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ONE STEP TO THE TRUTH. IGNATZ PHILIP SEMMELWEIS - FORERUNNER OF ANTISEPTICS (TO THE 205TH BIRTHDAY)

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Summary: The article is devoted to the actual problem of infectious complications in surgery in the 19th century. The conducted scientific and analytical search testifies to the complex life path and creative activity of Ignats Semmelweis, one of the forerunners of antiseptics.

Key words: Ignats Semmelweis, postpartum fever, antiseptic, "savior of mothers"

POST CINERES GLORIA SERA

*The glory that comes
after death is delayed*

The development of surgery in the 19th century is associated with three fundamental achievements:

1. Introduction to surgical practice of asepsis and antiseptics.
2. Occurrence of analgesia.
3. Discovery of blood groups and possibility of blood transfusion.

The powerlessness of surgeons in the face of infectious complications at that time was terrible. Yes, in M.I. Pirogov, 10 soldiers died of sepsis, which arose only after bloodletting (1845), and out of 400 patients operated on by him during 1850-

1852, 159 died mainly from infection. In the same 1850, 300 patients died in Paris after 560 operations.

The outstanding surgeon M.O. very aptly characterized the state of surgery at that time. Velyaminov. After visiting one of the leading clinics, he wrote: "I saw brilliant operations and ... the kingdom of death."

In the middle of the 19th century, even before the works of J. Lister, some surgeons began to use measures to neutralize infection in their work. Ignats Semmelweis and Mykola Ivanovich Pirogov played a special role in the development of antiseptics during this period.

In 1847, the Hungarian obstetrician Ignats Semmelweis was the first to predict the possibility of postpartum fever (endometritis with septic complications) in women due to the introduction of dead poison by students and doctors during vaginal examination.

E. Pirogov did not create comprehensive works on the fight against infection. But he was half a step away from creating a doctrine about antiseptics. As early as 1844, Pirogov wrote: "The time is not far from us when a thorough study of traumatic and hospital miasms will give surgery another direction" (miasma - pollution, Greek.). E. Pirogov respected the works of I. Semmelweis and even himself, even before Lister, used antiseptic substances (silver nitric oxide, perchloric lime, wine and camphor alcohol, zinc sulfate) to treat wounds in some cases.

Works of I. Semmelweis, M.I. Pirogov and others could not create a revolution in science. Such a revolution could be carried out only by relying on the bacteriological method.

The history of science preserves the memory of great discoveries, which for a long time were not recognized, considered nonsense; about scientists who were considered fantasists, apostates, were left with the opportunity to continue research, persecuted, even destroyed. Among them shines the name of the Hungarian doctor Ignats Semmelweis, to whom a monument with the inscription "Savior of mothers" was erected half a century after his death. However, during his lifetime, despite the likelihood of benefit that his discovery brought to people, Semmelweis was brushed aside like a fed-up insect, and great happiness - the birth of a person - often turned into a tragedy - the death of a mother.



Ignaz Philipp Semmelweis was born on July 1 (17?) 1818 in Taban, a suburb of Buda in Hungary (now part of Budapest). Ignats was the fifth child out of ten children in the family of successful grocer Josef Semmelweis, a German by birth. After finishing elementary school and gymnasium in Buda, in the fall of 1837, Ignaz Semmelweis began studying law at the University of Vienna. His parents wanted their son to be trained as a military judge. But Ignats showed a greater inclination towards essential sciences and decided to devote his life to medicine. He studied in Vienna for the 1st year, in Pest for the 2nd and 3rd years, then returned to Vienna again and completed his studies there. Semmelweis received his medical degree in 1844, when he presented his work "De vita plantarum". His studies coincided with the beginning of the revival of essential sciences in Austria. The famous medical scientists Rokitansky, Škoda and Hebra worked at the University of Vienna, who had a considerable influence on the formation of Ignats' scientific views. After graduation, Semmelweis wanted to become an assistant to the famous therapist Josef Škoda, one of the founders of the "New Viennese School", but he did not succeed. After several more unsuccessful attempts to get a job at an internal medicine clinic, he decided to become an obstetrician. In 1846, he joined Professor Klein's gynecological clinic as an assistant.

These were tragic times for all surgical specialties, not only in Vienna, but throughout the medical world. Epidemic of postoperative fever carried sometimes up to 60% of operated patients to the grave. This was also facilitated by the finally received permission to perform autopsies on the corpses of the dead, and with this action, doctors tried to determine the causes of death from various diseases and their actions. The excessive mortality was a burden on the conscience of surgeons and obstetricians who, after autopsies of dead bodies, freely went to the operating room to operate on patients, examine women in labor, and take births. As a result, postpartum fever became a constant companion of all maternity wards. Alfred Velpo (1795-1867), an outstanding French surgeon, stated bitterly: "A needle prick already opens the way to death." At the same time, it was noted that operations performed at home were less likely to end in the death of the patient. This made it possible to assign a second name to postoperative fever - "hospital fever". But the matter did not go further. No one knew how to fight against her. Hospitals made me feel bad. There was mud and stench in the wards, which were poorly ventilated and cleaned. Patients lay on beds that were placed one next to the other. Nearby lay those who were recovering, and those who were dying, those who had just been operated on, and those who had festering wounds and fever.

