

REVIEW

From

Prof. Dr. Penka Peneva Stefanova - Peeva Ph.

Head of Clinic of Pediatric Surgery

University Hospital "St. George" - Plovdiv

Medical University - Plovdiv

dissertation for the award of the educational and scientific degree "PhD"

professional field MEDICINE

Doctoral Program in Pediatric Surgery

Author: dr. Nikola Kostadinov Kartulev M.D.

Form of the PhD: free

Scientific Unit: Department of Pediatric Surgery

UMABLMS "N.I.Pirogov"

Topic: '*Bronchoscopic obturation for persistent air leak after video-assisted thoracoscopic abscessotomy in childhood*'

Scientific supervisor: prof. dr. Hristo Shivachev, Ph.

1. General presentation of the procedure and the PhD student

The submitted set of materials on paper and electronic media is in accordance with the requirements of the Law on the Development of Academic Staff of the Republic of Bulgaria, the Regulations for its implementation and the Regulations for the Development of Academic Staff of the University Hospital "N.I. Pirogov" EAD - Sofia. The set of documents is complete and contains

Dissertation;

Abstract;

CV;

Diplomas and Certificates;

List of publications and participation in scientific forums;

Reference on the fulfilment of the scientific-metric criteria;

Administrative documents, according to the Regulations for the development of the academic staff of "UMHALSM N.I.Pirogov" EAD - gr. Sofia - orders for enrolment, dismissal, scientific jury, declarations of conflict of interest and authenticity of the data presented;

The doctoral candidate has applied 4 publications in connection with the dissertation.

2. Brief biographical data about the PhD student

Dr. Nikola Kostadinov Kartulev was born on 08.12.1989. He graduated from Medical University of Sofia in 2014. Since 2015 he started working at the Clinic of Pediatric Surgery at the University Hospital "N. Pirogov". He started his studies in the Department of Surgery at the "Pirogov" University Hospital. In 2021 he acquired a specialty in "Pediatric Surgery". He underwent specialized courses in the field of laparoscopic surgery. Currently he is a specialist in "Thoracic Surgery". He holds a certificate in VSD - 2021. Conventional Gastrointestinal Endoscopy, 2022. - Interventional Gastrointestinal Endoscopy, 2023. - Bronchology Level I, 2024 - Bronchology Level II. He is a member of the Society of Paediatric Surgery and SCIOP EUROPE. Fluent in English.

3. Relevance of the subject matter and appropriateness of the set goals and objectives

In his dissertation, Dr. Kartulev discusses the introduction of bronchoscopic obturation with a synthetic obturator in children after video-assisted abscessotomy. The advantages of minimally invasive methods as stages in the treatment of children with PPPU are described in detail. By means of VATH, adequate sanitation of the pleural and thoracic cavities was achieved, and bronchoscopic obturation eradicated prolonged air leaks. The goal is consistent with the principles of minimal trauma and maximal organ preservation. The resulting tasks are clearly defined showing an in-depth knowledge of the problem. The indications have been defined and a comprehensive diagnostic and treatment algorithm for this nosological entity has been established. The data show that the methodology has been successfully introduced as routine in practice.

4. Knowledge of the problem

In his dissertation, Dr. Kartulev has discussed in detail the complications of pneumonia, the historical aspects of bronchoscopic obturation, and a number of minimally invasive treatment modalities for patients with air-liquids.

In the clinical material the author included 120 patients aged up to 18 years treated in the Pediatric Surgery Clinic of the University Hospital "N.I. Pirogov" for the period 2015-2023.

5. Research methodology

The dissertation contains 118 pages and a 10 page Bibliography. It is illustrated with 62 figures and 19 tables. The bibliography contains 124 references.

The dissertation covers a period of 9 years: from 2015 to 2023 inclusive.

The literature review is in 34 pages and is well structured. It contains definitions and classifications of complications of pneumonia. It details the historical aspects of bronchoscopic obturation and discusses various minimally invasive treatment modalities for persistent pneumonia.

