

THE ACHIEVEMENTS OF HISTORICAL AND SCIENTIFIC RESEARCH IN SPINE SURGERY

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ABSTRACT

As for Yakov Leontyevich Sivyan, it cannot be said that he made a great contribution to the development of domestic vertebrology: he was one of the few who created it. The Iron Curtain, which for many decades separated our country from the civilized world, played a negative role in the development of the domestic vertebrology school, one of the leading and recognized centers of which was Novosibirsk. Yakov Leontyevich Sivyan was born in this city in 1920. On September 27, 2020, he celebrated his 100th birthday. No teacher has been with us for 33 years.

The young people at the institute hardly know anything about him. Besides, we who had the good fortune of working with him were very few.

Key words: *solution, pedagogy, surgery, innovative teaching, modular, performance, Medical Institute, hospital.*

INTRODUCTION

Yakov Leontyevich Sivyan was not a family doctor. He was born, as people used to say in Soviet times, into a family of civil servants. His mother worked as a teacher in the lower grades, and his father, an accountant by profession, went to Manchuria to work on the China-Eastern Railway. The family returned to the USSR only 12 years later. Later, his father was repressed and never returned from the camps.

After finishing high school, Yakov sent his papers to the Tomsky Polytechnic Institute, where he was enrolled. Then, having succumbed to the urges of his friends and acquaintances, he changed his mind and became a student of Novosibirsk Medical Institute. During his studies, he showed no inclination towards any particular specialty, did not attend clubs, did not attend duty. I was just learning what my teachers were teaching me.

LITERATURE REVIEW.

He was admitted to the operating room for the first time in his third year and lost consciousness when a surgeon performed local anesthesia on a patient with acute appendicitis. Adaptation to surgery was not easy. He was a third-year student when

the war started. “The university curriculum was drastically curtailed, and 250 graduates graduated in 1943” [1]. The list of graduates in alphabetical order was placed on a conspicuous place and divided into two equal parts by the deans' unwavering hand: the first 125 were sent to the active army, the remaining 125 were distributed in the usual order. Sivyan was appointed to the Rudnichny settlement of the Kemerov region, located near the Central mine. His wife, Natalya Orlova, who was listed as number 126 in the above-mentioned list, went with him. Natalya Sergeyevna remembered that they had been lucky at work.

She herself chose (as it turned out later, for the rest of her life) the profession of ophthalmologist, who was not at the hospital at the time. Yakov Leontevich began working in the surgical department. The hospital and the clinic were well equipped at that time. The surgeon's department was headed by Maria Alexandrovna Cherkasova, a very experienced surgeon of broad specialization who has done a lot to become a young doctor. Siviane had not left the hospital for weeks. The work was enough: treating the injured miners, general surgical patients, and much more. “A year after the birth of their daughter, the family returned to Novosibirsk, and Yakov Leontevich went to work in the Vengerovsky district, where for eight months he was practically the only surgeon” [2]. It was very difficult, the patients were many, some of them put such tasks before the young surgeon that it would not be easy for experienced specialists to solve and ask for advice and help from nowhere. Books helped, including the “Guide to Urgent Surgery” [3] by the French surgeon Felix Lejar, which was published in 1906. To acquire it, Yakov sold almost all his library while still a student and earned the desired 400 rubles (a small amount of money at that time). It is interesting that about the same year another future great vertebrologist-surgeon, Ive Cotrel, purchased a three-volume textbook on the subject of anatomy, which he studied himself, along with his children and grandchildren.

RESEARCH METHODOLOGY.

Yakov Leontevich was called several times to operate on the prisoners of the nearby camp, which was part of the GULAG system. One day he told us about the shock he had experienced during the first operations: when tissue was cut from the vessels, it was not blood but pink transparent fluid - these people were so exhausted. In the spring of 1946, I.L. Sivyan was transferred to the Regional Clinical Hospital as a resident of the orthopedics and traumatology department. Simon Leontevich Schneider was the head of the department. This new stage in Yakov Leontevich's life was also difficult at first - other patients, another surgery, a different status. It was necessary to adopt a special order of life, special relations in the collective, mandatory rules of subordination. The young specialist was taken under his wing by

Veniamin Zaxarovich Kotlyar, who spent the whole war as a surgeon at a military field hospital, and later worked at the department of the medical institute. This experienced specialist taught Yakov Leontevich everything he knew and could. They became great friends, despite the difference in age. On the walls of the chief's office hung many photographs from friends and colleagues, including photographs of V.Z. Kotlyar. It read: "To the friend of my soul..."[4]

ANALYSIS AND RESULTS.