It was no better in the operating room than in the wards. In the center of the hall stood a table made of unhewn boards. Surgical instruments hung on the wall. In the corner on a stool stood a basin of water for the surgeon, who could wash his bloody hands after the operation; before the operation, according to the general opinion, it was not necessary to wash them - because they are clean. Instead of cotton wool, they used korpia - bundles of threads that were torn from old linen, more often from unwashed ones. Even the surgeon himself looked terrible when he wore a coat that was contaminated with the blood and pus of the patients. A surgeon's experience is often told by how dirty his coat was.

Obstetrician Ignats Semmelweis began his journey in such conditions. Klein's gynecological clinic was located on the basis of the 1st gynecological department of

the Vienna Hospital and had two gynecological departments. Medical students were trained on the basis of the clinic, and future midwives were trained in the 2nd gynecological department. At the same time, students were trained in the doctor's office, the midwife training program did not include visiting the doctor's office. In the 1940s, the number of women in labor who died in the clinic from postpartum fever increased significantly. Only in October 1842, 29.3% of women in childbirth died. Numerous commissions investigating the circumstances of the tragedy proposed various measures, but nothing helped. It was believed that the causes of high mortality in the 1st department are the epidemiological situation in Vienna, and pregnant women are admitted there already sick. Semmelweis felt that these explanations did not correspond to reality, but he could not understand why. But still, if this is an epidemic, then its root is in the clinic itself.

The young Semmelweis, who saw young women dying, was seized with a thirst to help them. As a follower of Professor Rokitansky, he tried to find a solution to the problem in the prosector's office. Every morning he personally conducted autopsies on the bodies of the dead. Pathological changes were typical - multiple purulent foci in blood vessels, abdominal cavity, pleura, meninges. The statistics attracted attention. In Klein's clinic, where university students studied, from 1841 to 1846, out of 20,042 women in labor, 1989 (9.92%) died, and in the 2nd department, where midwives were trained, the mortality rate was significantly lower - out of 17,791 women in labor, 691 died (3.88%). It was also known that home births and "street" births were significantly less complicated by fever. Semmelweis was overwhelmed by these "killer" statistics. Later, he described his condition during these years as follows: "Everything was under great question, everything was unsolved, everything was in doubt, and only the large number of dead was a reality that led to despair."

In March 1847, Semmelweis and his friends went to Venice. But when he returned to Vienna in April, he learned about the death of his friend, professor of forensic medicine Kolletchka. During the autopsy, one of Kolletchka's students injured his hand. Inflammation began, which soon led to the death of the professor. Studying Kolletchka's autopsy protocol, Semmelweis saw that the changes in the tissues were similar to the themes he noted during autopsies of corpses that died of postpartum fever. This fact closed the circle of reflections of Semmelweis. He came to the conditioned conclusion that "corpse particles", penetrating into the blood, cause general infection. They get to mothers in labor from doctors and students who dissected corpses before that. The midwives were not in the operating room, so the mortality rate was lower in the 2nd ward. It was necessary to find a means that would remove "corpse poison" from hands and birth canals. Semmelweis tried a number of chemical solutions and settled on chlorine water.

Obstetrician Semmelweis was one of the first to start the fight for cleanliness in the hospital. He was the first to establish a surgical clinic using the sanitary and hygienic requirements that could be used at the time. In May 1847, mandatory hand washing of all doctors, students and auxiliary personnel with chlorine water was introduced in the clinic. The results were convincing. In June, the mortality rate decreased to 2.38%, in July - to 1.2%, in August - to 1.09%. In April 1847, before the introduction of the Semmelweis method, 18% of women in labor died. In August 1847, a pregnant woman with cancer was delivered. Of the twelve women who were in the same room with her, 11 died. Semmelweis came to the conclusion that

particles of disintegrating tissue, as well as "corpse poison", can cause fever. After that, hands began to be washed after each examination.

In 1848, the mortality rate in the 1st department was 1.27%, in the 2nd - 1.33%. It seemed that the discovery, confirmed by such statistics, should have convinced even a child. However, it did not convince the retrograde and envious Klein, did not attract the attention of other colleagues. It was easier not to wash your hands. In addition, Semmelweis himself had a negative attitude to the printing of scientific works. He reported his discovery in letters he sent to obstetricians.

At the beginning of 1849, Semmelweis gave a report to the Vienna Medical Society on the prevention of postpartum fever. A lively discussion ensued, which continued for two more sessions. Professor Škoda supported Semmelweis in his speech, and Professor Gebra compared Semmelweis' proposal to Jenner's discovery of the smallpox vaccine. The majority of doctors did not agree with his arguments. Colleagues openly mocked him when he tried to fight "hospital death" with a piece of chlorinated lime. The value of his discovery was also not understood by such pan-European authorities as Professor Simpson of the University of Edinburgh, who twice attended the birth of Queen Victoria, Professor Scanzoni from Würzburg, and Professor Dubois from Paris. Even Virchow opposed Semmelweis.

Semmelweis' innovative idea opposed all the medical dogmas of the time. At that time, it was believed that diseases spread in the form of "bad air" or caused by "adverse atmospheric and cosmic influence." In many medical works of that time, it was emphasized that each case of illness is unique and is an imbalance in the body.

The head of the clinic, Dr. Klein, forbade the scientist to publish statistical data on the drastic reduction in the mortality of women after the introduction of hand disinfection. In March 1849, Semmelweis' term as an assistant expired, and Professor Klein hurried to get rid of the "troublemaker." In 1850, Ignatius Semmelweis was given the title of private docent with great reluctance, while his rights were severely restricted. Semmelweis was engaged in teaching for some time, demonstrating obstetric techniques on phantoms. It is not difficult to understand his condition. The new views of Semmelweis seemed to his colleagues to be strange, unworthy of the title of a doctor. And he paid for them by being expelled from the Vienna Clinic. He could not bear such humiliation and left Vienna in October and returned to Budapest.

In the St. Roch Hospital in Pest, where Semmelweis became the head of the gynecological department in 1851, the situation was extremely bad. Postpartum fever was treated with laxatives. Semmelweis achieved, through the implementation of his method, a reduction in mortality to 0.85%. In 1855, he became a professor of gynecology at the University of Pest and promoted his method with redoubled energy. At the end of the 1950s, on the initiative of Markuszewski, several of his articles were published in the "Medical Weekly", but this publication, which was popular in Hungary, was not distributed in Europe. He wrote a book in German "Die Aetiologie der Begriff und die Prophylaxis des Kindbettfibers" (1861). His book was able to convince only a few, but a number of prominent specialists remained opponents of Semmelweis's teachings. A young assistant published a paper on puerperal fever in which he distorted Semmelweis's point of view quite strongly. This opus received an award from the Würzburg Medical Faculty.

Confident in his method, but surrounded by a wall of misunderstanding and mentally unbalanced, Semmelweis sent letters (1861, 1862) to the most prominent professors in Europe, in which he called murderers those who did not use his method. He threatened them with prosecution.

The vast majority of contemporaries did not appreciate the outstanding discovery of Semmelweis. In the 1950s and 1960s, young women who gave birth in all the hospitals of the world continued to die from postpartum fever. Among those who recognized the importance of his method was the great M.I. Pirogov, who wrote in "Principles of general military field surgery": "Semmelweis's conviction about the stickiness of pyemia in parturient women, no matter how extremely eccentric it may be, still contains a large share of truth..."

In 1865, Semmelweis developed signs of a mental illness and began to rapidly worsen. In mid-July 1865, at a meeting of the medical faculty, he stood up and began to recite the obstetrician's oath when it was necessary to vote. The disease progressed, and on July 31 he was taken to Vienna, where he was hospitalized in a psychiatric clinic. Earlier, in the first half of June, Semmelweis injured his finger during an operation. The wound is festering. In a psychiatric clinic, Semmelweis developed sepsis, from which he died on August 13, 1865. Sepsis, the method of combating which he proposed and unsuccessfully promoted for almost 20 years, became the cause of his death.

Tragically, Semmelweis died after realizing that his teachings were not understood. Ignaz Semmelweis made his discovery 18 years earlier than Lister. However, the banner of the fight against infection was picked up, and in the same year 1865 Joseph Lister, independently of Semmelweis, began to conduct his first experiments on the use of antiseptics. In 1867, he described the basic principles of the antiseptic method. In the early 1970s, D. Lister improved his method, which received general recognition over the next few years. Recognition of this discovery made it possible to save the health and lives of many patients. It was written about Lister during his lifetime that he saved more people than died in all the wars of history. It was fair. Lister was elected an honorary member of almost all medical societies of the world. He became one of the first honorary members of the Pirogov surgical society, received the title of peer of England, and after his death was buried in Westminster Abbey, where Newton and Shakespeare rest. Lister justified the antiseptic method on strictly scientific data of microbiology. Semmelweis was an empiricist and could not prove the existence of "corpse poison". Jenner was also an empiricist, but his vaccination gained general acceptance in the near future after the description of vaccination.

The pioneering role of the scientist in the development and practical use of antiseptics was recognized only after his death. In 1906, a monument to Semmelweis with the inscription "Savior of mothers" was erected in Budapest on the basis of donations from doctors around the world. In addition, the medical university in this city is named after him. The Semmelweis Museum of the History of Medicine operates in the building where Semmelweis lived in Budapest. In psychology, there is a term called the Semmelweis Reflex, which refers to the denial of new data on the grounds that it contradicts established ideas. The portrait of Semmelweis is depicted on postage stamps of Hungary 1965, Germany 1956 and Austria 1965.



Semmelweis monument in Budapest

The unrecognized Semmelweis was buried at the Shmeltsky cemetery. Since 1964, his ashes have rested in the wall of the house where he was born and where the Semmelweis Museum of the History of Medicine is located. In front of the wall is a sculpture depicting a mother with a child.

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