REVIEW

By Prof. Dr. Ognyan Georgiev Brankov, MD, PhD

Surgical Clinic

Acibadem City Clinic Tokuda Hospital

Regarding the

Dissertation Submitted for the Degree of Doctor in the Field of General Surgery, Professional Direction 7.1. Medicine, in the Higher Education Area 7. Healthcare and Sports, Specialized in Pediatric Surgery

by Dr. PETAR NIKOLA STAMOV

"METHOD OF TEMPORARY DECOMPRESSION OF THE GASTROINTESTINAL TRACT BY FORMING AN ENTEROSTOMY WITH T-TUBE IN NEWBORNS WITH LOW AND EXTREMELY LOW BIRTH WEIGHT"

Scientific Supervisor: Prof. Dr. Hristo Shivachev, PhD

I have been selected to write a review as a member of the scientific jury, appointed by Order of the Executive Director No. RD-26-850/08.06.24 under Art. 32, para. 3 of the Regulations for the Development of the Academic Staff at University Hospital "N.I. Pirogov" EAD, in accordance with the Decision of the Scientific Council with Protocol No. ND-01-02-1/24.04.24 of University Hospital "N. I. Pirogov" EAD - Sofia.

Information about the Doctoral Candidate

I received all the necessary materials for preparing the review in electronic format. The presented set of materials complies with Art. 4, para. 2 of the Law on the Development of the Academic Staff in the Republic of Bulgaria and with Art. 10 of the Regulations for the Development of the Academic Staff at University Hospital "N.I. Pirogov" for initiating the procedure for defending a dissertation.

The doctoral candidate is an independent doctoral student, granted the right to defend with Order No. RD 26-2403/14.12.2023. The candidate has submitted a list of 8 titles related to the topic, including 4 full-text publications in Bulgarian scientific journals and 4 reports presented at national and international scientific forums. In 3 of the scientific publications, he is the first author. Four scientific reports are presented only with titles, without a list of authors. All contributions were made between 2017 and 2024, which is entirely sufficient for the stage of a doctoral dissertation.

The abstract is written in concise scientific language and reflects the main propositions and results presented in the dissertation.

Biographical Data

Dr. Petar Nikola Stamov was born on January 10, 1983, in Tetovo, now part of North Macedonia. He studied medicine at the Medical University "Prof. Dr. Paraskev Stoyanov" – Varna from 2001 to 2007. After graduating in 2008, he won a competition for a specialization in Pediatric Surgery at University Hospital "St. Anna-Varna." He acquired his specialty in Pediatric Surgery in 2015. From 2010 to 2022, he worked in the Pediatric Surgery Department at University Hospital "St. Anna-Varna." Since 2022, he has been a member of the team at the First Surgery Clinic, Pediatric Surgery Department at University Hospital "St. Marina." In 2023, he became a regular assistant in the Department of General and Operative Surgery after winning a competition. In 2021, he was enrolled as an independent doctoral student at the Pediatric Surgery Clinic, University Hospital "N.I. Pirogov" in Sofia.

Dr. Stamov has additional qualifications in upper and lower endoscopy, minimally invasive surgery, and abdominal ultrasound. He delivers lectures and conducts practical exercises for medical students. He is fluent in English and Turkish.

Dr. Stamov is a member of the Bulgarian Medical Association, the Scientific Society of Pediatric Surgery, the Bulgarian Society of Pediatric Gastroenterology, Hepatology and Nutrition, and the Bulgarian Pediatric Association.

Relevance of the Topic

Dr. Petar Stamov addresses an extremely relevant and significant topic in neonatal surgery, focusing on the surgical treatment of congenital anomalies of the intestinal tract. This pathology presents a major challenge for specialists, as these newborns often have low birth weight and combined anomalies, accompanied by severe respiratory distress and progressively worsening symptoms. Besides congenital anomalies of the intestinal tract, such as small bowel atresia, meconium ileus and peritonitis, or intestinal malrotation with congenital volvulus, necrotizing enterocolitis (NEC) is particularly severe in premature infants with low birth weight.

Intestinal obstruction in the neonatal period and early infancy frequently requires emergency surgical intervention. For most of these patients, intestinal resection is necessary. Key stages of the surgical technique include the creation of an enterostomy to protect the primary anastomosis, as well as for enteral feeding and antegrade enemas.

The creation of an enterostomy has been used for decades with various advantages and disadvantages for each approach. The main disadvantage of intestinal exteriorization is the need for a second operation to close the stoma, which is associated with prolonged and frequent hospitalizations. Other disadvantages of the exteriorized stoma include various complications such as significant fluid and electrolyte losses, stenosis, prolapse or retraction of the stoma, or internal hernia through the mesenteric defect.

Enterostomy using a T-tube is an alternative technique to avoid such complications. This method combines the effect of enterostomy for achieving intestinal decompression, with advantages such as reduced losses, the possibility for irrigation, and protection of the primary

anastomosis. This method minimizes the complications of an exteriorized stoma and avoids the need for a second operation for its closure.

General Characteristics

The dissertation is written on 106 pages and illustrated with 54 figures and 29 tables. The bibliography comprises 112 sources, all in Latin script. The dissertation has been discussed, accepted, and scheduled for defense by the Scientific Council of University Hospital "N.I. Pirogov."

