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# **Boris N. Kholtssov (1861–1940): outstanding urologist, scientist, and teacher. To the 100<sup>th</sup> anniversary of the start of employment in the Urological Clinic of the Leningrad State Institute for Advanced Training of Doctors**

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## **ABSTRACT**

This article is dedicated to outstanding clinical scientist Professor B.N. Kholtssov (1861–1940). The main stages of his scientific, clinical, and teaching activities and his scientific achievements in the development of novel methods for treating diseases of the urinary and male genital organs are presented. He was the first to propose a two-stage adenomectomy technique, an original method of urethral resection in case of stricture, and developed a surgical treatment method for contracture of the bladder neck. The role of Kholtssov in the training of urologists at the Department of Urology of the Leningrad State Institute for Advanced Training of Doctors, which he headed in 1926–1940, is shown. Kholtssov was a talented clinician, scientist, teacher, and innovator, whose main ideas remains in demand today.

**Keywords:** B.N. Kholtssov; two-stage adenomectomy; urethral resection; Department of Urology of the Leningrad State Institute for Advanced Training of Doctors.

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# **Борис Николаевич Хольцов (1861–1940) — выдающийся уролог, ученый и педагог. К 100-летию со дня начала трудовой деятельности в урологической клинике Ленинградского Государственного института для усовершенствования врачей**

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## **АННОТАЦИЯ**

Статья посвящена выдающемуся ученому-клиницисту профессору Б.Н. Хольцову (1861–1940). Представлены основные этапы его научной, клинической и педагогической деятельности. Подробно показаны научные достижения в разработке новых методов лечения заболеваний мочевых и мужских половых органов. Он впервые предложил методику двухэтапной аденомэктомии, оригинальный способ резекции уретры при ее стриктуре, разработал метод оперативного лечения контрактуры шейки мочевого пузыря. Показана роль Б.Н. Хольцова в подготовке врачей-урологов на кафедре урологии Ленинградского Государственного института для усовершенствования врачей (ГИДУВ), которой он руководил с 1926 по 1940 г. Б.Н. Хольцов был талантливым врачом-клиницистом, ученым, педагогом, новатором, основные идеи которого востребованы и сегодня.

**Ключевые слова:** Б.Н. Хольцов; двухэтапная аденомэктомия; резекция уретры; Ленинградский ГИДУВ.

## **Как цитировать**

Моргошия Т.Ш., Кузьмин И.В. Борис Николаевич Хольцов (1861–1940) — выдающийся уролог, ученый и педагог. К 100-летию со дня начала трудовой деятельности в урологической клинике Ленинградского Государственного института для усовершенствования врачей // Урологические ведомости. 2024. Т. 14. № 2. С. 225–231. DOI: <https://doi.org/10.17816/uroved625735>

The course of genitourinary diseases was first taught at the Leningrad State Institute for Advanced Training of Doctors in 1899 (in that year, the Imperial Clinical Institute of Grand Duchess Elena Pavlovna, Fig. 1), when Dr. Wahl opened an outpatient clinic for urological patients and began to conduct trainings on the course of cystoscopy. In 1899–1910, he examined 18,533 patients and performed 800 cystoscopies. This outpatient material was used as a basis for teaching physician trainees. Over time, 188 students have been trained in these courses [1]. A venereologist by training, Dr. Wahl was a faculty member in the Department of Skin and Venereal Diseases. Although he was not an urologist, he was proficient in cystoscopy and had good knowledge of genitourinary diseases. At that time, urology was just emerging as a field in clinical medicine; its “field of activity” had not yet been clearly defined, and this area was of interest to many venereologists and surgeons. Urology was introduced as a separate subject of teaching at the Institute in 1901, when Nikolai Alekseevich Mikhailov began to teach a course on the diagnosis and treatment of genitourinary diseases, including in the surgical aspect. Soon after the opening of the course, Nikolai Alekseevich Mikhailov was promoted to associate professor and, in 1913, to professor [1]. The course was transformed into the Department of Urology, which Professor Mikhailov headed until 1926.

Before the First World War (1914–1918), teaching urology at the Institute was conducted only on outpatient material, and students interested in surgical urology visited the only urological department (80 beds) at that time in Obukhov Hospital, which was headed by Boris Nikolaevich Kholtssov. In addition to demonstrating patients and operations, he lectured the audience on selected sections of urology.

