

100 Years Poliovirus from Discovery to Eradication

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Vienna

Karl Landsteiner's discovery
of poliovirus in Vienna

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AUSTRIAN IMMUNOLOGY – THE PIONEERS



Clemens von Pirquet



Karl Landsteiner



Michael Eisler Terramare

Karl Landsteiner

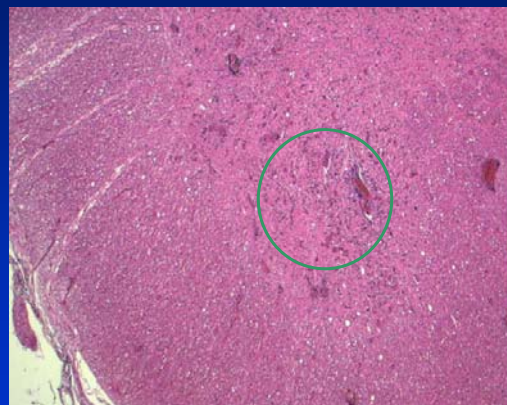
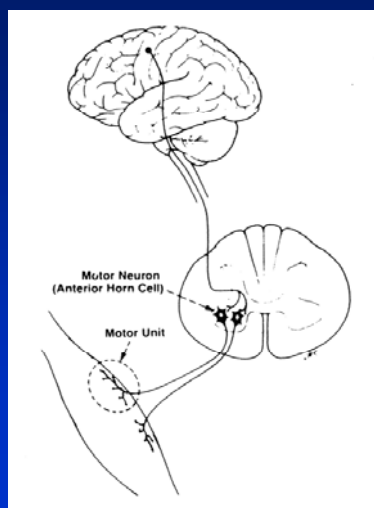
1868	Born in Vienna on June 14
1885-1891	Studies of medicine at the University of Vienna, graduating in 1891
1891-1896	Studies of chemistry and work in the laboratories of E. Bamberger at Munich, E. Fischer at Würzburg and A.R. Hantzsch at Zurich
1896	Returning to Vienna, assistant at the Hygiene Institute in Vienna
1898-1908	Assistant in the University Department of Pathological Anatomy in Vienna
1901	Discovery of the blood groups A, B, 0
1904	Studies on paroxysmal hemoglobinuria
1905-1907	Studies on syphilis
1908-1919	Prosector in the Wilhelminenspital in Vienna

1909	Classification of human blood into the now well-known groups A, B, AB, O
1909	Poliovirus
1911	Professor of Pathological Anatomy at the University of Vienna
1919	Prosector at the Ziekenhuis hospital in The Hague
1922	Professor at the Rockefeller Institute for Medical Research in New York
1922 – 1943	The specificity of serological reactions
1930	Nobel Prize for Physiology or Medicine
1939	Emeritus Professor at the Rockefeller Institute
1940	Discovery of the Rhesus-factor (together with Wiener and Levine)
1943	Died in New York on June 26

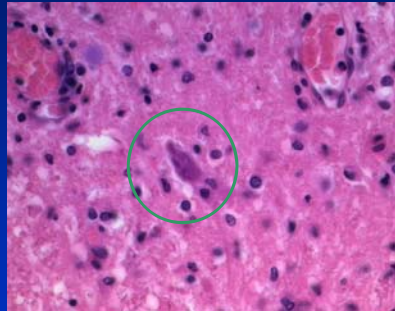
Poliomyelitis acuta

- first description by Heine
- leading symptom: spinal paralysis
- considered to be infectious in nature, because of early clinical symptoms (fever, headache, gastroenteritis etc.) and because of its epidemic occurrence
- mode of infection: direct contact
- co-morbidity/mortality of animals (dogs, rabbits, chicken) during polio epidemics
- extensive search for bacteria in the central nervous system and the CSF yielded either negative or inconsistent data

