

## **REVIEW**

Member of the Scientific Jury according to Order № P109-438 / 07.10.2021. of a dissertation for the award of educational and scientific degree "**Doctor**".

**Professional field:** 7.1. "Medicine", scientific specialty "Otorhinolaryngology"

**Author:** Dr. Assen Georgiev Assenov

**Topic:** "**VOICE REHABILITATION OF LARYNGECTOMYED PATIENTS THROUGH VOICE PROSTHESES**"

**Member of the Scientific Jury who prepared the review**

- Assoc. Prof. Dr. Alexander Valkov Valkov, MD, PhD Department of Ophthalmology, ENT Diseases and Oral and Maxillofacial Surgery with Surgical Dentistry, Sector of Ear, Nose and Throat Diseases, Medical University of Pleven, Pleven.

### **GENERAL PRESENTATION OF THE PROCEDURE**

The presented set of materials on paper and electronic media is in accordance with the requirements for acquiring the "Doctor" according to the Law for the Development of Academic Staff in the Republic of Bulgaria and the Regulations of the Medical University - Varna and includes:

Application (according to the sample) to the Rector of MU-Varna

Curriculum vitae in European format

Copy of Master's degree diploma

Enrolment order

Examination protocol for doctoral minimum

Protocol from the Department meeting with a positive decision on the preparedness for defense

Order for deduction with the right to protection

Declaration of originality

Dissertation work on "Doctor" and an abstract to it

List of publications related to the topic of the dissertation

Copies of the publications related to the topic of the dissertation

Declaration of originality

Declaration of authenticity of the submitted documents

Other documents related to the course of the procedure

The presented package of administrative documents has been prepared precisely and thoroughly.

### **BRIEF BIOGRAPHY**

Asen Georgiev Asenov graduated with a master's degree in Medicine from the Medical University of Plovdiv in 1997. His professional development is associated with continuous improvement. He has acquired a specialty in ENT Diseases (Diploma № 000472 from 2003). He graduated in 2011. He also has a second master's degree in "Public Health and Health Management" at the Faculty of Public Health of the Medical University - Plovdiv (MUP 09 Diploma № 008909 from 18.07.2011).

Dr. Asenov began his career as an ENT resident at the 1st City Polyclinic, Plovdiv, immediately after graduating. Since 2000 and continues in MHAT "Plovdiv" AD in the ENT department, as of 2009 he is the head of department.

Active in research and teaching activities Dr. Asenov started in 2016, when he was appointed to the academic position "Assistant" at the Department of ENT Diseases at MU Plovdiv.

Dr. Asenov has extensive professional experience. He is constantly improving his qualification with over 20 additional courses at home and abroad in the field of his scientific interests.

He actively teaches students of medicine and dentistry at the Medical University of Plovdiv in Bulgarian and English. He is a member of prestigious international and national organizations: Bulgarian Society of Otorhinolaryngology; Bulgarian Rhinological Society; PVSF Pacific Voice of San Francisco; ERS European Rhinology Society; SAPAAC - The Society of Asia Pacific Anti-Aging Course. Fluent in written and spoken English.

### **ACTUALITY OF THE TOPIC**

The topic of the dissertation is well chosen in terms of significance of the problem, actuality at the moment and projection into the future. The importance of cancer is becoming increasingly recognizable, as are the challenges in managing this medical and social problem. In addition, more and more attention is being paid to the possibility of ensuring the quality of life of this group of patients. It is in this direction that the dissertation is developed.

### **CHARACTERISTICS AND EVALUATION OF THE DISSERTATION**

In terms of content and structure, the dissertation meets the requirements for the defense of the PhD. It is written on 114 standard pages. It is illustrated with 20 figures and 1 table. It is

structurally divided into five main parts, preceded by an introduction. The scientific work ends with conclusions, scientific contributions, literature and applications.

The scientific development begins with an introduction in which Dr. Asenov presents the importance of the chosen topic and the need for its development.

The literary review as content, logical structure and sources shows the possibilities and skills of Dr. Asenov to work with scientific sources, to critically analyze and summarize them. 185 sources were used, 15 of which were in Cyrillic. All of them are relevant to the researched issues. The number of cited publications from the last 10 years is significant, which is another confirmation of the actuality of the topic. The physiology of speech and the methods known in practice for voice rehabilitation in patients which have undergone laryngectomies are considered with a high degree of precision. The specialized literature is appropriately selected, which objectively presents the considered techniques, the need to assess the patient's condition, including the patient's education.

The set goal and the 6 main tasks related to its implementation are logically formulated. The aim is to analyze the experience of two Bulgarian centers for voice rehabilitation of patients with total laryngectomies and with voice prosthesis in order to optimize the practical approach to these patients.

