Oscar (Oskar) Minkowski: Discovery of the Pancreatic Origin of Diabetes

Although most people who consider the history of diabetes mellitus think first of Canadians Frederick Banting and Charles Best and their discovery of insulin in 1921, it was Oscar Minkowski who demonstrated more than 30 years earlier that the pancreas plays a major role in the cause of diabetes.

Minkowski was well-known for his manual dexterity, and he became the first to remove a liver from a living animal in the late 1880s, demonstrating that the liver was critical for bile production. A chance meeting with Joseph von Mering (1849-1908) in the University library led to a discussion of pancreatic enzymes and ultimately a collaboration that showed that total pancreatectomy in dogs produced severe diabetes. Von Mering, echoing physiologist Claude Bernard, held the view that animals could not survive total pancreatectomy. He challenged Minkowski to prove him wrong, and on the following day Minkowski performed the first pancreatectomy with the assistance of von Mering. As the investigators had predicted, the dog developed severe diabetes manifested by glycosuria, polydipsia, polyuria, weakness, and weight loss. Minkowski then proceeded to perform total pancreatectomies on three more dogs, who also survived and developed diabetes. In 1889, Minkowski prepared a manuscript reporting their pancreatectomy results, emphasizing that no other organs were damaged during the surgical procedure; he put von Mering’s name first out of “courtesy” and also because von Mering was older than himself.

Although Minkowski had become a Prussian citizen and converted to Christianity, he was initially turned down for multiple professorships because he was of Jewish origin. Minkowski became chief physician at a community hospital in Köln and then in 1905 was named Professor of Medicine at Greifswald. B.A. Houssay, Nobel Prize winner from Argentina, sent a personal memorandum to the Prussian Minister of Education stating that “this man of great worth was continually being passed over for incomprehensible reasons.” Fortunately, in 1909 he became an “ordinarius” Professor in Breslau (now Wrocław, Poland) where he remained until retirement in 1926.

In 1923, Minkowski and a team of other eminent European physicians were called to Moscow to care for Vladimir Lenin following a suspected stroke. The physicians could not agree on a diagnosis, and Lenin died the following year after another stroke and a seizure. Following retirement, Minkowski lived in Wiesbaden and then the Schloss-Sanatorium in Fürstenberg, where he died from bronchial pneumonia and thrombosis in 1931. His widow subsequently had to leave Germany because of rising persecution of Jews. Her escape was made possible by financial assistance from Charles Best. Minkowski’s brother Hermann (1864-1909) was a famed mathematician who studied the geometry of numbers, and his son Rudolph (1895-1976) was a noted astronomer who led the Palomar Observatory Sky Survey in the 1950s.

In 1900, Oscar Minkowski described a familial hemolytic anemia (Minkowski-Chauffard...
Syndrome), now known as hereditary spherocytosis. He also recognized Korsakoff’s syndrome (a neurological disorder caused by thiamine deficiency) before Sergei Korsakoff. In addition, he described a patient with acromegaly in 1887 who had defects in the visual fields of both eyes from the marked enlargement of the pituitary gland found at autopsy. Minkowski was honored with a stamp issued by Lithuania (Scott #984) in 2012 and by the defunct Transkei (Scott #237) in 1990. His name is also linked to a prize given annually for meritorious research by the European Association for the Study of Diabetes.