

## STATEMENT

From **Prof. Dr. Hristo Tsekov Tsekov**, MD, Head of Neurosurgical Department of Acibadem CityClinic UMBAL Tokuda EAD, Sofia

Regarding: The dissertation work of Dr. Lili Naskova Laleva, neurosurgeon at the Neurosurgical Department of Acibadem CityClinic UMBAL Tokuda EAD on the topic of "Minimally invasive extended lateral orbital approach for intraorbital and intracranial pathology" for the educational and scientific degree "Doctor", in the field of higher education 7. Health care and sports, professional direction 7.1 Medicine, doctor's program "neurosurgery", with research supervisor, Assoc. prof. Dr. Vladimir Nakov, MD.

Doctor Lily N. Laleva was born on 29.06.1985 in Sofia and is a citizen of the Republic of Bulgaria. She graduated the First English Language High School - Sofia in 2004. In 2010, she graduated with honors from the Medical University - Sofia.

She acquired a specialty in neurosurgery seven years later, also at the Sofia University. In parallel, she studied Health Management, which she graduated in 2016 with a master's degree. During her studies, Dr. Laleva was an active member of the students' neurosurgical society at Medical University Sofia. As a young doctor, she was awarded with several impressive awards: "Young Doctor" (2017), Prof. Asen Zlatarov (2008), Prof. Metodi Popov (2008) and a number of others. She has undergone observerships in a number of leading universities (Italy, Germany, Denmark, Spain, Japan), participated in a number of international scientific projects, conferences, seminars. Author and co-author of 26 scientific publications, some of which with a high Impact Factor: Journal of Neurological Surgery Skull Base; World Neurosurgery; Surgical neurology International;; Psychiatria Danubia; AJNS; Bulgarian Neurosurgery; Journal of Medical Case Reports; Khirurgia - Sofia; Journal of the Royal Society of Medicine; Bulgarian Medical Review; Receptor. She presents 61 summaries of participation in scientific congresses and symposiums at home and abroad.

She speaks in English, Italian, German and Spanish languages and has very good computer literacy.

She is a member of the European Association of Neurosurgery, the European Association of Minimally Intensive Neurological Therapy, the Bulgarian Society of Neurosurgery, the Bulgarian Medical Association.

On 22.07.2019 was held an extended scientific collegium of the neurosurgical department and was issued Order /No. 271 of 10.07.2019 of Dr. Venelina Atanasova, Executive Director of Acibadem City Clinic UMBAL Tokuda Hospital EAD, Sofia/ with which Dr. Laleva was enrolled for a doctoral program of independent preparation with the supervisor of associate professor Dr. Vladimir Nakov. On 25.07.2022, convened by Order 15.05-109 of 8.7.2022 of the Executive Director Dr. Venelina Atanasova and Procurator Mr. Burra Susam of Acibadem CityClinic UMBAL Tokuda EAD, Sofia new extended scientific collegium, on which it was decided that the dissertation work of Dr. Laleva is completed and can be presented on public.

The dissertation is presented on 153 pages, illustrated with 32 figures including 8 author's original illustrations, 10 diagrams and 6 tables. It is written in stylistically and grammatically correct Bulgarian language, practically without errors. The reference covers 250 titles, of which 7 are by Bulgarian authors published in Latin. There is not a single title in Cyrillic. The reference is comprehensive, well selected, and up to date. The aim of the present dissertation logically follows from the literature review: To study and describe the anatomical and clinical application of extended lateral orbital approach as a minimally invasive anterolateral approach in neurosurgical practice during operative interventions for tumor and vascular intracranial pathology". To achieve this goal, six tasks have been set, encompassing the necessary information in a large format, channeling it into the tasks thus set: determination of the operative anatomical corridors in the application of various operative techniques: microsurgical, endoscopic, neuronavigation with determination of the anatomical landmarks and features in each of them. Analyzes the main characteristics of each approach, its specifications and last but not least the cosmetic effect