In the summer of 1946, Sivyan was transferred to the position of junior researcher at the Research Institute of Reconstructive Surgery, Traumatology and Orthopedics, of which S.L. Schneider was appointed director. A network of such institutions, totaling 20, was established throughout the USSR to treat veterans of the Great Patriotic War. Even in the mid-1970s, you could see two or three old soldiers being treated and rehabilitated at the institute every day. The research institute should be engaged in research. For more than a decade, Ya.L. Sivyan's scientific interests focused on the pathology of the hip joint. That's not surprising, because hip surgery was considered the pinnacle of orthopedic surgery in those years, and the young surgeon loved difficult tasks, loved to be the first. He was such a character. In those years, treating patients with femoral neck fractures was one of the most difficult problems. Smith-Petersen's three-bladed nail was widely used in the West, but there were practically no conditions for it in our country. A certain amount of work was done in Sverdlovsk, in A.V. Kaplan's Moscow clinic, but no more. "I.L. Sivyan set the task of developing a simple and effective endoscopic fixator for femoral neck fragments. The first thing to decide was what kind of material this fixator should be made of" [5]. Based on a few literary data, including the work of the outstanding Siberian surgeon, Professor V.M. Misha, Yakov Leontevich chose rods made from cow's horn. They proved to be strong, biologically inert, and it was only necessary to determine the optimal form of the fixator. This proved to be the shape of a four-sided nail that resembled a three-line rifle blade. A specific technique for its implantation has also been developed. The first operations were successful, but a new problem arose: a large number of horn plates were needed, not just from some old bulls, but from big old bulls. This unusual obstacle was also overcome, although there were many jokes about the doctor collecting the horns of old bulls from all over the region. Candidate's dissertation in April 1952 "Exoarticular osteosynthesis in femoral neck fractures" was successfully defended. The scientific supervisor was S.L. Schneider, to whom Ya.L. Sivyan brought the completed research. The work continued without the slightest pause. The new task is to treat the injuries of large joints (primarily the hip joint), which lead to immobilization. Behtherev's illness is the most striking example.

Interposition arthroplasty, invented in 1863 by Frenchman Vernet, did not work, although a great number of tissues and substances of both organic and inorganic nature (muscles, fasciae, gold, paraffin, parchment, were tried as a guide between the joint surfaces. The hip joint endoprosthesis of the French brothers Jean and Robert Judo (acrylic head and short three-bladed nail, inserted into the femoral bone along the axis of the femoral neck) due to an inappropriately distributed load often shrank during walking, causing pain syndrome. Here is how Yakov Leontevich describes his own development: “After many efforts, endless trials and research, I was able to create such a prosthesis, as it seemed then. According to the present conception (1578), he is far from perfect. But it was better than the ones that existed at that time”[6]. The prosthesis consisted of plastic head and hip neck. They were mounted on a long metal rod, which was a leg of a prosthesis and was fixed to the hip by hammering this leg not along the short axis of the hip neck as in Judo's prostheses, but along the long axis of the hip, along the course of its bone-brain canal. The load on the leg of my prosthesis fell not across, but along its length, which did not allow the leg to expand in the hip bone. This was tested on special stands.

The engineering calculations confirmed my conclusions. “The first and subsequent operations demonstrated the high effectiveness of the new endoprosthesis” [7]. In 1956, Yakov Leontevich presented for the first time the results of applying his discovery at the All-Russian scientific conference in Leningrad. The development was met with mixed reception from colleagues. One of the curates even jokingly suggested that the wound after endoprosthesis implantation should not be sewn, but rather a zipper fastener should be attached to the skin, so as to spend less time on the permanent replacement of the implant. Yakov Leontevich was not one to be forced to abandon his convictions in this way. In April 1960, in Tomsk, he successfully defended his doctoral dissertation “Intravascular prosthetics of the hip joint in experiment and clinic” [8]. The first monograph by Ya.L. Sivyan was devoted to the same problem. The prosthesis was implanted to hundreds of patients, mentioned in all manuals, we know patients to whom it served correctly for 15-18 years. From 1946 to 1963, Yakov Leontevich Sivyan passed all the official stages - from junior researcher to professor, head of the department of traumatology and orthopedics and always remained, first of all, a surgeon. There is a mention in his personal file that in 1954, Candidate of Medical Sciences Ya.L. Sivyan was sent to the air ambulance station as a flight surgeon and in three months made 32 flights to the remote areas of the region. From the surgical journals of the Department of Traumatology and Orthopedics, it can be determined that Yakov Leontiev became closely involved in spinal surgery in 1958. It should be noted that in Soviet times