Boris Nikolaevich Kholtssov (Fig. 2) was born in 1861 in Kerch. In 1887, he graduated from the Imperial Military Medical Academy and began to work in the surgical department of Obukhov Hospital (Fig. 3), which was at that time headed by Professor Troyanov (Fig. 4), a surgeon well-known in the country [2]. In 1892, being a young doctor, Kholtssov successfully defended his dissertation “On stopping bleeding in large vein wounds and on ligation of the common femoral vein in particular.” In the Obukhov Hospital, along with performing surgeries, he studied diseases of the genitourinary organs, which at that time was completely unknown to many clinicians. In 1916, Kholtssov headed the Department of Urology of the Medical Faculty of the Psychoneurological Institute in Petrograd. In 1924, he moved to the newly transformed Leningrad State Institute for Advanced Training of Doctors, where he was appointed head of the Department and Clinic of Urology in 1926.

In 1924, when Kholtssov was invited to the faculty of the Department of Urology at the Leningrad State



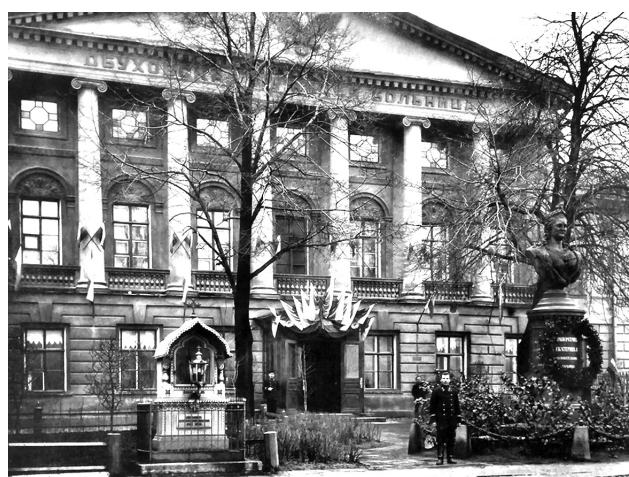
**Fig. 1.** Imperial Clinical Institute of Grand Duchess Elena Pavlovna — State Leningrad Institute for Advanced Medical Training (GIDUV). Image from the beginning of the 20<sup>th</sup> century

**Рис. 1.** Императорский клинический институт Великой княгини Елены Павловны — Государственный Ленинградский институт для усовершенствования врачей (ГИДУВ). Фото начало XX в.



**Fig. 2.** Boris N. Kholtssov (1861–1940)

**Рис. 2.** Борис Николаевич Хольцов (1861–1940)

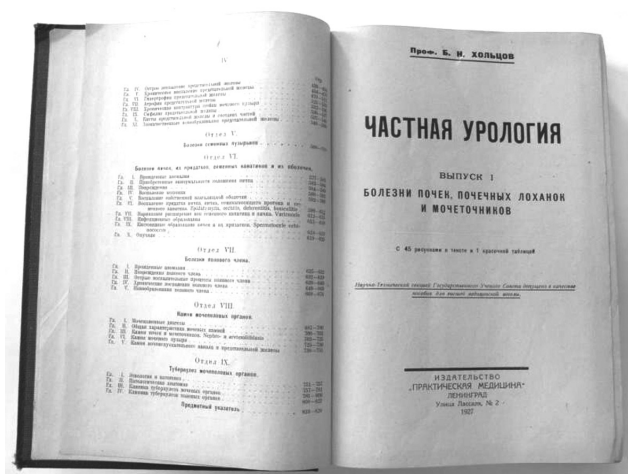


**Fig. 3.** Obukhovskaya Hospital, St. Petersburg (image from the end of the 19<sup>th</sup> century)

**Рис. 3.** Обуховская больница в Санкт-Петербурге (фото конца XIX в.)



**Fig. 4.** Aleksey A. Troyanov (1848–1916)  
**Рис. 4.** Алексей Алексеевич Троянов (1848–1916)



**Fig. 5.** Monograph by B.N. Kholtssov "Particular Urology" (1927)  
**Рис. 5.** Монография Б.Н. Хольцова «Частная урология» (1927)

Institute for Advanced Training of Doctors, the urological clinic had 25 beds and was located in the building currently occupied by the Municipal outpatients clinic No. 38. In January 1924, in addition to the head of the clinic Professor N.A. Mikhailov, senior assistant privat-docent V.A. Gorash, junior assistant G.I. Herzenberg, resident physician M.G. Pilshchik, and several extra-staff assistants worked there [1]. After the death of Mikhailov in 1925, the duties of the head of the department was temporarily performed by Gorash. In 1926, the management was transferred to Kholtssov, who received as a clinical base the newly opened urological department in the Kuibyshev Hospital with 100 beds (currently the Municipal Mariinsky Hospital). The clinic was located in a separate two-storey pavilion and had an operating room; two dressing rooms; cystoscopic, X-ray, and physiotherapy rooms; a pathology and X-ray museum; and a study room. In 1926–1935, 1500 medical cadets were trained at this clinical base, of whom 794 were venereologists

and 706 were urologists and surgeons. Additionally, over 500 cadets — urologists and surgeons — were trained at the second clinical base, the urology department of the Mechnikov Hospital. In his pedagogical activity, Kholtssov focused on training cadet doctors in operative urology [1].

