

To the attention of the
Chairperson of the Scientific Jury,
determined by order P -109-452/06.11.2023,
of the Rector of the *Medical University-Varna Prof.
Dr. Paraskev Stoyanov*

OPINION

by Prof. Dr. Nikolay Metodiev Penkov, MD

External member of the Scientific Jury under order P-109-452/06.11.2023 of the
Rector of the *Medical University-Varna Prof. Dr. Paraskev Stoyanov*

Address and contacts:

Mailing address: Sofia, postal code 1309; 169 Positano str.

Email: mnpenkovi@gmail.com

Phone: +359 888 329889

With regard to: Procedure for acquiring the scientific degree Doctor of Science (DSc) in the specialty "Surgery", with a dissertation topic "Postcholecystectomy syndrome - an up-to-date look at an old problem. Diagnosis and modern therapeutic strategy" with candidate Assoc. Prof. Dr. Vasil Markov Bozhkov, MD in the *Medical University-Varna Prof. Dr. Paraskev Stoyanov*, higher education field 7 *Healthcare and Sports*, professional field 7.1. *Medicine, Specialty "Surgery"*.

Procedure details:

After a meeting of the Faculty of Medicine Faculty Council at the *Medical University-Varna Prof. Dr. Paraskev Stoyanov*, according to protocol №1/13.11.2023 and with Order № P-109-452/06.11.2023, by the Rector of the *Medical University-Varna Prof. Dr. Paraskev Stoyanov*, I was elected as a member of the Scientific Jury; and with protocol №1 of the first meeting of the Scientific Jury, I was appointed to prepare an opinion.

The documents of only one candidate - Assoc. Prof. Dr. Vasil Markov Bozhkov, MD have been submitted for participation in the competition.

I received from Assoc. Prof. Dr. Vasil Markov Bozhkov, MD all the materials necessary for the preparation of this opinion.

My opinion is in accordance with the Law of the Development of the Academic Staff of the Republic of Bulgaria, the Regulations for its application and the Regulations of the *Medical University – Varna*.

Professional data of the candidate:

Assoc. Prof. Dr. Vasil Markov Bozhkov, MD was born on July 13, 1973.

1992/1998 - Master of Medicine

1999/2004 - Specialization in General Surgery

2002 - Surgeon-resident in the Second Clinic of Surgery "UMBAL St. Marina" EAD

2007/2011 - Assistant in the Department of Surgical Diseases – *Medical University-Varna Prof. Dr. Paraskev Stoyanov*

2011/2013 - Chief Assistant in the Department of Surgical Diseases - *Medical University-Varna Prof. Dr. Paraskev Stoyanov*

2015 - Dissertation topic on "Diagnostic-Therapeutic Strategy for Patients with Cholangitis".

2013/2015 - Educational and science degree "Doctor".

2015/2023 – Assoc. prof. in the specialty "Surgery".

Full-time PhD student at the Department of Surgical Diseases, specialty "Surgery".

Pedagogical qualification of trainers from medical institutions 04.06. – 06.06.2012 Varna.

Head of classes for discipline "Surgery" of students of Medicine in the 3rd, 4th and 5th year, Bulgarian and English courses, and of students in the 3rd year of Dental Medicine, English course.

Supervisor of PhD students - two PhD students.

According to the academic reference from the *Medical University-Varna Prof. Dr. Paraskev Stoyanov* - Library № 894/06.11/2023, Assoc. Prof. Dr. Bozhkov, MD presents the following scientific output after defending the educational and qualification degree "doctor":

1. Dissertation for the acquisition of the educational and scientific degree "Doctor".
2. Dissertation for the acquisition of an educational and scientific degree "Doctor of Sciences".

3. Publications G 8 – 20 pcs.

Total Indicators D 5-9 – 101.66 p.

4. Citations – 7 Indicator D10 – 15 p.

Total number of points – 105 p.

The postcholecystectomy syndrome /*Womack and Crider 1947, Pribram 1950*/ includes symptoms of biliary colic and/or persistent right upper quadrant pain with or without dyspeptic symptoms that are the same as before cholecystectomy. Although much clinical experience and a large volume of medical information have been accumulated since then, the postcholecystectomy syndrome continues to be a diagnostic and therapeutic challenge. Our knowledge of the pathophysiology of this syndrome has greatly improved since the introduction of ERCP, MRCP, and

Sphincter of Oddi manometry (SOM). According to different literature sources, the frequency of the postcholecystectomy syndrome varies widely, reaching up to 50%.

The importance of differentiating the indications for surgery with consideration of adverse risk factors is increasing. Thus, an interdisciplinary approach plays a major role in the diagnosis and especially in the treatment of the postcholecystectomy syndrome.

Publications in the world literature do not stop on these problems. Assoc. Prof. Dr. Bozhkov, MD has also attempted to answer them in a voluminous study of this question, and in my opinion, it is totally successful.

The material submitted for review comprises 250 standard pages. The literary index contains 510 sources, of which 17 are in Cyrillic and 493 are in Latin. The dissertation is illustrated with 12 tables, 45 figures and 29 photographs. The structuring of the material is in a correct sequence.

