# Rudolf Virchow: the father of today's pathology

This year marks the 200th anniversary of the birth of Rudolf Ludwig Virchow, a pathologist and polymath who, among other things, coined the terms leukaemia, embolism and thrombosis.

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This year marks the 200th anniversary of the birth of Rudolf Ludwig Virchow, widely regarded as the father of modern pathology. His life history is remarkable, not only because of the extent of his contribution to many aspects of pathology and public health, but also because he played an important role in the political scene in Germany.

Virchow was born in Schievelbein, in Prussia (now Swidwin, in modern Poland), on 13 October 1821. He was the only child of a farmer, who was also the town treasurer. At the local school he invariably topped his classes and became an excellent linguist. Torn between a career in medicine or in the church, Rudolf chose the former as he considered his voice to be too weak for preaching. In 1839, aged 18 years, he received a bursary to study medicine at the Humboldt University in Berlin and graduated in 1843. His doctoral thesis was on the corneal manifestations of rheumatic disease.

The following year, he was appointed assistant to the pathologist Robert Froriep, who kindled Virchow's interest in this field. In 1845, Virchow published his first paper, in which he gave the first pathological account of leukaemia.

In 1846, Virchow succeeded Froriep as hospital prosector at the Charité Hospital, Berlin. In 1848, the University of Wurzburg appointed Virchow to the first chair of pathological anatomy in Germany. Seven years later, he moved to the University of Berlin as its foundation professor of pathological anatomy. Here he spent the remainder of his long and active life, working at his studies in pathology as well as playing an active part in politics.

In 1859, he became a member of the municipal council of Berlin and began his second career as a civic reformer. He was elected to the Prussian Diet (formal deliberative assembly) in 1862 and was then elected to the Reichstag in Berlin from 1880 to 1893. He worked to improve the healthcare and working conditions of the people of Berlin.

He became a leading political opponent of Otto von Bismarck, Chancellor of the German Empire, and particularly his excessive military budgets. In 1865, Bismarck was sufficiently angered by Virchow to challenge him to a duel. Virchow declined, because he considered duelling to be an uncivilised method of resolving a political dispute. Another version of this story (which may not be true) states that Virchow, being the one challenged, chose two German pork sausages as weapons, one loaded with the larvae of *Trichinella spiralis*. Bismarck declined the offer and the duel was cancelled.

Virchow was a prolific author, publishing in excess of 2000 articles. His textbook, *Cellular Pathology*, was published in 1858. He founded a number of journals, the best known being his *Archives for Pathology*, which first appeared in 1847. In 1903, its name was changed to *Virchow's Archives* and it remains in print to this day.

Virchow introduced many of the terms in daily use today, including leukaemia, chordoma, embolism and thrombosis. He devised many biological terms, including chromatin, agenesis, parenchyma, amyloid degeneration and spina bifida. He described, simultaneously with the Frenchman Charles Troisier, that enlarged, hard supraclavicular nodes are a sign of gastrointestinal malignancy. This is commonly known as Troisier's sign in France and Virchow's sign in Germany.

Virchow elucidated the mechanism of pulmonary thromboembolism and coined the terms 'embolism' and 'thrombosis'. In 1859, he wrote:

**'The detachment of larger or smaller fragments from the end of the softening thrombus are carried along by the current of blood and are driven into remote**

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**vessels. This gives rise to the very frequent process, on which I have bestowed the name of "embolia".'**

However, Virchow was not always so ahead of his time. He was highly critical of the work of the Hungarian obstetrician, Ignaz Semmelweiss, on the infective nature of puerperal sepsis and his concept of the carriage of the infection on the hands of the obstetrician. He also denied Charles Darwin's theory of the origin of species and considered the original specimen of the skeleton of man's forerunner, Neanderthal man, to be that of a deformed human being.

Virchow was the first person to develop a systematic method of performing an autopsy, which was carried out in every case, without exception. Today's autopsies are based on his technique. In 1857, one of his autopsies resulted in the discovery of a prolapsed lumbar intervertebral disc. He published his method in a small book in 1876. He insisted on performing a complete dissection of the cadaver with retention of any abnormality for further study and demonstration.

As if his interests were not wide enough, Virchow turned his attention to anthropology in 1865, when he discovered and investigated primitive pile dwellings in northern Germany. In 1869, he co-founded the German Anthropological Association, was several times its President, led several archaeological expeditions in Germany and made a number of field trips abroad, including one to Troy in 1879. The Rudolf Virchow Lecture in Anthropology is given annually in his honour

In January 1902, Rudolf Virchow fractured the shaft of his femur while exiting an electric tram. The fracture failed to heal, greatly reducing his physical activity and leaving him bedbound. He died of cardiac failure on 5 September of that year. Four days later he was buried at a state funeral, leaving his wife and five children.

Surely, a most remarkable pathologist and polymath.

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# BJHM anniversary articles: a fond farewell to a valued contributor

Professor Harold Ellis wrote his first article for the *British Journal of Hospital Medicine* in 2004, contributing to a symposium on adhesions. This was a fruitful introduction for the journal, as he then started writing a series on surgical and medical anniversaries which has run since then. This issue contains his final article for the journal – at 95 years of age, he has decided that it is time to stop writing these articles – not because he does not enjoy writing but because the pandemic has made it harder for him to do the detailed research required to write these articles to such a high standard.

These articles have given a great insight into both the history of medicine and surgery, and the workings and development of the NHS and surgery over Professor Ellis's career. Having started working in the NHS in 1948, the year the NHS began, he has been in a great position to reflect on the changes to the system and practice of healthcare.

On behalf of myself and the Editors in Chief who have worked with Professor Ellis – Dr Jack Tinker and Professor Rob Miller – we would like to thank him for his fascinating and valuable contributions to the journal and to wish him well in his retirement.

*Rebecca Linssen*
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