STANDPOINT

By Assoc. Prof. Tosho Ganev, MD, PhD

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Concerning: Dissertation work for the award of the ESD "Doctor" to **Inna Gocheva Ivanova**, MD, doctoral student in an independent form of study in the doctoral program "Urology", professional direction 7.1. Medicine enrolled by order No. R-109-381/15.09.2021

By order of the Rector of MU-Varna No. R-109-479/14.12.2022 and the decision of the Chairman of the Scientific Jury - Protocol No. 1 of 22.12.2022, I am appointed to submit a standpoint regarding the dissertation work of Inna Gocheva Ivanova, MD on the topic **"Robot-assisted partial nephrectomies - functional and oncological results"**.

The standpoint was prepared according to the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its Application at the Medical University - Varna.

The dissertation contains a total of 122 pages, illustrated with 25 figures and 33 tables. The bibliography includes 151 titles. The presentation is structured correctly, in accordance with the requirements of a scientific study, as follows:

- Introduction – 1 page
- Literature review - 30 pages
- Aim and tasks - 1 page
- Material and method – 2 pages
- Survey sample of the study and techniques of surgical access - 29 pages
- Results and Discussion – 35 pages
- Implications – 1 pages
- Contributions – 1 pages
- Conclusion – 3 pages
- Publications – 1 page
- Bibliography - 18 pages

The 35 - page PhD Thesis presented to me is designed according to the generally accepted requirements.

1. Evaluation of the actuality of the topic, analysis of the survey sample.

The topic of the scientific work is suitable for dissertation and current and is of interest to urologists treating kidney carcinoma.

The dissertation begins with a literature review, which is sufficiently extensive. In it, a place is devoted to the history of the emergence and validation of robot-assisted partial nephrectomy - here the doctoral student presents how a gradual change in the surgical treatment of kidney carcinoma occurs over time; it moves from open partial nephrectomy to laparoscopic and subsequent robot-assisted partial nephrectomy. The etiology, epidemiology, and pathogenesis of renal cell carcinoma are then discussed. Particularly interesting to me was the detailed comparison of the transperitoneal versus the retroperitoneal approach for renal resection.

Chapter Two contains the aim and the tasks. The aim is clearly formulated - by using prospective and retrospective analysis, to prove the importance of robot-assisted partial nephrectomy, to achieve negative surgical margins, preservation of renal function and minimal perioperative complications. The tasks are specific and clear, they correspond to the set aim.

The methodology and clinical material follow, where the PhD student describes in detail the operative technique used in their clinic - how to position the patient and the trocars, mobilization of the colon, dissection of the renal hilus, identification of the tumor, resection of the tumor and closure of the collecting system, renorrhaphy and extraction of the tumor.

2. Evaluation of the results.

The following third chapter presents the results of the study. There are a total of 72 patients who were the subject of research in robot-assisted partial nephrectomy. To determine the functional results in the studied sample, a comparison was made with 73 patients who underwent laparoscopic partial nephrectomy. The mean operating time for robot-assisted partial nephrectomy was 119 minutes, while the mean operating time for laparoscopic surgery was 138 minutes, indicating a significant increase in operating time for laparoscopic surgery. The average hospital stay of the patients undergoing robot-assisted partial nephrectomy was less, compared to the average hospital stay for laparoscopic surgery, 5 and 6 days, respectively. The difference is not great, but

the fact that the hospital stay also depends on the requirements of the Health Insurance Fund for a minimum stay should be taken into account.

The doctoral student then continues with an analysis of the average blood loss of the 72 patients undergoing robot-assisted partial nephrectomy - it is 148 ml. In comparison, the average blood loss after laparoscopic surgery is 239 ml. In addition, robot-assisted partial nephrectomy was applied to patients with a higher stage of kidney cancer, namely 4.17% were stage 3, 41.67% were stage 2 - it is also important to point out that in the studied group of patients (regardless of the stage!) all tumors have been radically removed.

When performing partial kidney resections, the main indicator that is monitored is the maximum clamping time of the renal artery - the study data show a reduced mean clamping time in robot-assisted partial nephrectomy, compared to laparoscopic surgery, respectively 14.75 minutes and 17.44 minutes.

In the end, we can draw the following conclusions about the application of robot-assisted partial nephrectomy:

• Absence of increase in the values of the renal function tests - creatinine and urea.

• Reduced blood loss.

• Provides an easier access to tumors with difficult location.

• Fewer complications after surgery.

• Less hospital stay.

• Faster patient recovery.

• Removal of larger tumors while preserving kidney function.

• All tumors have been radically removed.

For the dissertation, the doctoral student presents the following scientific publications:

a. Anakievski D, Hinev A, Kosev P, Gocheva I. (2017). An 18-kg giant variant of a well-differentiated retroperitoneal liposarcoma of the kidneys . // Scripta Scientifica Medica // Volume . 49 , No. 1, pp . 53-57

b. Anakievski D, Hinev A, Marinov R, Gocheva I. (2017). Laparoscopic nephropexy: treatment outcome and quality of life. // Scripta Scientifica Medica // Volume 49 , No. 2, pp . 32-35

c. Gocheva, I. (2022) Case report: robot-assisted partial nephrectomy of renal metastasis from breast cancer with Da Vinci Xi // Varna Medical Forum // item 11, 2022

3. Evaluation of contributions.

The contributions of the dissertation can be summarized as follows:

1. Contributions of a practical nature:
   - **The first** scientific contribution is related to the historical review regarding the origin and development of robot-assisted surgery in urology.
   - **The second** scientific contribution concerns the analyzed etiology, epidemiology and pathogenesis of renal cell carcinoma and the influence of genetic and acquired risk factors.
   - **The third** scientific contribution is the presented specificity in the diagnosis of renal cell carcinoma, in terms of laboratory tests, ultrasound, radiography, computed tomography (CT) and magnetic resonance imaging.
   - **The fourth** scientific contribution refers to the studied specificities of the types of operative accesses in robot-assisted partial nephrectomy.

2. Original contribution:
   - For the first time in Bulgaria, research is being done in the field of robot-assisted partial nephrectomy, which, by using a prospective and retrospective analysis, proves the importance of robot-assisted partial nephrectomy, for achieving negative surgical margins, preserved renal function and minimal perioperative complications.

4. Critical notes.

No significant critical remarks can be made to the dissertation work.

5. Conclusion.

In my capacity as a member of the scientific jury, I declare that Inna Gocheva Ivanova, MD can be awarded the educational and scientific degree "Doctor" for her dissertation work on the topic "Robot-assisted partial nephrectomies - functional and oncological results".

I am convinced that the other members of the scientific jury will also support my positive vote.

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Varna

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