

OPINION

by **Prof. Dr. Georgi Todorov Kalaydjiev, D.M.**

Head of the Thoracic Surgery Department at the Thoracic Surgery Clinic
USBALO - EAD "Prof. Ivan Chernozemski" Sofia

of a dissertation for awarding the educational and scientific degree 'doctor'
professional field: **Medicine**, doctoral program: **Thoracic surgery**

Author: **Dr. Dimcho Dimitrov Argirov**

Form of doctoral study/program: independent study

Department: "Special Surgery", Faculty of Medicine, Medical University, Plovdiv

Topic: **"Ultrasound-guided transthoracic cutting biopsy - role and importance in the diagnosis of peripheral lesions of the lung, mediastinum and chest wall"**

Scientific supervisor: **Prof. Dr. Angel Uchikov, Ph.D.**

In order to prepare an opinion, the following materials were provided to me in electronic form: a dissertation, an abstract and a European format CV. Pursuant to Order No. R-669/28.02.2024 of the Rector of MU Plovdiv, all other required documents have been submitted by the doctoral student to the Scientific Department of MU Plovdiv, which allows the initiation of the dissertation defense procedure. For this reason, I believe that the doctoral student fulfills the requirements of Art. 70 (1) of Section I. Acquisition of educational and scientific degree "DOCTOR" and scientific degree "DOCTOR OF SCIENCES" at MU-Plovdiv; Regulations of MU-Plovdiv from 28.01.2021.

The doctoral student has provided three full-text publications in refereed medical journals (two in Bulgarian and one in English) and one participation in a national scientific forum (virtual).

Dr. Dimcho Dimitrov Argirov was born on 06.05.1964, he completed his secondary education at Kliment Ohridski High School, Elhovo - 1979-1982, and his higher education at the Higher Medical Institute - Plovdiv, majoring in medicine, 1984.-1990. He began work as a resident in the III surgical clinic of UMBAL "St. Georgi" Plovdiv, later in the Thoracic Surgery Clinic of the same hospital, and since 2014 - a resident in the Thoracic Surgery Clinic of the UMBAL "Kaspela" Plovdiv. From the beginning of his career, Dr. Argirov has also been engaged in research and teaching activities as an assistant, later a senior and chief assistant at the Department of Special Surgery of the Medical University of Plovdiv. He has acquired three medical specialties: General surgery, Thoracic surgery and Health management. He has passed two qualification courses - in

laparoscopic surgery and in abdominal ultrasound. There are 29 publications and 16 participations in national congresses with international participation.

From what has been said so far, it can be seen that Dr. Dimcho Argirov is an established, experienced thoracic surgeon with proven professional skills and abilities. In his professional career, he made continuous progress, in the same way his scientific - teaching activity has been also developed. Logically and consistently, the next step in his development is reached - preparation and presentation for the defense of a dissertation work for awarding the educational and scientific degree "doctor".

The dissertation is written on 119 typewritten pages, illustrated with 26 figures, 12 tables and 1 appendix. The bibliographic reference includes 239 sources, of which 9 are in Cyrillic and 230 are in Latin. The dissertation work has been approved and directed for defense at the extended departmental council of the Department of Special Surgery at the MU- Plovdiv held on 13.02.2024. with Protocol No. 3.

The morphological diagnosis of intrathoracic tumors is a permanently relevant problem concerning various specialties - pulmonary diseases, thoracic surgery, medical oncology, etc. The improvement of methods for tissue diagnosis is an area that undergoes continuous development in scientific, methodological and applied field.

In light of the above, the topic of the presented dissertation work is relevant and implies the provision of scientific and applied contributions. In terms of methodology, the dissertation is competently constructed, the chosen goal is achievable, the tasks set for its realization are well formulated and feasible.

The author makes a broad literature review and critically analyzes data from specialized scientific periodicals. The capabilities and features of transthoracic ultrasonography are described in great detail. Much data has been presented on the diagnostic reliability of UGTTCB. As a remark, the inaccurate citation of the data from the dissertation work of Dr. R. Petkov from 2011 can be pointed out.

