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Purulent bronchitis in 1917 and pandemic influenza in 1918

A remarkable *Lancet* paper, which is probably the first description of the so-called 1918 Spanish influenza outbreak,[1] is omitted from the journal's Pandemic influenza: 100 years microsite. We wish to draw attention to this work, both to augment the excellent timeline of landmark events in influenza history in the microsite and to describe this early paper's relevance to understanding the origin of the 1918 influenza pandemic.

With great clarity Hammond and colleagues,[1] British army medical officers serving in Étaples, France, described purulent bronchitis that presented with a "symptom complex so distinctive as to constitute a definite clinical entity" in 71 soldiers who died during the winter of 1916–17. They detailed the clinical, bacteriological, and postmortem features of the disease, typically including dyspnoea without orthopnoea, cyanosis, tachycardia, thick, purulent sputum obstructing the upper airways, and right-sided heart failure. Importantly, they noted that the disease carried high risk of death and that it affected young adults—although the age group was not surprising in the context of the military encampment, which was the largest complex of hospitals serving the Western Front. Publication rapidly stimulated another British military medical group to report a similar outbreak in Aldershot, UK, in March to May, 1917.[2]

Although the clinical features described in these and subsequent reports varied—eg, the quantity of pus expectorated by patients, the extent of lung consolidation, and the degree of right-sided heart failure—sufficient consistency of clinical, bacteriological, and postmortem findings existed for some contemporary clinicians and scientists to conclude that purulent bronchitis was an early manifestation of 1918 influenza and its sequelae.[3,4]

Nevertheless, proof would require confirmation that both purulent bronchitis and so-called Spanish influenza were caused by the same virus. Fortunately, one of the authors of the 1917 *Lancet* paper, William Rolland, a histopathologist and general practitioner, kept a box of samples from soldiers who died, fixed in wax and mounted on glass slides, including samples from lung, lymph node, and diaphragm (figure). After his death in 1943, Rolland's wife disposed of many of his belongings, but his son, Charles Rolland, rescued the slides and subsequently passed them on as family heirlooms to his son-in-law, Jim Cox.

Analysis of viral genetic sequences from this human tissue, if technically successful, would confirm or deny whether the outbreak of purulent bronchitis in France in the winter of 1916–17 was indeed influenza caused by the same virus as the 1918 pandemic. Confirmation would mean that current alternative hypotheses, such as that the earliest known cases of the pandemic were detected in China in 1917, or in Kansas, USA, in early 1918,[5] could be definitively discounted.

Hopefully, the results of genetic sequencing of material in the slides will be available later in 2019.

We declare no competing interests.

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***Figure*: Slide from Dr William Rolland's collection, "Private Cherry, tissue attached diaphragm", Feb 18, 1917**
Specimen is from one of the patients documented in reference 1.

For **Pandemic influenza: 100 years** see https://info.thelancet.com/pandemic-flu-100?utm_campaign=pandemicflu100&utm_source=boombox%C3%82

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