The aim and objectives of the author are clearly defined.

Material and methods

Dr. Kartulev presents the results of the diagnosis and treatment of 120 children with PPPU treated in the Department of Pediatric Thoracic Surgery at the Pediatric Surgery Clinic of the University Hospital "N.I. Pirogov". The patients were divided into three groups according to the course of the disease and different methods of treatment.

Detailed demographic characteristics of the patients studied are given.

Clinical material is illustrated in detail in numerous tables and figures as well as clinical cases from practice.

In the comparative analysis and discussion of results, statically significant differences in patient stay, prolonged drainage time, and lung parenchyma loss were recorded.

Based on the results, nine conclusions are formulated that meet the stated aims and objectives.

Contributions and Significance of the Development for Science and Practice

6. *The following contributions of the dissertation are outlined:*

1. A detailed literature review is performed on the possibilities offered by minimally invasive methods in the treatment of patients with persistent air-liquids.
2. The advantages of bronchoscopic obturation compared with conventional surgical methods are demonstrated. Prolonged drainage time was reduced by an average of 3.7 days and hospital stay by an average of 5.66 days. Success rate of bronchoscopic obturation was achieved in 94% of cases. Operative intervention was required in three children (6%) after failed obturation. Only atypical resections were performed in the area of one lung segment. In contrast, in the group in which TT with resection surgery was performed, the loss of lung parenchyma occurred in 100% of the cases and in varying volumes, from atypical resection to lobectomy.
3. Manipulation has been introduced as a routine procedure in practice and the existing management algorithm for patients with PSU and PPU has been upgraded.
4. In the course of the learning curve, criteria for the timing and duration of bronchoscopic obturation were constructed.
5. The technique achieves success not only in patients after VATS-abscessotomy. This allows for application in other diseases with air-liquage, for which further study of the effect of the procedure is necessary

Assessment of the publications on the thesis

Dr. Kartulev has submitted a list of 39 publications, participation in scientific forums with papers and posters, four of them related to the dissertation.

Personal participation of the PhD student

The dissertation is the personal work of the PhD student, under the supervision of his supervisor, showing very good theoretical knowledge and practical skills to carry out independent research.

7. Abstract

The abstract is prepared according to all requirements and adequately presents the scientific work. It reflects the content and the main results of the dissertation.

8. Critical comments and recommendations

There are minor grammatical errors in the material presented, which does not detract from the content.

As a recommendation, I suggest that this extensive clinical material and the successes achieved be shared in a monograph.

9. Personal impressions

I know Dr. Kartulev as an outstanding young pediatric surgeon with significant skills in both minimally invasive pediatric surgery and general pediatric surgery. He is ambitious, capable and knowledgeable and is keen to pass on his knowledge to younger colleagues.

CONCLUSIONS:

The dissertation contains scientific, scientific and applied results that represent an original contribution to science and meet all the requirements of the Law for the Development of Academic Staff in the Republic of Bulgaria (LADAB), the Regulations for the Implementation of the LADAB and the relevant Regulations of the University Hospital "N.I. Pirogov". The submitted materials and dissertation results fully comply with the specific requirements of the University Hospital "N.I. Pirogov". The dissertation work shows that the doctoral student Dr. Nikola Kostadinov Kartulev possesses in-depth theoretical knowledge and professional skills in the scientific specialty of Pediatric Surgery, demonstrating qualities and skills for independent scientific research.

Due to the above, I give my positive evaluation for the conducted research, presented by the above reviewed dissertation, abstract, achieved results and contributions, and I propose to the honorable scientific jury to award

the educational and scientific degree of '**Doctor**' to Dr. Nikola Kostadinov Kartulev in the doctoral program in "Pediatric Surgery".

29.05.2024

Prof. Dr. P. Stefanova - Peeva Ph.