

The Clinical Descriptions of 1918 Influenza Pandemic

Patients with the influenza disease of the epidemic were generally characterized by common complaints associated with the flu. They had body aches, muscle and joint pain, headache, a sore throat and a unproductive cough with occasionally harsh breathing (JAMA, 1/25/1919). The most common sign of infection was the fever, which ranged from 100 to 104 F and lasted for a few days. The onset of the epidemic influenza was peculiarly sudden, as people were struck down with dizziness, weakness and pain while on duty or in the street (BMJ, 7/13/1918). After the disease was established the mucous membranes became reddened with sneezing. In some cases there was a hemorrhage of the mucous membranes of the nose and bloody noses were commonly seen. Vomiting occurred on occasion, and also sometimes diarrhea but more commonly there was constipation (JAMA, 10/3/1918). A few physicians associated psychoses with influenza infection. One article says that "the frequency of mental disturbances accompanying the acute illness in the epidemic has been the subject of frequent comment," (JAMA, 1/25/1919) The danger of an influenza infection was its tendency to progress into the often fatal secondary bacterial infection of pneumonia. In the patients that did not rapidly recover after three or four days of fever, there is an "irregular pyrexia" due to bronchitis or broncopneumonia (BMJ, 7/13/1918). The pneumonia would often appear after a period of normal temperature with a sharp spike and expectorant of bright red blood. The lobes of the lung became speckled with "pneumonic consolidations." The fatal cases developed toxemia and vasomotor depression (JAMA, 10/3/1918). It was this tendency for secondary complications that made this influenza infection so deadly.

In the medical literature characterizing the influenza disease, new diagnostic techniques are frequently used to describe the clinical appearance. The most basic clinical guideline was the temperature, a record of which was kept in a table over time. Also closely monitored was the pulse rate. One clinical account said that "the pulse was remarkably slow," (JAMA, 4/12/1919) while others noted that the pulse rate did not increase as expected. With the pulse, the respiration rate was measured and reported to provide clues of the clinical progression. Patients were also occasionally "roentgenographed" or chest x-rayed, (JAMA, 1/25/1919). The discussion of clinical influenza also often included analysis of the blood. The number of white blood cells were counted for many patients. Leukopenia was commonly associated with influenza. The albumin was also measured, since it was noted that transient albuminuria was frequent in influenza patients. This was done by urine analysis. The Wassermann reaction was another added new test of the blood for antibodies (JAMA, 10/3/1918). These new measurements enabled to physicians to have an image of action and knowledge using scientific instruments. They could record precisely the progress of the influenza infection and perhaps were able to forecast its outcome.

The most novel of these tests were the blood and sputum cultures. Building on the germ theory of disease, the physicians and their associated research scientists attempted to find the culprit for this deadly infection. Physicians would commonly order both blood and sputum cultures of their influenza and pneumonia patients mostly for research and investigative purposes. At the military training camp Camp Lewis during a influenza epidemic, "in all cases of pneumonia...a sputum study, white blood and differential count, blood culture and urine examinations were made as routine," (JAMA, 1/25/1919). The bacterial flora of the nasopharynx of some patients was also cultured since droplet infection was where the disease disseminated. The collected swabs and specimens were inoculated onto blood agar of petri dishes. The grown up bacterial colonies were closely studied to find the causal organism. Commonly found were *pneumococcus*, *streptococcus*, *staphylococcus* and *Bacillus influenzae* (JAMA, 4/12/1919). These new laboratory tests used in the clinical setting brought in a solid scientific, biological link to the practice of medicine. Medicine had become fully scientific and technologic in its understanding and characterization of the influenza epidemic.