

HISTORY OF ONCOLOGY

René-Théophile-Hyacinthe Laennec (1781–1826) and the description of metastatic pulmonary melanoma

Marianna Karamanou^{1,4}, Alexandros J. Stratigos², Zenia Saridaki³, Gregory Tsoucalas⁴, George Androutsos⁴

¹University Institute of the History of Medicine and Public Health, Lausanne, Switzerland, ²First Department of Dermatology, “Andreas Sygros” University Hospital, Medical School, University of Athens, Athens, Greece, ³Laboratory of Tumor Cell Biology, Medical school, University of Crete, Heraklion, Greece, ⁴Department of History of Medicine, Medical School, University of Athens, Athens, Greece

Summary

In 19th century, the anatomo-clinical school of Paris linked clinical signs with anatomical lesions establishing clinical medicine. One of the most enlightened promoters of this method was the French physician René-Théophile-Hy-

acinthe Laennec, known as the inventor of stethoscope. In our article, we reveal his work on pulmonary melanoma.

Key words: anatomo-clinical method, history of oncology, melanoma, metastasis, pulmonary neoplasms

Introduction

Melanoma is the most serious and potentially lethal form of skin cancer caused by the malignant transformation of the normal melanocyte driven by genetic and environmental risk factors. Its propensity for metastatic spread is relatively high involving the regional lymph nodes, brain, liver, gastrointestinal tract and lungs [1].

Even if it was a well known malignancy from antiquity, its study was not scientifically based. In 1787, John Hunter (1728-1793) published the first clinical description of melanoma, followed by the leading studies of the French physician and pathologist René Laennec (1781-1826) who described melanoma as a disease entity recognizing also its pulmonary metastatic spread [2].

Laennec's life and medical career

René-Théophile-Hyacinthe Laennec was born on February 17, 1781 in the commune Quimper in northwestern France. He was belonging to a family of lawyers and his father Théophile-Marie

(1747-1836) was parliamentary counsel, judge during the French Revolution and Prefectural Counselor during the Empire. His mother, Michelle Gabrielle Guesdon (1754-1786) died at 32 years from pulmonary tuberculosis and René-Théophile with his brother Michaud were sent to live with their uncle Guillaume Laennec (1748-1822), physician and rector of the University of Nantes while his father was remarried to the aristocrat Geneviève Urvoy de Saint Bedan (1749-1836) [3].

In September 1795, Laennec decided to follow a career in medicine and thanks to the recommendation of his uncle he was admitted in Temple de l'Humanité, the prison Hospital of Nantes. In 1799 he was serving in the Military Hospital in Nantes, with the rank of third class surgeon and he organized successfully the military health service during the campaign in Vannes [3].

Two years later, he moved to Paris and entered the Medical School. At the beginning of the 19th century, the prominent Parisian Anatomo-clinical School contributed in creating modern medicine and medical specialties. New methods of physical examination were introduced, a revolutionary re-



Photo. The distinguished physician René-Théophile-Hyacinthe Laennec.

form of disease approach was initiated and Paris for almost a century was the center of medical knowledge attracting students from the entire world [4].

In Paris, Laennec came under the influence of leading medical figures as Nicolas Corvisart (1755-1821), the propagator of percussion and founder of cardiology, Philippe Pinel (1745-1826) the pioneer of psychiatry, Xavier Bichat (1771-1802), the father of modern histology, and Gaspard Laurent Bayle (1774-1816), the outstanding pathologist, known for his work on cancer as he identified the majority of carcinomas known today [5].

In 1804, Laennec presented his medical thesis entitled: "Propositions sur la doctrine d'Hippocrate relativement à la médecine pratique". His reputation as a physician grew quickly and among his patients we may find the names of François-René de Chateaubriand, duchesse de Berry, cardinal Fesch and the painter Dubois [3].

In 1816 he became chief physician in Necker hospital, realizing also his most important contribution in medicine, the invention of stethoscope. The results and applications of his new method of mediate auscultation were published in 1819, in his work "De l'auscultation médiate" [6]. However, initially his invention was badly criticized by François-Joseph-Victor Broussais (1772-1838) who had quarreled with Laennec for years [3].

