

Yurii Voronyi – a surgeon who was ahead of his time

The article outlines the historical milestones in the biography of the outstanding Ukrainian surgeon, Professor Yurii Voronyi, who was a disciple of Professor Yevhen Cherniakhivskiy. The study includes a compilation of historical records, archival sources, and other materials illustrating the life of Professor Voronyi. It highlights the professional and public achievements of Yurii Voronyi, particularly his participation in the struggle for Ukrainian independence between 1917 and 1921.



Christian Bernard and Joseph Murray are well-known names among surgeons and doctors of various specialties. In 1967, Christian Bernard performed the world's first successful heart transplantation in South Africa. In 1954, Joseph Murray performed the first successful kidney transplantation in the United States. These facts are considered axiomatic. Unfortunately, Ukraine still pays insufficient attention to the figure of Yurii Voronyi, who was de facto the first in the world to carry out human-to-human kidney transplantation. He transplanted a kidney from a cadaveric donor to a recipient. Consequently, he was the first to explant an organ from a cadaver for further transplantation and to transplant a well-functioning organ from one individual to another. This historic event for medicine and humanity took place in Kharkiv in 1933. The idea significantly advanced the understanding of the functioning of the human immune system and the principles of tissue compatibility at the time. The story that changed the world's medicine began in Kyiv, at 17 Shevchenko Boulevard, in the Faculty Surgical Clinic of the Medical Faculty of Kyiv St. Volodymyr University (now Kyiv City Clinical Hospital No. 18), with the experimental

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Taras Shevchenko

To the Dead, the Living and the Unborn...

work of Professor Yevhen Cherniakhivskiy, whose student Yurii Voronyi later became. In addition to their professional initiatives, Professors Voronyi and Cherniakhivskiy had strong commitments to civic engagement and fought for Ukrainian state independence from 1917 until 1921. Regrettably, the Soviet repressive regime became aware of this fact. It is unknown what breakthroughs these scientists would have accomplished if not for the Soviet government's inhumane punitive power apparatus. However, the modern medical community should recognise their achievements on a global scale and give them the attention they deserve.

Family

Yurii Voronyi (according to metric records, Heorhii Heorhiiiovych Voronyi) was born in the village of Zhuravka in the Chernihiv region in 1895. His father, Heorhii Voronyi, was a world-renowned mathematician and professor at the University of Warsaw. His scientific contributions and mathematical concepts are still relevant and widely used in modern programming and IT. Scientists from various countries continue to cite Heorhii Voronyi's mathematical research works, even after over a century. Yurii Voronyi's grandfather, Feodosii Voronyi, had a university degree. He graduated from the Faculty of History and Philology at Kyiv St. Volodymyr University. He was a teacher, a well-known public figure, and a representative of the Ukrainian intelligentsia of the time. He knew Mykhailo Drahomanov, Olena Pchilka, and Hryhorii Galagan. Oleksandr Voronyi, the brother of Yurii Voronyi, had a medical degree, worked as a surgeon, became chief

physician at the hospital in Yahotyn (Kyiv region), and pursued both theoretical and practical oncology. His theoretical work on malignant tumour development was based on mathematical calculations and the basics of biological statistics [3, 4].

Vicissitudes in the midst of war

Yurii Voronyi completed his secondary education at a gymnasium in Pryluky. In 1913, he entered the medical faculty of Kyiv St. Volodymyr University, but the First World War interrupted his studies. During the war, Yurii Voronyi volunteered as a member of the medical company of the South-Western Regional Zemstvo Committee for the Care of Sick and Wounded Soldiers. In 1917, he voluntarily joined the army of the newly formed Ukrainian People's Republic. On January 29, 1918, he participated in the battle of Kruty as part of the Reserve Student Kuren of the Sich Riflemen, formed from students of Kyiv St. Volodymyr University and the Ukrainian National University. Despite receiving wounds in the battle, he managed to survive [1].

Early years of professional life

Yurii Voronyi continued his medical education at the Kyiv Institute of Healthcare (renamed Bogomolets National Medical University following restructuring), from which he graduated in 1921. He was offered postgraduate studies by the Department of Surgery, which recognized him as one of the top graduates. Professor Yevhen Cherniakhivskiy, an experienced surgeon, noticed the young, promising graduate and became his mentor. Thus, Yurii Voronyi joined the Faculty Surgical Clinic of the Kyiv Medical Institute (the institution's name after the next reorganisation in 1922) [2]. Professor Mykola Volkovych headed the department, but Professor Yevhen Cherniakhivskiy took over the position shortly after. The latter introduced Yurii Voronyi to vascular surgery and experimental transplantation. Under Yevhen Cherniakhivskiy's leadership, the department conducted not only medical work but also experimental research on organ transplantation. Yurii Voronyi was fascinated by Professor Cherniakhivskiy's scientific ideas, which influenced his future scientific and practical activities in this area [3].