Many of the urologists who were trained at the department headed by Kholtssov later headed the urology departments and urological units in many Russian cities. Among them are well-known specialists N.I. Bashkirtsev, A.I. Vasiliev, G.I. Herzenberg, Y.D. Mikhelson, L.S. Fain, G.S. Epstein, N.S. Puterman, V.I. Rozhdestvensky, and R.S. Sher.

Kholtssov left a significant scientific legacy. He has published over 100 scientific articles, including monographs and manuals, which are valuable contributions to medical science and have retained their importance to the present day. These include "Diseases and injuries of the prostate gland" (1909) [3], "Diagnosis of diseases of the genitourinary organs" (1916) [4], "Gonorrhea and its complications" (1920 and 1926) [5], "Manual of Urology" (1924–1928) [6], 7<sup>th</sup> volume of the fundamental "Manual of Practical Surgery" — "Surgery of the urinary and genital organs" (1931), and "On nephralgia" (1934). In 1927, the fundamental monograph "Private Urology" was published [7], which remained a reference book for many generations of urologists (Fig. 5).

It is advisable to focus on certain sections of urology, developed in detail by Kholtssov. First is prostatic hypertrophy. In the early 20<sup>th</sup> century, Kholtssov wrote, "there are absolutely no works on prostate surgery in its hypertrophy in Russian" [8]. This circumstance prompted him to create a presentation at the IX Pirogov Congress of Doctors, which was then published in 1904 in the weekly medical newspaper *Russian Doctor* in St. Petersburg [9]. In his message, Kholtssov pointed out the need for surgical treatment of such patients in cases "when in the II stage of the disease it is not possible to reduce the amount of residual urine; when catheterization of the bladder is difficult; when bleeding appears and acute urinary retention repeats" [9]. In this report, he further indicated the great risk to the patient's life associated with frequent catheterization of the bladder, leading to ascending pyelonephritis, resulting in the death of patients. Kholtssov was against surgery on the testicles and vas deferens in cases of prostatic hypertrophy. For many years, scientists have been accumulating material and promoting the effectiveness of surgical treatment of patients suffering from prostatic hypertrophy. In an article published in No. 8 (1908) of the *Russian Doctor*, he again examined the indications and contraindications for prostate surgery. He recommended that palliative care be conducted first, and only in cases of failure, surgical treatment be performed. According to Kholtssov, there are considerably fewer contraindications to surgery,



as the contingent of patients has changed owing to earlier treatment. For advanced diseases, to which Kholtssov attributed severe kidney damage and urinary intoxication, he recommended a two-stage operation (1906) [8]. By this time, Kholtssov already had solid experience, which allowed him to give a comparative assessment of various surgical interventions for prostatic hypertrophy. These include Bottini surgery (one- and two-stage) and perineal prostatectomy. Of these operations, Kholtssov preferred suprapubic prostatectomy, which was first proposed in 1889. In the absence of bleeding and normal urine composition, Kholtssov was the first to propose suturing the bladder tightly and, in the presence of bleeding, to drain it [8]. In 1911, an article by Kholtssov on the technique and results of two- and three-stage prostatectomy appeared in the journal *Surgical Archive of N.A. Veliaminov*. On the same issue, Kholtssov repeatedly spoke at all-Russian congresses of surgeons. It can be argued that Kholtssov is a pioneer in the surgical treatment of prostate adenoma in Russia. His proposed indications and contraindications for surgical intervention, his methodology, and the features of postoperative management have not undergone fundamental changes over the years [8]. Kholtssov's exceptional achievements in this field were highly appreciated by his contemporaries. Professor N.F. Lezhnev spoke about Kholtssov in his report on the history of the origin and development of the Russian Society of Urologists in 1924 (Fig. 6): "The most thorough works, long observations and rich statistics of prostatectomy belong to Boris Nikolayevich. His experience, strict individualization of patients cured by two- and three-stage prostatectomy, gave unprecedented results" [1].

