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HISTORY OF ONCOLOGY

Bernard Peyrilhe (1737-1804) and the first experimental transmission of cancer

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Summary

Professor Bernard Peyrilhe occupied the chairs of surgical chemistry and medica materia at the Faculty of Medicine of Paris. He was a great surgeon, cancer specialist and historian of medicine. He led in depth studies on cancer and realized the first experimental transmission of cancer by injecting extracts of breast cancer into an animal.

Key words: Peyrilhe, cancer specialist, experiment, transmission of cancer

Introduction

Since the Antiquity, the nature of tumors and their formation intrigued the scientists. In 1714, Pierre Dionis (1643-1718), professor of surgery in the Royal Garden, proclaimed: "Cancer is, by unanimous assent, the most horrible of all the troubles that attack man" [1]. In the second half of the 18th century cancer remained still a mystery for the medical community. "What is cancer?", that was the question asked in the 1773's competitive examination by the Academy of Sciences, Arts and Literature of Lyon. Professor Bernard Peyrilhe was one of the greatest "cancer specialists" of the 18th century, who gained the prize for his essay "Dissertatio academica de cancro" [2].

Life and career of Peyrilhe

He was born on January 10th, 1737 in Pompignan. His father, Pierre, was a clerk of the court of Grisolles. His mother was Catherine Divat.

In 1759, he became doctor in the Faculty of Medicine of Toulouse. In 1768, associate professor of surgery in Paris. In 1775, by an edict of December, Louis XVI (1754-1993) created a chair of surgical chemistry in the College of surgery, to which he was appointed. In 1795, he was named professor of materia medica at the School of Health of Paris (the chair of medical natural history was subdivided from its creation into chair of materia medica given to Peyrilhe and chair of botany given to L.C.M. Richaud). In 1804, he was replaced by Antoine Laurent de Jussieu (1748-1836). He died on February 12th, 1804 in Grenade-sur-Garonne. On the ideological plane, he was freemason, officer of the Grand Lodge [3].

His main scientific works

De bronchotomia (1768) [4]. Dissertatio academica de cancro (1773) [5]. Academic essay on cancer (1776) [6]. History of surgery from its origin until our days (1774-1780) in 2 volumes [7]. Classification of drugs' natural history (1880) [8]. New remedy against the venereal diseases, obtained by the animal kingdom, or essay on the anti-venereal properties of the volatile alkalis (1786) [9]. Methodical table of a medical natural history lecture, where we gathered and classified the main mineral waters of the Republic, indicating the places where they spring up, their temperature, their containing substances, their virtues, their purposes (1799) [10].

The chronicle of the academic prize attributed to Peyrilhe

The history retained the name of Peyrilhe for the following reason. In 1774, at the age of 39, he received the first prize of the Academy of Literature and Arts of

Lyon which, the previous year, had put in competitive examination the following subject: "The researches on the causes of cancer defect that lead to determine its nature, its effects and the best ways to fight it". In his essay entitled "Dissertatio academica de cancro", Peyrilhe, disputing the theory of coagulated lymph pathogenesis, was the first to put forward the hypothesis of a carcinogenic virus which "formatting in a stagnant lymph, impregnated with humidity, begins to ferment and creates the volatile alkalescente material of Gaubius, that poisons and destroys the body" [11]. He demonstrated, in other words, that cancer was at first a localized process, the extension of which was made along the lymphatic way. His essay had the great worth to contain a collection of clinical and anatomical observations, as well as an attempt of experimental reproduction of cancer and notions on its pathogenesis [12].

Peyrilhe and the first experiment of cancer transmission

From the introduction of his famous essay "Academic dissertation on cancer" Peyrilhe answered the question put by the Academy in 1773, with an innocent admission of helplessness: "Cancer is also difficult to be defined as to be cured". Nevertheless, on several accounts, his essay did not miss of interest. He spoke about the heredity of cancer, its contagiousness due to a "virus" and, for the first time, he raised the problem of the experimental transmission and tried to realize it [13].

Actually, the term "virus" within the context of cancerous diseases, had first appeared in 1771. That year, professor of surgery Antoine Louis (1723-1791), Peyrilhe's teacher, had published his "Observations and remarks on the effects of the cancerous virus" [14]. But it was necessary to wait till 1773 when Peyrilhe expresses in clear terms the principle of the cancerous virus contagiousness based on the panspermia.

According to him, there were "miasmas", "cancerous viruses" spread in the air and water, able to carry the infection in the lymphatic system: "The cancerous miasmas with the air, the saliva and all we swallow, provide a putrid crasis for solids and fluids; and once the humors infected by this defect, the glands become swollen and hard; there is no doubt that if the patient's humors are of sound constitution, they degenerate easily into cancer. It is not less certain than the immediate contact with the virus by inhalation can provoke cancerous ulcers" [9].

In advance a century of his time, Peyrilhe, based on his thesis, refers to the positive results of a big first: the experimental transmission of the cancerous virus from man to animal, realized, certainly, in incomparable conditions of archaism and picaresque [15].

More exactly, after having inoculated to a dog two drachmas of virus taken from a breast affected by cancer, he observed on the unfortunate animal the formation of putrid ulcer and oedematous emphysema. Doubtless it would appear to be the result of an infectious reaction none related to cancer, but in the mind of Peyrilhe it was the proof of the evil's communicability. The incident ended in a very little formal way: "This poor animal" writes the author "was letting out piercing shouts. Finally, my servant, as much disgusted by the stench of her guest as moved by its groans, threw in latrines this animal which its wound was made so precious, and took away the opportunity to observe the expansion of cancer" [9].

The therapeutic orientations of Peyrilhe

Despite the proved ineffectiveness of caustic substances and the igneous cautery, the appeal to the bloody intervention never had the unanimity of doctors before the middle of the 19th century.

As for Peyrilhe, recognizing that the surgical ablation was an act of last chance, he admitted that humanitarian reasons armed, mostly, the hand of the surgeons. In 1773, he did not hesitate to denounce "those great masters of the art who are not afraid to abandon the cancer and deliver the patient to certain despair and to an inevitable death". According to the Peyrilhe's testimony, it was indeed the cancer patients themselves that, in most cases, implored the excision of their breast cancer. "What is so extraordinary", he writes, "in this obstruction of the fluid in the vessel, to stop the hand of the surgeon or to make him close his ears in the prayers of the unfortunates?" [7].

Concerning the miraculous treatments of the 18th century, without being as numerous as they will be in the first half of the 20th century, they had nevertheless a considerable impact on the people's mind [16].

Some had known a universal diffusion. Others were less spread. For example, the ejections of gasified carbon dioxide on the tumor had never been used by Peyrilhe, who saw in the vapors of acid, which he called "sylvan gas", a powerful "antiseptic" capable of destroying the tumor. He put in a pottery vase some ounces of gritty ashes (residue of the wine combustion) dissolved by camphorated water. He emitted the vapors and he directed them on the affected region by means of a funnel. But only some beggars, who were to die, agreed to submit themselves to this therapy which they couldn't support up to the end, so much it was barbarian [17].

Conclusion

Peyrilhe was a great pioneer in the field of oncology in its infancy on the 18th century. His audacious experiments were widely talked about in his time and his oncologic work was recognized by the Academy of Lyon that awarded him with a great prize.

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