About the teacher Yevhen Cherniakhivskiy

After graduating from the medical faculty in 1902, Yevhen Cherniakhivskiy worked as a surgeon at the Oleksandrivska Hospital in Kyiv. He wrote the first report in the local scientific literature on the successful closure of a heart wound after a stabbing. At the Oleksandrivska Hospital, he worked under the supervision of Professor Mykola Volkovych,

who founded the Kyiv Society of Surgeons in 1908. Yevhen Cherniakhivskiy became the society's first secretary. In addition to his medical work, he conducted scientific research on transplantation. On May 23, 1913, at a meeting of the Physico-Medical Society at St. Volodymyr University, he reported on the results of research on kidney transplantation in dogs using the vascular suture he had developed. During the revolutionary events of 1917–1921, Professor Cherniakhivskiy took an active pro-Ukrainian position. Together with his brother Oleksandr, he helped create the Medical Faculty of the Ukrainian National University, the first higher education institution with Ukrainian as the language of instruction. In 1918, he served as chief physician of the Oleksandrivska Hospital [2]. In 1920, he became the first rector of the newly established Kyiv Institute of Healthcare. In 1922, he headed the Faculty Surgical Clinic, where he actively introduced vascular surgery into practice and continued to work on experimental transplantation [1].

The beginning of independent professional activity and the first attempts at repression

In 1925, Yurii Voronyi began his career as an assistant at the Faculty Surgical Clinic of the Kyiv Medical Institute. However, in 1926, he unexpectedly moved to Kharkiv, where he took up a position as an assistant at the research department of the Faculty Surgery of the Kharkiv Medical Institute, under the leadership of Professor Volodymyr Shamov. Such an abrupt change in Yurii Voronyi's career seems strange, given the fact that in the mid-1920s, the Kyiv Faculty Surgical Clinic became the most powerful surgical institution in Kyiv, with professors Cherniakhivskiy, Volkovych, and Hedroyts working there [7]. The USSR KGB's declassified archives shed some light on this situation. The interrogation materials of Professor Oleksandr Cherniakhivskiy (brother of Yevhen Cherniakhivskiy) revealed the following:

«To spread our influence as an unorganised group, we used our acquaintance with the Kharkiv professors, who stood on the basis of recognising the needs of Ukrainian culture without introducing them to our political outlook, and at that time we sent young doctors to the Kharkiv Medical Institute. I remember Voronyi among them. However, I must admit that I do not know his political outlook and have never spoken to him about it... Thus, even at that time, we established ourselves as an illegal political organisation, uniting elements opposed to the Soviet government and forming cadres who could pose a threat to it in the event that it weakens... First of all, about myself: I had until then recognised an independent Ukraine

as the ideal of political existence, for which a purely socialist structure was not suitable».

This interrogation is part of the Union for the Liberation of Ukraine (ULU) case. The high-profile trial took place in 1929–1930 and marked the beginning of the methodical extermination of the Ukrainian intelligentsia. In this case, 474 people, including doctors and professors of the Kyiv Medical Institute, faced repression. The ULU case is a classic example of a completely fabricated and absurd persecution of the Ukrainian scientific and creative elite. The above text from the interrogation materials was dictated and signed under pressure, as evidenced by similar clichéd statements from other defendants in the case and the rehabilitation of those involved in the process in the 1950s. However, in these materials, the information about Yuriy Voronyi is extremely valuable, which partially explains his spontaneous move to Kharkiv. We can assume that Professor Cherniakhivskiy sent his best student to Kharkiv to shield him from the punitive authorities in Kyiv. The ULU case marked the culmination of the Ukrainian professoriate's repression at the Kyiv Medical Institute, which began in the mid-1920s.

The city where the world's first transplantation was performed

In 1931, Professor Volodymyr Shamov initiated the establishment of the Institute of Haematology and Blood Transfusion (the All-Ukrainian Institute of Emergency Surgery and Blood Transfusion) in Kharkiv. This institution had offices in the Ukrainian SSR, including Kherson. From 1931 to 1936, Yuriy Voronyi worked at the Kherson City Hospital and regularly travelled to Kharkiv on scientific trips. This fact from the prominent surgeon's biography sparked a controversy regarding kidney transplantation in 1933. During the 1930s, Yuriy Voronyi continued to work on transplantation and blood transfusion issues. In addition to his scientific papers on kidney transplantation, he published extremely valuable and intriguing articles on organ transplantation in animals in experiments.

