

## The history of creation hospital surgery clinic in Kazan

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### Abstract

In 1860, the Department of hospital surgery was organized at Imperial Kazan university. The reform of medical education to Western standards supposed the training of students in faculty and hospital clinics. The main task of the faculty Department is to teach the classical clinical picture of the most common diseases, while the task of the hospital Department is focusing to variants of clinical manifestations of the disease and improvement of practical skills. The first head of the Department of hospital surgery at Imperial Kazan University was Professor Andrey Beketov. Professor A.N. Beketov is one of the pioneers of the use of inhalation anesthesia, which he recommended for widespread use in the clinic. Besides, Beketov is the author of priority works in the field of traumatology and orthopedics. In a short time, the hospital surgical clinic in Kazan became one of the leading clinics in the East of Russia, the Urals and Siberia.

**Keywords:** Department of faculty and hospital surgery, reform of medical education, hospital surgical clinic in Kazan, professor surgeon Andrey Beketov.

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It is the 160th anniversary of the establishment of the Department of Surgery at the University Hospital of Kazan in 2020, which became the fourth in the Russian Empire after the opening of hospital surgical clinics at the universities of Dorpat, Moscow, and Kiev.

In the first half of the nineteenth century, the lack of clinical bases for teaching a surgery began to be acutely felt at Imperial Kazan University, which has repeatedly raised the question of expanding them for the medical faculty. The attempt of A.I. Arngold, the first professor of surgery in Kazan, to expand the clinical base at the expense of the Kazan military hospital, was rejected by the surgeon in ordinary YA. V. Villia because of the affiliation of organizations to different departments, the specifics of a military medicine, and the regulation of military medical activities [1]. The lack of clinical bases in the 1840s was felt not only in Imperial Kazan University. At this time, hospital clinics in Dorpat in 1845, Moscow in 1845, and Kiev in 1848 were opened, giving the faculty a way to solve this problem. In 1850, the faculty of medicine sent Professor I.G. Lindgren to Moscow and Dorpat to get acquainted with the experience of hospital clinics of these universities [1].

The idea of organizing a hospital clinic in Dorpat originated in 1833. Initially, the goal was to in-



Fig. 1. Professor Fyodor Ivanovich Inozemtsev

crease the clinical base, with a formal difference between faculty and hospital clinics. In the future, the hospital clinic will be assigned as a clinical institution where students will master practical skills, and this distinction began to acquire a qualitative character.

Professor Fyodor Ivanovich Inozemtsev initiated the reform of the medical education on the Western model at Moscow University (Fig. 1). Thanks to his efforts, faculty and hospital clinics were formed in 1845. Moreover, F.I. Inozemtsev first introduced the combination of the theoretical training of medical students and the training in practical



**Fig. 2.** Hospital of the Order of public charity in Kazan

skills in teaching. Each student of the medical faculty had to keep a diary of a natural scientist, similar to the modern diary of an industrial practice. Such great importance attached to the learning, development, and improvement of medical skills by medical students confirmed Professor I. G. Lindgren's intention to introduce this training system in Kazan.

Upon his return, I. G. Lindgren, in his report, dwells on the significance of the hospital clinic and its difference from the university (faculty), revealing questions about the base and its organization, the features of the arrangement [2]. The faculty department is mainly tasked to teach the classical clinical picture of the most common diseases, while the hospital department focuses on options for the course of the disease and improving practical skills.

Thus, at the initial stage, the hospital clinic receives independent tasks that are different from those of the faculty clinic, which retains the character of a demonstrative clinic. I. G. Lindgren argued, "the hospital clinic is the link that should complete the full training course of medicine and a surgery and that can form a natural transition from the faculty clinic to the independent practice..." [3]. I. G. Lindgren supports the organization of a practical hospital clinic in Kazan and in turn receives the support of the faculty.

The basis for the clinic is the hospital of the Order of public charity (Fig. 2). Opening a hospital clinic was delayed for several years and received permission only on December 26, 1860, in the form of the highest order to organize one with two departments (surgery and therapy), with an annual monetary allowance of 750 rubles [4].

The clinic opened on the second floor of the Order Hospital, which was soon transformed into a provincial zemstvo hospital (Fig. 2), with a common corridor connecting two men's wards (a total of 12–15 beds) and five women's wards (also 12–



**Fig. 3.** Professor Andrey Nikolaevich Beketov (late 1870s)

15 beds). For the first 10 years (until 1870), the clinic had neither a waiting room nor a surgical room. Surgeries were performed in wards in front of patients. The dressing material (lint) was plucked by the patients themselves and stored there. The staff consisted of two residents and a professor, with no orderlies nor nurses.

During the country council, the university, as well as the lower and the middle schools, funds the medical staff of the clinic entirely—at the expense of the zemstvos. The university purchased dressings, furniture, dishes, and tools, while the country council purchased medicines. The beds consisted of straw mattresses with felt bedding instead of pillows and a blanket of coarse camel's cloth; the linen and dressing gowns also had a coarse canvas.

At first, the clinics had strained relations with the country council. The country council considered clinics an imposed burden and wanted to get rid of them, because the clinical staff did not want to put up with the outrageous situation in which the clinics found themselves, demanding that things would improve [4].

The first head (1861–1870) of the Department of Surgery of Imperial Kazan University was Professor Andrey Nikolaevich Beketov who was born on October 3 (15), 1823, in Moscow in the family of Nikolai Andreevich Beketov, a professor of the Imperial University [5] (Fig. 3).