The clinical material includes 62 patients up to 1 year of age who underwent enterostomy from 2008 to 2021. Of these, 29 children had a conventional stoma (CS) created, while 33 had a T-tube placed. The study is based on the experience of the team in the Pediatric Surgery Department at University Hospital "St. Anna" - Varna. Dr. Petar Stamov summarizes this experience and has official permission from the head of the surgical department, Dr. Rumen Hristov, to use the clinical material.

Structure of the Dissertation

In Chapter I, **Introduction**, Dr. Stamov presents the types of congenital abdominal pathology and various surgical approaches. He emphasizes that enterostomies play a crucial role in the treatment of numerous gastrointestinal conditions in early childhood.

Chapter II, **Literature Review**, spans 21 pages, which is sufficient to comprehensively cover the essence of the problem. It is evident that the author has an in-depth knowledge of the topic, discussing it from various aspects. The historical development of the application of ileostomy for congenital abdominal malformations, the different techniques for its performance, and the advantages and disadvantages of each method are extensively and thoroughly reviewed.

The bibliography is organized alphabetically, providing a clear overview of the cited authors. However, a contemporary drawback is that many of the cited titles are presented using a copy-paste approach without proper formatting. Some are cited with DOI, others without; some citations are incomplete, and there is a general lack of consistency in the bibliography's formatting.

The cited works are from the period 1980 – 2010, with only 6 titles from the last 10 years. For a complete historical review, it would have been appropriate to include Prof. Dimitar Chetrafilov's two dissertations on the treatment of congenital gastrointestinal obstruction in newborns, defended in 1971 and 1984.

Based on the data from the scientific literature and considering the specificity of the pediatric organism and congenital abdominal pathology in children, Dr. Petar Stamov aims to introduce a method for temporary decompression of the gastrointestinal tract using a T-tube in clinical practice for newborns, infants, and children up to 1 year old. Additionally, he seeks to conduct a comparative study against classical enterostomy.

To achieve this goal, the doctoral candidate sets four tasks, which are fully sufficient to encompass the entirety of the problem and provide a basis for relevant conclusions.

In Chapter IV, **Clinical Material**, 62 newborns and infants with congenital and acquired abdominal pathology are included. The children are divided into two main groups: Group A

consists of 33 patients operated on for various reasons with an enterostomy created using a T-tube or Kehr drain. Group B is a control group of 29 patients up to 1 year old with a conventional enterostomy.

Depending on the etiology, the patients are grouped into four categories: 1. congenital intestinal obstruction, 2. meconium ileus, 3. NEC (necrotizing enterocolitis), and 4. small bowel necrosis. The comparative groups are sufficiently numerous to summarize statistically significant results and draw scientifically significant conclusions.

Following **Clinical Material**, the chapter **Methods** should logically follow. However, instead, the dissertation continues with demographic characteristics, applied operative technique, distribution by sex and age, and intraoperative findings. These sections should actually be part of the **Results** chapter.

In the **Methods** chapter, the diagnostic methods, anesthesia technique, and detailed descriptions of the T-tube enterostomy and conventional stoma techniques are listed. The data processing was performed using the statistical software IBM SPSS 24.0, employing various statistical methods.

The **Results** chapter covers 44 pages and is the main part of the dissertation. The author conducts an in-depth analysis of the data from the two groups of children, illustrated in detail with images, tables, and clinical examples.

The doctoral candidate finds a significant statistical difference, indicating that the average operative time for creating a conventional enterostomy is longer than for a T-tube enterostomy. Additionally, the time to close the T-tube enterostomy is significantly shorter than for the conventional stoma. This suggests that the method is less invasive, which is especially important for low-weight and premature newborns.

It is important to note that only three exits (9.09% mortality) were recorded among all patients, attributed to pulmonary or cerebral pathology, and no complications related to the T-tube method were registered. The results are comparable to those in the literature.

In the **Discussion** chapter, the doctoral candidate highlights that the T-tube enterostomy method proves to be effective, safe, and less invasive, accompanied by fewer complications in the surgical treatment of congenital or acquired diseases in the early neonatal period.

There are four **Conclusions**, based on the overall analysis of the literature review, clinical material, results, and their discussion. They emphasize the advantages of the T-tube enterostomy and fully correspond to the aim and tasks set.

Overall, the dissertation is written in clear and concise scientific language, with a logical and sequential presentation. It has a confirmatory nature and is of high scientific and practical value. I have minor stylistic remarks and note unnecessary repetitions in some places.

I accept all the contributions presented by the author.

Conclusion

Dr. Petar Stamov's dissertation titled "Method of temporary decompression of the gastrointestinal tract by forming an enterostomy with T-tube in newborns with low and extremely low birth weight" fully meets the criteria for the award of the academic and

educational degree "Doctor" and complies with all the requirements of the Bulgarian Law on the Development of the Academic Staff (BLDAS), the Regulations for the Application of BLDAS, and the corresponding regulations of UMBALSM "N.I. Pirogov".

Despite some critical remarks, I give my positive vote and recommend to the esteemed members of the academic jury to award Dr. Petar Stamov the educational and scientific degree "Doctor" in the scientific specialty "Pediatric Surgery" within the professional field 7.1. Medicine and the area of Higher Education 7. Health and Sports.

June 10, 2024 Reviewer:

Prof. Dr. Ognyan Brankov, MD, PhD