R E C E N T I O N S

On the dissertation thesis entitled " **Current management and application of minimally invasive surgery in the treatment of undescended, nonpalpebre testis in childhood**" by Dr. Edmond Videnov Rangelov under the procedure for obtaining the educational and scientific degree "Doctor" in the scientific specialty "Pediatric Surgery" in the professional field 7.1. Medicine in the field of higher education 7. Health and Sport.

By prof. Alexander Petrov Chervenyakov Member of the Scientific Jury appointed by Order No. RD-26-2088/05.10.2022. N. I. Pirogov EAD – Sofia

I. Brief biographical data and description of the dissertant's scientific interests:

Dr. Edmond Videnov Rangelov graduated in Medicine from Medical University - Sofia in 1995. In the same year he joined the „R. Angelova“ Hospital in Sofia. He was also a doctor at the University of Medical Sciences in Pernik. He worked as a surgeon for 10 years and in 2002 he acquired the specialty "Genera lSurgery". Since 2005 he joined the Department of Pediatric Abdominal Surgery at the University Hospital "N.I. Pirogov". He graduated from the University of Pediatrics in Sofia. He acquired a specialty in "Pediatric Surgery" in 2012. He underwent a number of specialized courses in the field of laparoscopic surgery.At present he holds the position of "Head" of the Department of Pediatric Abdominal Surgery at the University Hospital "N.I. Pirogov".
He speaks German and English.
With an innovative spirit, Dr. Rangelov developed methods for the diagnosis and minimally invasive treatment of NPT.
His scientific activity includes 10 publications on the topic of his dissertation, 3 contributions to scientific journals and 7 papers in scientific conferences and congresses.

II. Relevance of the problem developed in the thesis:

It is determined by the scientific searches in the treatment of undescended, nonpalpebre testis for the last decades. There are two main directions: diagnosis and verification of the disease and determination of optimal treatment tactics and hence better quality of life. Cryptorchidism is the most common congenital anomaly of the genital system in boys. About 1/3 of preterm male infants have cryptorchism, compared with only up to 5% incidence in newborns who have reached gestational age. The increased risk of malignant degeneration in the disease is reportedly 20 to 40 times that of the general population.
The work developed by Dr. Edmond Videnov Rangel "**Current management and application of minimally invasive surgery in the treatment of undescended, nonpalpebre testis in childhood**" is very relevant with the data shown and the resulting conclusions.

III. Dissertation review and analysis of results:

The dissertation is written in 128 pages and illustrated with 54 figures and 31 tables. The bibliographic reference comprises 181 sources, of which 180 in Latin and 1 in Cyrillic are on 18 pages.

The literature review runs to 44 pages and is divided into nine main parts. The 3-page introduction presents the relevance of the problem.

In the first part, the historical development of the problem of the definition and classification of cryptorchism is discussed in detail. In the second and third parts, the epidemiology topographic anatomy and pathophysiology of NDT and NPT disease are covered. The complications of NDT disease' the prerequisites for malignancy and the development of diagnostic methods and indications for surgical treatment are discussed. The main eighth part discusses the development of surgical treatment methods, giving detailed attention to laparoscopic methods of diagnosis and treatment. The last part discusses the practical results and advantages of minimally invasive diagnosis and treatment of NPT.

The aim is clearly stated, the five tasks are precisely formulated and meet the requirements for a dissertation.The clinical material covers 96 children with undescended, nonpalpebre testis, unilateral or bilateral, treated in the Department of Pediatric Surgery at the University Hospital "N.I. Pirogov" for a period of 9 years, divided by age, clinical picture, diagnosis, localization, surgical intervention (43 children were operated by minimally invasive surgery and 53 children by conventional surgery).

The methods show the applied diagnostic procedures that meet current standards until the surgical treatment is performed. The obtained data were processed with the statistical package IBMSPSS Statistics 25.0 with a complete assessment of the treated groups. The results of the study are presented in 40 pages. Two groups of children were analyzed: 43 children with NPT and 53 children with NPT.

Based on the defined indications and the results of the study, the author develops a diagnostic and therapeutic algorithm for the management of minimally invasive surgery. The advantages of the laparoscopic method of diagnosis and treatment in NPT are demonstrated and motivated. Demonstrates the lack of complications, less trauma, faster recovery, and satisfactory outcomes as advantages of the minimally invasive method.
Analyzed the learning curves determining the shortening of operative time with the accumulation of laparoscopic experience over 7 years.

Discussion and Conclusion: 4 pages. The author demonstrates Laparoscopy as an optimal method for visual anatomical orientation based on which a definitive diagnosis and successful treatment of NPT can be made.

Conclusions: Dr. Rangelov draws 9 conclusions. Seven of them point out the advantage of the laparoscopic method for the diagnosis and surgical treatment of NPT. 1 - The high specificity, visualization and sensitivity of laparoscopy in the choice of surgical method. 2 - 100% reliable diagnosis of PNT. 3 - Demonstrates the excellent results of laparoscopic orchidopexy. 4,5 - Demonstrates the advantages of laparoscopic orchidopexy with higher success rates and without

significant complications. 6 - The method has all the advantages of minimally invasive surgery. 7,8 - Points out the unsatisfactory effectiveness of instrumental examination methods and hormonal therapy in NPT. 9 - Improvement of the learning curve with experience.

IV. Contributions of scientific and technical nature I accept:

1. A detailed literature review on the development of scientific knowledge about cryptorchidism and the possibilities of minimally invasive surgical techniques in diagnostic and therapeutic terms in relation to NPT has been performed.

2. A summary of the literature on the sensitivity, specificity, feasibility and shortcomings of imaging in the diagnosis of NPT is presented.

3. The advantages of laparoscopic technique over conventional technique in the diagnosis and treatment of NPT in terms of trauma and postoperative outcomes are demonstrated.

V. Scientific and applied:

1. Laparoscopy is introduced as a routine minimally invasive method in the diagnosis and treatment of NPT.

2. First study in our country of the involvement of laparoscopy as a minimally invasive method in the diagnosis and treatment of NPT.

3. A diagnostic and treatment algorithm for children with NPT was introduced.

4. The learning curve of the method has been studied, showing a trend towards shorter operative time and mastery of minimally invasive techniques, in the treatment of NPT.

VI. Conclusion:

Dr. Edmond Rangelov has basically, innovatively and summarily developed in his research work the topic of "**Current management and application of minimally invasive surgery in the treatment of undescended, nonpalpebre testis in childhood**". The work proves the advantages of the minimally invasive method , the possibilities of successful application, development and improvement of results in the treatment of NPT. Defines the possibilities of mastering and applying the method in pediatric surgery.

I believe that the dissertation meets all the conditions for the award of the educational and scientific degree "Doctor" to the dissertant Dr. Edmond Videnov Rangelov.

Professor Alexander Chervenyakov 18.11. 2022