A. N. Beketov, a student of F. I. Inozemtsev, graduated with honors in 1844 from the medical faculty of Imperial Moscow University. After completing his studies as a budding surgeon and scientist, he worked at the university as an assistant resident (1844–1846) and then as an assistant at the faculty of a surgical clinic (1846–1848). On September 29, 1848, he was awarded the degree of Doctor of Medicine and Surgery at the Moscow State University. The subject of his dissertation was "De hernia inguinale" [6].

The next years of Professor A. N. Beketov's life were connected with Kazan. From 1848 to 1870 and from 1872 to 1882, he worked at Imperial Kazan University. In 1848, A. N. Beketov was confirmed as a Professor at the Department of Theoretical Surgery, where he read the following chapters of the course: inflammatory diseases, injuries, hernias, ulcers and fistulas, benign tumors, cancer, vascular diseases, and deformities. During the time of A. N. Beketov, the theory of surgery was starting to be taught in close connection with the doctrine of pathological processes with a noticeable influence of the then-prevailing views of pathologists Rokitansky and Virchow, but without taking into account the influence of microorganisms, because Pasteur had not yet made his historical discoveries.

In 1860, A. N. Beketov was appointed as the director of the newly formed hospital surgical clinic of the university and was sent abroad. As director of the surgical clinic, he continued to work at the Department of Theoretical Surgery part time until 1870. In addition, from 1865 to 1867, A. N. Beketov worked as a senior doctor of the Order of public charity.

He is one of the pioneers of the use of inhaled chloroform anesthesia and experimental endotracheal anesthesia, which he then recommended for face and eye surgeries. He wrote the second printed report in Russia (1848) on a surgery under chloroform. At the Assembly day of the Kazan University, he gave a brilliant speech "on chloroform and its application in medicine." In his speech, A. N. Beketov evaluated the advantages and disadvantages of chloroform based on experiment and clinical observations [7]. At that time, chloroform was already used as anesthesia faster and more radically than ether, but it can be more dangerous if overdosed.

He also had interesting observations about the effect of chloroform on people with a different constitution and type of nervous system. For example, strong or hysterical people in the period of excitation experience a loss of consciousness, volition, and sentience but retain movement, whereas timid people experience a loss of consciousness and will but have hyperesthesia and the conservation movement; in addition, weak people lose consciousness, sensation, and movement.

A. N. Beketov made interesting observations following the interview of patients who were under anesthesia. He noted that people may experience bluntness without loss of consciousness, prostration and  $\phi$  sleep with preservation of sensitivity, a loss of sensitivity without loss of hearing and vision, or, finally, a loss of movement without loss of consciousness and even with hyperesthesia.

The question of the various degrees of pain and analyzer sensations and the influence of consti-

tutional factors on them has not been studied before, and this issue has not yet been fully resolved. In this area, A. N. Beketov discovered remarkable phenomena that deserve scientific analysis now and emphasized the importance of auscultation for the diagnosis of pulmonary complications for surgical patients (1848).

A. N. Beketov is the author of priority works in the field of traumatology and orthopedics. He performed a periosteal plastic surgery with a silver wire bone suture for pseudoarthrosis of the tibia (Beketov surgery), which was the first in Russia, on May 20, 1862, and one of the first in Europe. The surgery resulted in the complete restoration of limb functions [8]. In his clinic, the resection of fragments was made for an open fracture of the lower leg and increment of severed fingers; electropuncture was applied for pseudoarthrosis. For several years, A. N. Beketov combined teaching surgery with ophthalmology (in the 1868–1869 academic year, he taught a course on eye diseases) and also taught a course on venereal diseases in behalf of the Council. Among his articles, those about human nutrition, healing of amputation wounds, and the Kazan typhoid epidemic were especially interesting. He was widely known in the Volga-Kama region as an experienced surgeon and oculist.

There is no data preserved on the personality of Professor A. N. Beketov. In his memoirs V. I. Razumovsky speaks of him as an excellent technician who masterfully made a lateral stone cutting. For students with a special attraction to surgery, A. N. Beketov allowed them to perform even major operations, amputations, and stone sections [9].

His residents were E. V. Adamyuk, who later gained worldwide fame as the professor-ophthalmologist; V. D. Vladimirov, who became professor of an operative surgery (the author of a osteoplastic surgery Vladimirova–Mikulic); and N. I. Studenskiy, one of the founders of orthopedic surgery in the direction of Russia, later elected as director of the hospital surgical clinic.

This is how the hospital surgical clinic was born in Kazan, which later became one of the leading clinics in Eastern Russia, the Urals, and Siberia, where such luminaries of Russian surgical science as Lev Levshin, Vasily Ivanovich Razumovsky, Alexander Vishnevsky, Viktor Leonidovich Bogolyubov, and others worked. Surgery, as a branch of medicine during the existence of the medical faculty of the Imperial Kazan University, and then the Medical Institute, has passed a difficult path from an undifferentiated, comprehensive, amorphous discipline of the pre-antiseptic period to a complex, highly differentiated branch of Russian health care with great opportunities for patient treatment.

In 1983, as a result of the merger of the hospital and faculty surgical clinics, the Department of Surgical Diseases was organized. Following the glorious traditions formed by the luminaries of a Russian surgery more than a century and a half ago, today the Department of Surgical Diseases the staff continues active teaching and research activities and intensive work in practical health care and lives with an active social life at the Kazan State Medical University, Tatarstan, Russia.

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