there was a surprising and disagreeable feature of domestic vertebratology: there were almost no metal implants. It is possible to mention only a few variants of dorsal fixers, of which only the fixator-strap of Sivyan-Ramiha has survived to this day, which has been repeatedly modified by other authors. In these conditions, Yakov Leontevich made a great effort to develop bone-plastic operations on the anterior and posterior parts of the spine. We can say that he has done more than anyone else in this branch of vertebratology. In 1964, Professor Ya.L. Sivyan was appointed to the position of deputy director of the institute for scientific work. By this time, had been renamed NIITO, as its main task - treating veterans of the Great Patriotic War - had been fully accomplished. The institute had to have its own scientific face. Naturally, vertebratology has become such a face. In 1967, Yakov Leontevich became the head of the newly created Department of Traumatology and Orthopedics of the National Medical Institute, and he was not allowed to occupy two leading positions. Therefore, the position of deputy director was left. The department was based at the Research Institute of Traumatology and Orthopedics, and I.L. Sivyan continued to lead the clinic of traumatology and orthopedics on a public basis (officially, he was a consultant at the Research Institute for a part-time position), and its work, in turn, determined the aforementioned scientific personality and reputation of the institute.

They usually came to Sivyan's clinic from a student's bench. He loved working with young people. He himself fully corresponded to the American image of self-made man and molded his employees to his image and similarity. The work in the department was going very fast: operations, duty, visits, conferences. Every day they rushed to the clinic as if for a holiday and for an exam at the same time. It was always interesting, but even the smallest imperfections were not forgiven by him. We were approached with caution: it was not necessary to prove the right to work on the spine for a year or two. "But even assisting the chief (as we called him) was a happiness for any of us" [9]. His skillful technique combined with his surprisingly innovative thinking made his operations truly unique. Sivyan wrote a lot: more than 20 monographs, half a thousand articles. At the same time, unfortunately, his works were hardly known abroad. Otherwise Professor Sivyan's name would have been on the list of the world's leading vertebratologists, because the operations on the anterior segments of the spine were routine for our institute in the early 1960s. In the 20th century, they were very rare in Europe and America. Yakov Leontevich was rarely abroad. Except for the treatment in the Charles Vary, he visited only two countries. In 1978, he was invited to East Germany by the Political Bureau of the SEPG (German Socialist Unified Party) after an operation he had performed at the Research Institute for a German officer who had suffered a spinal cord injury when

falling from a plane at the Novosibirsk airport. In the GDR, Yakov Leontevich was placed to rest in a small castle to the south of Dresden, in a very beautiful place. Before his rest he attended an orthopedic congress, where he made a report. He could not rest: a couple of days later Yakov Leontevich ran home. He did not know how to rest, he only knew how to work. "There's nothing more interesting than working" [10], he told us one day. At the same time, he was not a sucker. He read a lot, he loved music. At this congress in the GDR, Yakov Leontevich became acquainted with Bulgarian orthopedists - professors Yanakyy Khorevich and Sasha Gerchev, who invited him to Sophia, an orthopedic institute. there were several of them) held a year later. According to the documents stored in the personnel department of the Research Institute, organizing it was not the easiest task in those years. The chief has traveled all over Bulgaria, visited many clinics, consulted, operated, conducted visits. Together with his Bulgarian colleagues, he published a large manual on surgical vertebrology. hen we began to receive Bulgarian colleagues in our NIITO.

Pavel Stavriev from Plovdiv and Lyuben Stokov from Sofia became real friends. The chief is still remembered in Bulgaria, and his name is spoken with deep respect. His life was very difficult in many ways. To a certain extent, this was reflected in his character - he could be harsh, even cruel. "When it comes to business, I'm not fair," he said. But we all knew that whatever happened, the chief would take care of us. In the clinic, among his own people, he will speak in full program, but then he will defend it with all his means.

CONCLUSION.

How did Yakov Leontevich begin by choosing a new scientific field for himself and his institute? The first thing to do was to find out what was going on in the world. This process did not take long, but Yakov Leontevich realized very quickly that the situation was weak, simple - almost impossible. Vertebral fractures were treated primarily conservatively - repositioning (legs raised to the ceiling or the patient laid on different high tables) followed by immobilization with a plaster casing. Operations were performed very rarely: posterior spondylodesis in cases of obsolete injuries or decompression of the spinal cord in cases of complicated fractures, again from the dorsal approach.

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