Leopold Auenbrugger, father of the clinical examination of the chest

I am writing this contribution having, only this morning, taken a group of students from Guy's Hospital, in the first week of their clinical introduction course, through 'examination of the chest'. Of course, they were excited as I demonstrated the art of 'inspection, palpation, percussion and auscultation'. I showed them the old trick of practicing 'dullness to percussion' by using the side of the examination couch and 'resonance to percussion' by using the mattress.

I refrained from mentioning some of the things I had been taught on my own introductory clinical course in 1945 – neither 'percussion using two coins', which I never found helpful in diagnosing a pneumothorax, nor 'the crackpot sound' which I could never elicit myself in percussing over a tuberculous cavity. I did, however, point out that the father of percussion of the chest died just 200 years ago, in 1809.

Leopold Auenbrugger von Auenbrugg was born in 1722 in Graz, Austria. His father, a successful innkeeper, gave the lad a good education, then sent him to the University of Vienna to study medicine. He qualified at the age of 22 years, then spent the next 10 years working in the Military Hospital in Vienna, before settling into a thriving practice in that capital city. It was at the Military Hospital that he commenced his lifelong study of diseases of the chest.

The story goes that Auenbrugger, as a lad, had watched his father assess the level of wine in the vats at the inn by tapping the wall of the barrel. The air-filled upper part of the barrel would give a resonant note, in contrast to the dull sound given by the fluid below. By tapping the chests of his patients, Auenbrugger found that he could delineate the outline of the heart and detect fluid collections in the chest cavities. He went on to perform experimental studies in cadavers and showed, by injecting fluid into the pleural cavity, that percussion could indeed assess, with reasonable accuracy, the amount of fluid that he had injected. He then went on to show that the site and size of tuberculous foci in the lungs could be detected by percussion, again checking his findings at autopsy.

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Auenbrugger went on to study vocal fremitus – the vibrations transmitted from the larynx via the lungs to the hand placed on the chest wall; classically, in this country, this is done by asking the patient to say, in as deep a voice as possible, 'ninety-nine'.Pathologically, fremitus may be diminished by interference with the passage of the vibrations by a bronchial obstruction or the vibrations may be damped down by the presence of a pleural effusion or by a pneumothorax. In contrast, vocal fremitus may be enhanced by conduction through solid lung tissue, for example, in lobar pneumonia.

Auenbrugger's observations were published in a little book, with the Latin title of *Inventum Novum*. Its full title, translated into English, is: 'A new discovery enabling the physician to detect diseases hidden within the chest by percussion of the thorax'. The book aroused little interest and his important contribution to clinical medicine might well have been all but forgotten after his death, in Vienna, in May 1809 (just 200 years ago), at the age of 86 years. Fortunately, the book was translated into French and republished by Jean Nicolas Corvisart des Marets (1755–1821) in 1808.

Corvisart was a well-known and distinguished physician – the personal doctor to Napoleon and physician at the Hôpital de la Charité in Paris – and there is no doubt that it was he who popularized Auenbrugger's method of percussion of the chest.

Interestingly, Corvisart's most brilliant pupil, Rene Laennec (1781–1826), not only practiced percussion of the chest but also introduced that other essential of chest examination – auscultation. He devised the stethoscope, first simply a rolled-up cylinder of paper, then a hollow wooden cylinder, and carried out extensive studies of patients with diseases of the heart and lungs in which he correlated his clinical findings with the pathology he found at autopsy. He published his classic 'Mediate auscultation, or treatise on the diagnosis of diseases of the lungs and heart' in 1819. Laennec succeeded his chief at the Charité, but died of tuberculosis as a comparatively young man of 45 years.

So it was these two physicians who, between them, laid down much of what I was teaching my students on the introductory clinical course today. BJHM

Conflict of interest: none.

Figure 1. Portrait of Leopold Auenbrugger von Auenbrugg (1722–1809).