The material of the dissertation is sufficient - for a period of 2 years, 264 patients were treated, divided into groups suitable for the performance of the tasks, allowing adequate statistical processing. A control group of 34 patients was also formed to verify the conclusions of UGTTCB by other methods, including thoracotomy, VATS, FBS, mediastinoscopy, etc. The indications and contraindications for performing ultrasound-controlled transthoracic cutting needle biopsy are presented, as well as the methodology for its implementation. The study material is reliable, patients from one thoracic surgery unit in one hospital were examined.

The results of the study are presented in detail in order to answer the set tasks. Appropriate statistical methods were used, modern statistical software was applied. Accuracy, sensitivity, specificity, negative and positive predictive index were calculated for all compared methods, which is the correct approach when evaluating diagnostic methods.

The low rate of complications after UGTTCB is impressive – 2.66% post-procedural pneumothorax; 0.76% hemoptysis; 0.38% hemorrhage and 0.38% vasovagal attack.

The discussion of the obtained results is presented critically and competently, the own results are compared with the data from the specialized literature.

In conclusion, the author points out that due to the proven high sensitivity and specificity and high security, ultrasound-guided transthoracic cutting needle biopsy can be accepted as the method of first choice for the morphological diagnosis of all peripheral thoracic lesions accessible for ultrasound visualization. In this connection, a diagnostic algorithm was proposed, reflecting the modern methodology for tissue diagnosis of thoracic formations.

The conclusions at the end of the study are well formulated and correspond to the set goals and objectives of the dissertation work. The author points out that the performance of UGTTCB by a surgical team with an acquired thoracic surgical specialty is essential and is a guarantee for successfully dealing with any complications that may arise at the time of the biopsy. This confirms the old maxim that a diagnostic procedure should be performed by a physician who can handle the possible complications of the procedure. In this case, however, the author correctly notes that the thoracic surgeon must also have a high level of competence in handling ultrasound diagnostic equipment.

As a result of the dissertation study, mainly scientific-applied and methodical contributions were obtained. Most of the contributions are of a confirmatory nature. Evidence that UGTTCB is a safer technique when performed by a thoracic surgeon can be considered original. For the first time, a real comparison of the results of modern imaging methods and those obtained by UGTTCB is made. The causes of errors in UGTTCB are analyzed and a specific approach to overcome them is proposed.

In connection with the dissertation, the doctoral student has provided three full-text publications in refereed medical journals (two in Bulgarian and one in English) and one participation in a national scientific forum (virtual). In all three publications he is the first author and the main results of the study are presented.

As a critical note, I reproach the doctoral student for the presence of quite a few typographical (and in some places also terminological) errors in the dissertation work and abstract provided in electronic form.


The abstract meets the standard requirements. As a content, it is properly constructed and in a synthesized form reflects the material, methods and results obtained in the dissertation work.

The dissertation *contains scientific-applied and methodological results that represent an original contribution to science and meet all the requirements* of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for the Implementation of LDASRB and the Regulations of Medical University - Plovdiv. The presented materials and dissertation results fully correspond to the specific requirements adopted in connection with the Regulations of Medical University - Plovdiv for the application of the LDASRB.

The dissertation shows that the doctoral student, Dr. Dimcho Dimitrov Argirov, **possesses** in-depth theoretical knowledge and professional skills in the scientific specialty of thoracic surgery, **demonstrating** qualities and skills that have enabled the independent conduct of scientific research.

Due to the above, I confidently give my **positive assessment** of the conducted research, presented by the above-reviewed dissertation work, abstract, achieved results and contributions, and I propose to the honorable scientific jury to award the educational and scientific degree "doctor" to **Dr. Dimcho Dimitrov Argirov** in a doctoral program in Thoracic surgery.

March 17, 2024.

The opinion was prepared by: 

Заличено на основание
Чл.5 §1, б."В" Регламент (ЕС)2016/679

Prof. Dr. Georgi Todorov Kalaydjiev, D.M.