It compares each of these approaches with the standard approaches preferred in practice, looking for differences and similarities between them, applying statistical processing to confirm the reliability of each result. Anatomical studies were carried out in the Laboratory of Surgical Anatomy at the Medical University - Barcelona on cadavers with similar diagnostic and operative techniques available at the Neurosurgical Department, which allows for reliability when comparing the results. The operated patients were placed into two groups, depending on the pathology - patients with meningiomas in the area of the anterior and middle cranial fossa (15 patients with tumors of the sphenoid wing, sphenoorbital of the clinoid process and tuberculum sellae, operated transorbitally and a control group of 53 patients with similar pathology operated transcranially) and patients with vascular pathology-ruptured aneurysms of the anterior and middle cerebral artery (19 patients compared with a group of 65 patients operated with transcranial approaches). The anatomical and clinical part of the material was conducted with the direct participation of the dissertation student in all cases. In the clinical practice, a non-randomized cross-sectional study was conducted in one institution. A comparison was made according to some basic parameters: adequacy of intraoperative exposure, duration of the operative intervention, intraoperative problems, hospital stay, operative complications, cosmetic result. Each of these parameters is analyzed comprehensively, in detail. Analyzing the results of the study, the author reached the following eight conclusions: 1. The extended lateral orbital approach is a minimally invasive and direct approach that can be used as an alternative for a large part of neurosurgical pathology, standardly treated with pterional access and its variations after selection of patients according to the formed criteria. 2. The adapted extended lateral orbitotomy includes parts of the frontal bone and pterion, realizing four targeted endoscopic corridors. 3. The choice of this approach does not compromise the radicality of the tumor resection, the possibilities for aneurysm clipping and for the application of technically complex manipulations such as anterior clinoidectomy and control of intraoperative aneurysmal rupture. 4. In comparison with conventional transcranial operative approaches, the extended lateral orbitotomy is

associated with more limited tissue dissection and resection, which reduces the risk of some complications. 5. The duration of individual anterolateral accesses, complications and hospital stay were without statistically significant differences. 6. The approach can be realized with microneurosurgical, endoscopic and combined operative techniques. 7. In clinical settings, the approach is not associated with serious complications. 8. The approach is with excellent

cosmetic results. The conclusions drawn are correctly linked to the respective contributions. Contributions of a scientific-theoretical nature: 1. An extensive literary analysis of the anatomical and historical factors preceding the introduction of the lateral orbitotomy in neurosurgical practice was made. 2. Anatomical research was carried out in laboratory conditions combined with neurosurgical anatomy and development of operative corridors to the corresponding pathology. Contributions of a methodical nature: A practically applicable operational approach has been developed, mainly describing the indications and risk moments in its clinical application. Contributions of a scientific - applied nature: 1. Criteria for the selection of patients suitable for extended orbitotomy have been formulated. 2. The steps for the implementation of the operational corridors are described in detail. 3. The specific stages and technical nuances in the implementation of access are described in detail. 4. The postoperative period is described and analyzed in detail in terms of clinical course, complications, cosmetic result.

A detailed and extremely well-illustrated 90-page abstract has been developed. Attached to the dissertation are eight full-length articles, four abstracts from congresses and other scientific forums.

The submitted dissertation work is presented in full, accompanied by an abstract and copies of protocols and documents confirming the fulfillment of all statutory requirements for public presentation. All deadlines required by the Law on the Development of the Academic Staff in the Republic of Bulgaria have been met. The dissertation is well constructed, intelligently written, impressive with particular detail in some of the descriptions. Minor stylistic and grammatical errors have been made, which do not change the overall impression of a well-done work. The anatomical part of the dissertation work was developed in the Anatomical Laboratory of the MU in Barcelona, and the clinical part in the Acibadem City Clinic UMBAL Tokuda Hospital EAD, with full compliance in the operative technique used and all these actions were carried out with the direct participation of the doctor. An exceptional and promising symbiosis in international cooperation. The literature review, materials and methods, statistical analysis allow to easily draw practical conclusions and contributions. The dissertation meets all the conditions and requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations of Acibadem City Clinic UMBAL Tokuda Hospital EAD, which allows me to vote with pleasure for awarding the educational and scientific degree "Doctor of Philosophy" to D Dr. Lily Laleva.

20.12.2022

Prepared the statement: