Semmelweis' Germ Theory

Semmelweis' germ theory was introduced when Semmelweis saw a connection between puerperal fever and disinfected hands of the hospital staff.

The common practice of hand washing nowadays was once considered odd during the 19th century. Moreover, the diseases like malaria and typhoid were associated with the contact with water.

On the contrary, large number of women died during childbirth due to puerperal sepsis or the childbed fever. Childbed fever was largely caused by the transfer of infection due to the lack of indoor plumbing and hygiene facilities in hospitals. But thanks largely to Philipp Semmelweis who discovered the etiology and prevention of puerperal fever we now understand the importance of handwashing.

Ignaz Semmelweis - The Savior of Mothers

Ignaz Semmelweis introduced handwashing standards after discovering that the occurrence of puerperal fever could be prevented by practicing hand disinfection in obstetrical clinics. He believed that microbes causing infection were readily transferred from patients to patients, medical staff to patients and vice versa.

Thus, Semmelweis suggested the use of chlorinated lime solution for handwashing to prevent

the infectious disease from spreading. For this successful yet such simple and cost effective method, he is rightfully considered to be the savior of mothers.

His Early Life & Education

Ignaz Philipp Semmelweis was born on July 1, 1818 in Taban (Budapest) in Hungary. His well-off family was perhaps of German descent and was Jewish. During 1835-1837, he went to Catholic Gymnasium of Buda for his primary education and later finished schooling at the University of Pest. In 1837, he went to Vienna to study law at the University of Vienna but switched to medicine due to personal inclination. He received his master's (Magister) degree in medicine in 1844 with specialization in midwifery. He learned diagnostic and statistical methods and took surgical training before taking a post as assistant in the Vienna General Hospital.

Semmelweis' Discovery

During his job at the hospital, Semmelweis closely concerned himself with the study of puerperal fever causing high maternal and neonatal mortality. The Vienna General Hospital operated two maternity clinics - the first clinic and the second clinic for different classes of patients. The treatment was given by the medical students and midwives in the first and the second clinic respectively. He observed that the death rate in the first obstetrical clinic was 13.10%; much higher than the 2.03% death rate in the second clinic. However, there were no explanations for the high contrasting statistics and several mysterious causes were attributed towards the disease.

During a research on the autopsy of his friend who died because of a fatal dissection wound, Semmelweis noticed symptoms similar to those of childbed fever. This observation prompted him to connect cadaveric contamination with puerperal fever. Soon after he declared that medical students carried infectious substances on their hands from dissected cadavers to the laboring mothers. This also provided the logical explanation for a lower death rate in the second clinic, operated by midwives because they were not involved with autopsies or surgery.

Semmelweis and Handwashing

Semmelweis discovered that puerperal sepsis (a type of septicaemia) commonly known as childbed fever in new mothers could be prevented if doctors washed their hands. Based on his analysis, he established a simple but revolutionary prophylaxis system in 1847. He insisted upon the use of chlorinated lime solutions for handwashing by medical students and doctors before they treated obstetrical patients.

The application of his method instantly reduced the cases of fatal puerperal fever from 12.24% to 2.38%, while in some months there were no deaths from childbed fever at all. Besides the hands, he initiated using preventive washing for all instruments making contact with the patients which literally removed puerperal fever from the hospital. This was the beginning of an antiseptic era.

Reaction to Semmelweis' Discovery

Although hugely successful; Semmelweis' discovery directly confronted with the beliefs of science and medicine in his time. His colleagues and other medical professionals refused to accept his findings mainly because they did not find it convincing that they could be responsible for spreading infections. The reaction reflected on his job as well when he was declined a reappointment in 1849.

Ignaz Semmelweis was himself reluctant to publish or demonstrate his research and findings publically but some of his students and colleagues wrote letters and delivered lectures explaining his work. But later, he somehow got convinced and during 1850, he delivered a few lectures in Vienna on the Origin of Puerperal Fever. He returned to Budapest in 1851 and joined St. Rochus Hospital remaining there till 1857. His antiseptic methods proved to be fruitful here as well. In 1861, he eventually published a book in German about his significant discovery followed by a series of letters written in reaction to his critics.

His Demise

The continued criticism and lash out finally broke him down. By 1865, he was suffering from depression, forgetfulness and other neural complaints and was eventually committed to an asylum. He only lasted there for two weeks and died on August 13, 1865 at the age of 47.

"When I look back upon the past, I can only dispel the sadness which falls upon me by gazing into that happy future when the infection will be banished . . . The conviction that such a time must inevitably sooner or later arrive will cheer my dying hour."