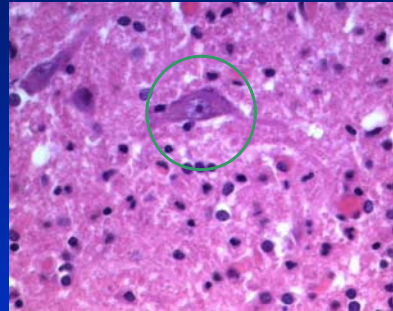
Poliomyelitis epidemica anterior acuta



Inflammatory changes with hyperemia, particularly within and around the ventral horns



neuronal cell damage within the ventral horn



vital neuron

F.S. - Case history

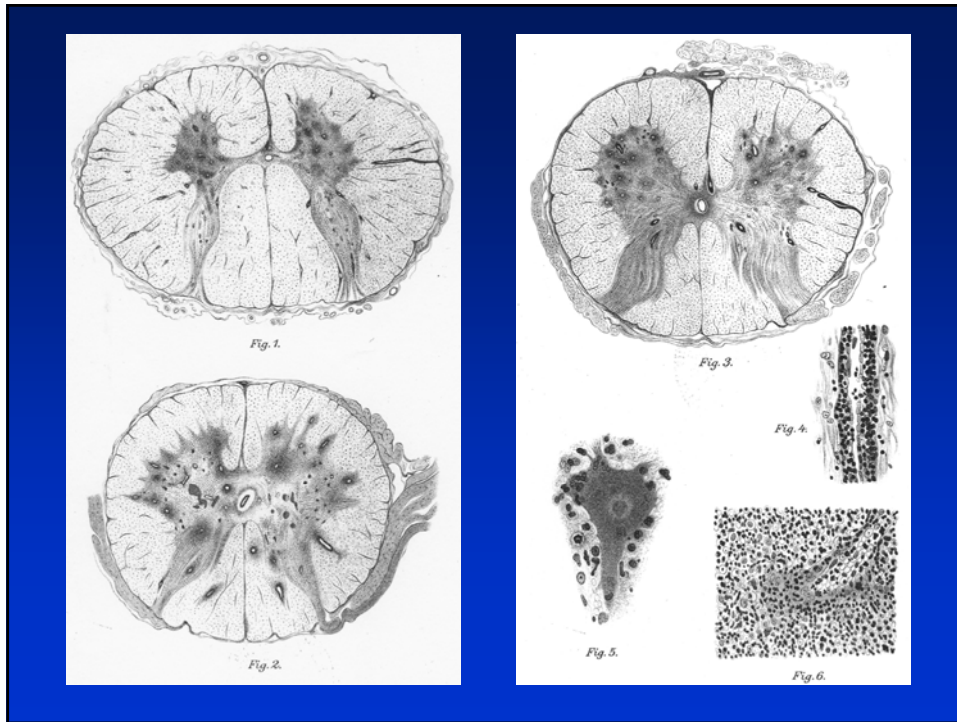
- 9 year-old boy with unremarkable history
- sudden disease onset and rapid development
 - November 13, 1908: flu-like symptoms, headache
 - November 14, 1908: fever, nausea, vomiting
 - November 15, 1908: widespread paralysis
 - November 17, 1908: respiratory distress
 - November 18, 1908: death

F.S. - Pathology report

- no pathologic changes - except those in the CNS:
 - perivascular and diffuse inflammatory infiltrates
 - preferential involvement of the gray matter, including hemorrhages
 - injury of cells within ganglia

Laboratory investigations

- native material of CSF and CNS: no evidence for microorganisms
- tissue homogenate:
 - culture: serum broth/agar, blood broth/agar: negative
 - intraperitoneal administration:
 - rabbits, guinea pigs, mice: negative results
 - monkeys: paralysis



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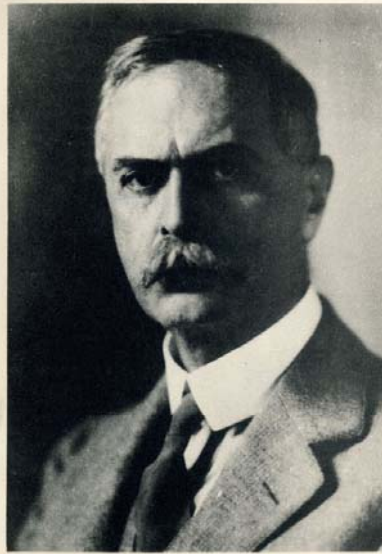
[Aus der Prosektur des k. k. Wilhelminen-Spitals und der Abteilung für Kinderkrankheiten (Prim. Foltanek) in Wien.]

Uebertragung der Poliomyelitis acuta auf Affen¹⁾.

Von Dr. Karl Landsteiner und Dr. Erwin Popper.

Mit Tafel I und II.

(Eingegangen bei der Redaktion am 5. März 1909.)



Karl Landsteiner
1868 - 1943