The chapter "Material and methods" presents a complex methodology of self-developed and standardized techniques. Each of the methods and the respective target group in which it is applied are precisely described; the selection of participants; inclusion criteria. This allows detailed monitoring of the work at each stage. The requirements for the selection of logical units have been met, and prior informed consent for their participation in the study has been obtained.

51 patients (47 men and 4 women) were included after a total laryngectomy in two ENT centers at the University Hospital "PLOVDIV" AD and ENT Clinic at the University Hospital "St. MARINA" Varna. The applied operative techniques are described in detail, which includes: standard with Haslinger esophagoscope, modified hollow trocar, central venous catheter, steel guide and foil catheter and modified Lichtenbergerger-Brown technique for tracheosophageal puncture. The necessary instruments have been selected very precisely: EENC (endo-extralaryngeal needle holder), nelaton catheter, Macintosh laryngoscope. Video fluoroscopy was used for preoperative assessment of local status and choice of voice prosthesis size.

In the processing of the obtained primary data, adequate statistical methods have been used, which make it possible to draw significant conclusions for the practice.

The analysis of the collected data is presented competently and thoroughly in the chapters "Results" and "Discussion", observing the logical sequence of the tasks. The results of the study are interpreted correctly in relation to the main indicators. A standard technique is presented in which patients speak up to an average of 6 hours after prosthesis placement. Two cases of mediastinitis with subsequent closure of the fistula and 2 cases of lateral myotomy of pharyngeal constrictors have been reported, with one patient speaking 5 days later and the other having a pharyngocutaneous fistula closed with a pectoral flap.

The main phonological characteristics of tracheoesophageal speech are analyzed - duration, average number of words with one expiration in patients through TEP, speech rate. It is noteworthy that the average effective life of a voice prosthesis is 185 days against 85 days by international standards.

A critical analysis of this technique was made, presenting the complications that occurred during its application, formed into the following groups: mild complications, relatively life-threatening complications and those with absolute danger to life.

The characteristics of the cohort of laryngeal prosthetic patients are described and analyzed.

The first results with our own modified surgical technique are presented

Results of comparative analysis in Bulgarian patients of voice production in 2 types of alaryngeal speech - Esophageal speech and such through voice prostheses are presented.

An in-depth analysis of non-surgical problems and challenges to the voice rehabilitation of laryngectomized patients through TEP and implantation of voice prostheses in our country is presented.

The conclusions made reflect in a synthesized form the main aspects of the study.

The results of the study allow Dr. Assenov to formulate contributions of original and practical nature. An original modified Lichtenberger method for tracheoesophageal fistulization has been introduced, which avoids complications such as injury and penetration of the posterior wall of the esophagus. Video fluoroscopy has been introduced, which objectifies the thickness of the tracheoesophageal septum and the position of the inner flange of the voice prosthesis.

The conducted comparative phonetic analysis between sound production by means of esophageal, alaryngeal speech and such after placement of a voice prosthesis, objectifies the indisputable advantages of alaryngeal speech by means of a voice prosthesis. An important contribution is the popularization of the method for voice rehabilitation of laryngectomized patients through voice prostheses in Bulgaria, which has been successfully applied for years in leading clinics in the country.

## **KNOWLEDGE OF THE PROBLEM**

Dr. Asenov shows excellent knowledge on the problem, which is demonstrated by the logical structure of the dissertation, a well-structured literature review, correctly formulated goals and objectives, skillful combination of research methods and competent analysis of the results.

## **ABSTRACT**

The abstract in structure and content meets the requirements and reflects the main results obtained in the implementation of the objectives and tasks.

## **PUBLICATIONS ON THE TOPIC OF THE DISSERTATION**

Dr. Asenov presents 3 full-text publications in scientific journals, two of which he is the first author and lead author. Part of the developed dissertation is presented at scientific forums in Bulgaria and abroad.

## **CONCLUSION**

In conclusion, the dissertation presented by Dr. Asen Georgiev Asenov holds scientific, scientifically-applicable and applied results, which represent an original contribution to science and exceed the requirements for awarding educational and scientific degree "DOCTOR". The research is precise in terms of choice of methodologies, statistical data processing, procedure and design. The summarized conclusions are accurate and strongly supported by the obtained results. The language and style in which the dissertation is written is clear, understandable and scientifically pointed.

All this gives me the right and reason to give my positive assessment of the study and to propose to the esteemed scientific jury to award the title "Doctor" to Dr. Asen Asenov in the scientific specialty "Otolaryngology"; professional field 7.1. Medicine; field of higher education 7. Health and sports.

24.11.2021  
Pleven, Bulgaria

Prepared by: .....  
/ Assoc. Prof. Dr. Alexander Valkov Valkov MD, PhD /