The literature review written on 51 pages shows the wide awareness of the author. It is written in a good style and language, presenting the modern achievements in the field of surgical treatment and alternative methods for the postcholecystectomy syndrome. This part shows the skill of the candidate to point out the most important of the considerable number of publications. The review shows that there is unambiguous understanding of the indications for the application of the interdisciplinary approach in the treatment of postcholecystectomy syndrome in the world literature. The purpose of the dissertation follows from this fact, namely: **"To study, analyze and apply in clinical practice the modern diagnostic and therapeutic strategies and treatment methods for patients with postcholecystectomy syndrome, with a view to optimizing the final results and reducing complications and mortality in operated patients"**.

The goal formulated in this way outlines the scientific-practical nature of the dissertation.

The tasks are presented clearly and in sufficient detail, emphasizing the scale of the studies carried out.

The study retrospectively covered 1,532 patients with cholelithiasis and its complications, admitted to the University Hospital "St. Marina" for the period 2011-2022. A group of 262 patients with postcholecystectomy syndrome was identified. Of these, 190 were operated on, and 72 were treated conservatively. The chosen approach allows a specific comparison, and the large number guarantees the reliability of the results obtained.

A wide range of research has been applied to the processing of the material:

- Clinical research methods:

1. Anamnestic data.
2. Paraclinical tests - hematological and biochemical.
3. Microbiological research.

- Instrumental research methods:

- 1. Ultrasound examination of the hepatopancreato-duodenal region.
- Computed tomographic examination.
 - Nuclear magnetic resonance.

- ERCP.
- Fibrogastroscopy.
- Statistical analysis methods.

The author, as should be expected in his analysis, has strictly observed the parameters of the research methods used by him, which gives rigor and persuasiveness to the results obtained. Assoc. Prof. Dr. Bozhkov, MD prefers surgical treatment as the main method of the postcholecystectomy syndrome treatment with a predominance of conventional operative techniques: 1. Kehr drainage 2. Choledochoduodenostomy 3. Hepaticojejunostomy 4. Endoprosthesis in the extrahepatic bile ducts.

The merit of the dissertation lies in the application of various statistical methods, through which the author consistently, logically and convincingly presents the obtained results, illustrating them with well-chosen and precisely designed tables. The obtained results indisputably show the correctness of the approach applied by the dissertation in the treatment of the postcholecystectomy syndrome.

In the "Results" section, main clinical and paraclinical indicators are analyzed: 1. Abdominal pain – highest correlation coefficient postprandial – $r = 0,985$. 2. Jaundice - found in 148 (56.5%) of the postcholecystectomy syndrome patients. Its occurrence is also statistically significant when comparing patients of both sexes. It occurs more often in women. Jaundice was registered to the greatest extent in patients with iatrogenic bile duct injuries (IBDI) and choledocholithiasis, followed by those with stenosing papillitis. 3. Febrility - The data obtained in the analysis of patients showed that in 137 (52.3%) no febrility was recorded. 4. Microbiological examination of biliary cultures in 164 patients with 112 positive results. The level of resistance of the isolates was also investigated.

Image diagnostics - One or more imaging methods, presented graphically, were applied to all postcholecystectomy syndrome patients. When combining the symptoms of pain and jaundice - the correlation coefficient $r=0,908$ shows a very strong statistically significant direct relation, while in patients with pain without jaundice it has a significant direct relation. It is not found in patients without pain and without jaundice.

The large number of iatrogenic bile duct injuries - 75 39.5%, / Strasberg E3 - 19, E2 - 15, E1 - 8, E4 - 6/, treated mainly with hepaticojejunostomy, is noteworthy. Of the operative interventions performed in the remaining 115 patients, preference is given to choledochoduodenostomy - 69, followed by Kehr drainage - 46.

The analysis of the world literary sources and the results obtained by the dissertation allows the development and implementation in practice of an original diagnostic and therapeutic algorithm for the treatment of patients with postcholecystectomy syndrome.

The conclusions, as expected, summarize the quintessence of the dissertation.

The contributions of the presented paper flow quite naturally from the author's development and can be summarized as follows:

1. A retrospective analysis was performed over a ten-year period of postcholecystectomy syndrome patients.

2. The place and role of interventional non-surgical and endoscopic methods in the treatment of postcholecystectomy syndrome are specified.
3. An algorithm for the treatment of postcholecystectomy syndrome patients was developed and applied in practice.
4. An analysis of the results of the applied operative techniques was performed, including long-term follow-up of the patients.
5. Modern and accurate criteria for surgical behavior in patients with postcholecystectomy syndrome have been created and introduced into the practice of the clinic.

In connection with the dissertation, a list of 10 real publications is presented.

In conclusion:

The dissertation presented for review is an in-depth study of a topical and important problem for practice – the postcholecystectomy syndrome. The various operative surgical and alternative endoscopic and echographic techniques, the use of modern methods of diagnosis and treatment, the comprehensive and in-depth analysis of the obtained data can be qualified as a significant attempt to evaluate the possibilities of the interdisciplinary approach in the treatment of postcholecystectomy syndrome.

The dissertation is written in excellent Bulgarian, it is easy and enjoyable to read. It fulfills the required criteria.

Therefore, I confidently give my positive assessment and recommend that the respected Scientific Jury award the scientific degree "Doctor of Sciences", Scientific specialty "General Surgery", code 03.01.37 to Assoc. Prof. Dr. Vasil Markov Bozhkov, MD.

29.11.2023

The opinion prepared by:

Prof. Dr. Nikolay Metodiev Penkov, MD