In 1822, Laennec succeeded Jean-Noël Hallé

(1754-1822) in the Collège de France and one year later he was appointed Professor of Clinical Medicine in the Charité Hospital (Photo 1) [5]. Member of the French Academy of Medicine since 1820, he became four years later Chevallier of the Legion of Honour and editor of the *Journal de Médecine, de Chirurgie et de Pharmacie* [5].

As a person and teacher, he was an example of kindness and his lectures were attended by numerous students among whom Thomas Hodgkin (1798-1866) and John Forbes (1787-1861) who translated Laennec's work on auscultation in English contributing to its propagation in the English-speaking world [5]. Laennec made several contributions to pulmonology, including the classification and nomenclature of auscultatory sounds and the description of several pulmonary diseases including tuberculosis [6].

Besides his medical career, Laennec was a musician who excelled on the flute and a poet that he wrote the epic heroic poem "La Guerre des Vénètes" [3].

In 1824, two years before his death, he married his old friend Jacqueline Guichard-Gueguen (1779-1847). He died on August 13 1826 ironically from pulmonary tuberculosis, the disease that he so carefully studied [3].

Laennec's description of pulmonary melanoma

In 1804, while still a medical student, Laennec recognized melanoma and coined it with the term *mélanose*, deriving from Greek for black [7].

In his book *De l'auscultation médiate*, Laennec devotes a chapter to the "melanosis of the lungs" stating that pulmonary melanoma is one of the rarest species of cancer.

He points out the difficulty of distinguishing macroscopically pulmonary melanoma from other entities as it resembles to the black pulmonary matter, the black tuberculous granulomas or carbon deposits commonly found in the lungs of miners [8].

In order to differentiate them he performed a chemical analysis and he mentioned: "The chemical composition of the two bodies also differs very considerably. The bronchial glands contain a large portion of carbon and hydrogen, while the matter of melanosis contains neither of these, but is almost entirely composed of albumen and a peculiar coloring matter" [8].

He also observed that the diseased pulmonary tissue is impregnated with "mélanose matter" and

it is firm as the liver, containing several small excavations.

Laennec classified pulmonary melanoma in four categories namely: 1) encysted; 2) non-encysted; 3) impregnating or infiltrated into the natural substance of an organ; and 4) deposited on the surface of an organ.

As an excellent clinician, he described the symptoms and signs of pulmonary melanoma mentioning the gradual diminution of “vital powers”, the loss of appetite, generalized oedema, dyspnoea, dry cough and mucous expectoration mixed with puriform sputa. During the auscultation, he could not distinguish a specific disease sound. Pectoriloquy was noted, like in cases of bronchitis suggesting the impermeability of the lungs [8].

Moreover, he presented the case of a 59 years old woman who was admitted in Hospital Saint Louis. She presented with dyspnoea, oedema, cough, tachycardia and tumors of a black color in different parts of the skin. During the autopsy, Laennec found that the cutaneous tumors were consisting of a homogenous black colored substance resembling the melanosis he already had described. He also described the infiltration and metastasis in several organs: “The blood vessels could not be separated from the masses without rupture. These tumors were in the thyroid gland as well as in the lung. In the neighborhood of the bronchial glands they were numerous and larger, but the bronchial glands themselves were not black. They were seen

in the substance of the mediastinum, and under the pleura; also, in great numbers in the mesentery and omentum. All the abdominal viscera, except the liver, were sound, but the cellular substance around them contained similar tumors” [8].

In his work on pulmonary melanoma Laennec tried to provide a differential diagnosis including chronic pleurisy, several diseases of the heart and mainly tuberculosis: “consumption is accompanied, through almost its whole course, by a hectic fever, which is usually characterized by two exacerbations, one towards mid-day, and the other in the night while the subjects whom I have known to die in consequence of melanosis in any organ, had no continuous or well marked fever” [8].

Finally he emphasized the rarity of the disease as few cases had been described in the medical writings of his time.

Conclusion

Laennec’s research was based on clinical observation, post-mortem anatomy and new diagnostic techniques. His classification of tumors based on tissue pathology and scientific principles brought considerable changes to cancer’s nosology.

Even if his most notable contribution to medicine and pulmonology was the invention of stethoscope, his work on cancer and more particularly on metastatic pulmonary melanoma is less known and deserves our attention.

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