On March 31, 1933, a 26-year-old woman was brought to the hospital, where Yuriy Voronyi was a surgeon on duty. She had taken a mercury solution to commit suicide due to personal life problems. The woman's kidney failure was progressing, and on April 3, Yuriy Voronyi decided to transplant a kidney from her husband, who had died the day before from an incompatible with life brain injury. The kidney was connected to the woman's femoral vessels, and a ureteral fistula was created on the skin of the thigh area to drain urine. A few hours after the operation, some drops of urine were discharged from

the fistula, indicating the viability and functioning of the kidney. The next day, the patient's condition gradually improved, but in the evening, doctors noted a clear negative dynamic. A day later, the patient died. The transplanted kidney showed signs of rejection. Despite a very progressive understanding of the principles of tissue compatibility at the time, which were based primarily on the blood group compatibility of the donor and recipient, the medicine of the time did not have modern capabilities to use immunosuppression, which led to the rejection of the transplanted organ.

In 1934, Yuriy Voronyi was awarded the degree of Candidate of Medical Sciences «honoris causa», i.e., without defending his dissertation. This fact testifies to the wide recognition of his scientific and practical achievements. It is symbolic that the surgeon was awarded this honourable degree at his alma mater, the Kyiv Medical Institute.

Yuriy Voronyi had an extremely difficult time during the Second World War. Prior to his capture, he lived with his family in occupied Kharkiv. During the war, Yuriy Voronyi continued to practice surgery. In 1941, at Kharkiv Hospital No. 12, he performed an extremely complicated operation: the replantation of a young girl's partially severed (according to other sources, completely severed) right arm. In 1956, he received a letter from Nadiia Chyzhevska, which begins with the words «I am writing with your right hand...». Nadiia Chyzhevska was the patient for whom Yuriy Voronyi performed the replantation in 1941. Unfortunately, to date, there is no reliable published medical documentation of this clinical case. Today, it is believed that the author of the world's first successful limb replantation was Ronald Malt, who performed a similar operation in 1964 in Boston, USA. Perhaps, in this case, the priority actually belongs to the outstanding Ukrainian surgeon, Yuriy Voronyi [6].

Post-war life

After the war, Yuriy Voronyi worked as a surgeon and urologist in Zhytomyr. Despite the fact that he held the position of chief urologist in the Zhytomyr region for some time, his potential was much greater. Unfortunately, certain facts from his biography (his «nationalist» past, his brother, who was serving a sentence on a political charge) did not allow him to make the most of his knowledge and skills. Despite the Soviet government's rejection of him, Yuriy Voronyi continued to work on transplantation issues. By 1950, he had performed about 10 kidney transplantations in the Zhytomyr hospital. Unfortunately, there are no publications about these clinical cases in international journals because even the

transplantations performed by Voronyi in the second half of the 1940s were performed earlier than the transplantation performed by Joseph Murray in 1954 [5].

In 1950, Yurii Voronyi was able to return to Kyiv, where he worked at the Institute of Experimental Biology, in the basement of which he lived. He got a decent place to live after operating on a party leader who, out of gratitude, asked for an apartment for the surgeon. Until 1961, he worked in Kyiv, where he died. Yurii Voronyi was buried at the Baikove cemetery.

The repressive system

Unfortunately, throughout his life, Yurii Voronyi constantly faced the work of the destructive and demonic Soviet repressive machine. Thus, his Kyiv teacher, Professor Yevhen Cherniakhivskyi, was arrested in 1929. The Kyiv Medical Institute dismissed him in 1930, denying him the right to teach or practice medicine. Another of Voronyi's teachers, Professor Adam Belts, director of the clinic of the All-Ukrainian Institute of Emergency Surgery and Blood Transfusion, was arrested in 1937. He was accused of «spying for Poland». In 1938, Professor Belts was shot for «allowing inhumane operations», and in 1959, he was posthumously rehabilitated. In

1938, Yurii Voronyi's brother Oleksandr was arrested on trumped-up charges of «counter-revolutionary activity». He died under mysterious circumstances while serving his sentence in the camps [3].

Yurii Voronyi lived through extremely difficult times: the First and Second World Wars, the revolutionary events of 1917–1921, and the period of Stalin's repressions. His extraordinary surgical talent and aptitude for scientific work added to the world's treasure trove of medicine, but the country in which he lived failed to fully appreciate his capabilities.

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Юрій Вороний — хірург, який випередив час

Описано історичні віхи біографії видатного українського хірурга професора Юрія Вороного — учня професора Євгена Черняхівського. Стаття є компіляцією історичних документів, архівних матеріалів та фотографічних ілюстрацій різних етапів його життя. Висвітлено професійну та громадську діяльність Юрія Вороного, зокрема його участь у боротьбі за незалежність України в 1917—1921 роках.