Department, Mechnikov Dnipropetrovsk Regional Clinical Hospital, Ukraine

²Nervous Diseases and Neurosurgery Department, Dnipropetrovsk State Medical Academy.Ministry of Healthcare of Ukraine, Dnipro, Ukraine

Introduction: The combined use of new types of weapons and new types of personal protective equipment has led to changes in the occurrence, nature, and severity of penetrating brain wounds. The availability of modern equipment, methods of treatment, and trained medical personnel in a civilian hospital, as well as advanced specialty medical care, has improved treatment outcomes. There have been a limited number of publications regarding analysis and predictors of treatment outcomes in patients with combat-related penetrating brain injury in contemporary armed conflicts. The purpose of this study was to analyze the results of surgical treatment of patients with penetrating brain injury and to identify significant outcome predictors in these patients.

Materials and Methods: This was a prospective analysis of penetrating brain injury in patients who were admitted to Mechnikov Dnipropetrovsk Regional Clinical Hospital (MDRCH), Ukraine, from May 9, 2014 to December 31, 2017. All wounds were sustained during local armed conflict in Eastern Ukraine.

Overall, 47 (38.8%) patients were in a comatose state (GCS score of 3–8), and 9 (7.4%) patients had a terminal state. In 101 (83.5%) patients, wounds were caused by mine blast fragments, whereas wounds in 20 (16.5%) patients were caused by small-arm bullets. The most frequent wounds were non-perforating and ricochet types, which were detected in 73 (60.3%) and 29 (24%) patients, respectively. Penetrating wounds occurred in 14 (11.6%) patients and gutter wounds occurred in 5 (4.1%) patients. Nearly half of the patients (50.4%) were diagnosed with isolated wounds. Fifty-five (45.5%) patients were diagnosed with combined wounds. In those patients, skull and brain wounds were combined with extracranial wounds (face, body, limbs, chest, abdominal cavity, and pelvic organs). A high percentage of combined wounds is associated with a high frequency of use of modern mine blasting devices. Five (4.1%) patients had combined wounds that, in addition to mechanical injuries from the injuring shell, included scalp and face burns of varying severity. These injuries were typically caused