Kholtssov's extensive experience in the diagnosis and treatment of adenoma and other prostate diseases is described in detail in his 1909 monograph "Injuries and diseases of the prostate gland" [3]. This is the first monograph on this topic in Russia and contains 17 chapters on anomalies, injuries, and diseases of the prostate gland. A chapter details prostate adenoma, which occupies almost half of the monograph.

Contracture of the bladder neck was first described in 1834, but was presented as a separate nosological form by Georges Marion in 1933. Since then, this disease has been known as Marion's disease. However, Kholtssov had devoted three articles to this disease much earlier, published in various magazines — "The Russian Doctor" (1907), "Zeitschrift für Urologie" (1908), and "Folia Urologica" (1910) — and in a collection dedicated to V.M. Mysh (1925). Kholtssov was the first to describe the methods of surgical treatment of bladder neck contracture [8].

Kholtssov made an invaluable contribution to the improvement of surgical treatment of urethral strictures. On March 9, 1903, he performed urethral resection for the first time, followed by end-to-end anastomosis.



**Fig. 6.** Nikolai F. Lezhnev (1873–1932)

**Рис. 6.** Николай Федорович Лежнев (1873–1932)

he intervention results indicated the following: "in place of an irregular, diffuse scar and infiltration of the walls of the urethra, a linear scar with a slight tendency to shrink is obtained." In Kholtssov's opinion, a radical change in urethral constriction may be noted only when a circular wound of the urethra is healed by primary tension. To achieve this, he recommended diverting urine through suprapubic drainage and "giving the urethra complete rest." No one had performed such operations in Russia before him, and only a few conducted them in Europe. Surgery to restore the patency of the urethra, named after Kholtssov, remains one of the most common urethral surgeries.

Kholtssov's contribution to the development of perineal surgical techniques is significant. He published the results of his research on the pages of the newspaper *Russian Doctor* (No. 5, 1907). He considered the best access to the prostate gland to be rectal incision, first proposed by Auguste Nelaton. This incision makes it possible to remove the prostate gland and open its abscess (in those years, it was observed often, mainly as a complication of acute gonorrhea). Kholtssov emphasized that he is not a urologist who does not know how to open a prostate abscess perineally. He also performed an adenomectomy perineally and removed the gland and seminal vesicles in tuberculosis [8].

In five issues of the newspaper *Russian Doctor* in 1909, a large article by Kholtssov was published entitled, "Pathoanatomical examination of the tuberosity of the prostate gland, seminal vesicles, appendages and testicles." This work presented a completely new topic and was based on the study of more than 200 personal observations. In addition, he published in the same year the monograph "Surgical treatment of tubercle of seminal vesicles and vas deferens," published, most notably, simultaneously in German and French urological journals.

The scientist's inquisitiveness and curiosity remained even in his advanced age, and in the eighth decade of his life, he continued to develop new issues of urology. Hence, his work on the importance of bladder extraperitonization in some bladder and pelvic urethral surgeries cannot be overlooked. This issue of bladder extraperitonization was raised for the first time in the Soviet Union by Kholtssov. In 1933, an article was published in a collection dedicated to Professor S.P. Fedorov, wherein he shared his experience of extraperitonization of the bladder in various diseases accumulated over many years. In the same year, this article was reprinted in the journal *Zeitschrift für urologische Chirurgie* [8].

The whole life and work of Kholtssov is an example of the service of a real doctor, teacher, scientist, and citizen. The wide range of his scientific interests, the ability to choose the most relevant problems of practical medicine for study, and the originality of scientific research indicate the undoubted talent of the scientist-innovator, who has done many for the development of domestic urology, surgery, and nephrology. Boris Nikolaevich Kholtssov left a great scientific legacy, raising the domestic medical science of the early 20<sup>th</sup> century to an unprecedented height, corresponding to the complex and interesting era in which he lived. Presently, his name is widely known in the medical community in Russia and abroad. His memory is the best award for an outstanding clinical scientist.

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## ADDITIONAL INFORMATION

**Authors' contribution.** All authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study. Personal contribution of each author: T.Sh. Morgoshiia — search and analysis of literary data, writing the text of the manuscript; I.V. Kuzmin — search and analysis of literary data, editing the text of the manuscript.

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## ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ

**Вклад авторов.** Все авторы внесли существенный вклад в разработку концепции, проведение исследования и подготовку статьи, прочли и одобрили финальную версию перед публикацией. Личный вклад каждого автора: Т.Ш. Моргошия — поиск и анализ данных литературы, написание текста рукописи; И.В. Кузьмин — поиск и анализ данных литературы, редактирование текста рукописи.

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