

HISTORY OF ONCOLOGY

Le “cancer des fumeurs” in 19th century: the contribution of the French surgeon Étienne-Frédéric Bouisson (1813-1884)

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Summary

At the beginning of the 19th century, the alarming rise in tobacco consumption and its consequences in health preoccupied physicians. Several medical authors pointed out the harmful effects of smoking, enumerating related disorders. In 1821, the hygienist Alexandre Parent du Châtelet (1790-1835) and the chemist Félix d'Arcet (1814-1847), studied the effects of tobacco in health and concluded that it was a relatively healthy habit providing also a kind of immunity from contagious diseases. The tobacco controversy opened up and continued for almost 40 years. In 1861, the professor of sur-

gery and politician Étienne-Frédéric Bouisson (1813-1884) in his work entitled: “Tribut à la chirurgie ou mémoires sur divers sujets de cette science” (Tribute to surgery or dissertations on various topics of this science) related for the first time tobacco consumption to oral cancer, applying medical statistics and analyzing meticulously all the available data.

Key words: Bouisson, history of oncology, oral cancer, tobacco

Introduction

Brought in Europe, in 16th century by the Spanish, introduced to the French Court by the diplomat Jean Nicot (1530-1600), hence its botanical name *Nicotiana*, the so-called “herbe de la Reine” or “herbe Médicée”, in honour of the queen Catherine de Médicis (1519-1589), was quickly adopted by the people initially as medicine and then as a daily habit [1]. In 19th century, tobacco consumption has risen; chewing tobacco, snuff tobacco in carottes (rolling form), cigars, pipes and cigarettes were considered, according to the engraver and antiquarian writer Frederick William Fairholt (1814-

1866), as “a comfort to the poor, a luxury to the rich, uniting all classes in a common pleasure” [2].

However, its widespread consumption contributed to an increased denunciation of its dangers. In 1821, the physician and botanist François-Victor Mérat de Vaumartoise (1780-1851) observed that workmen in tobacco factories were suffering from several disorders such as weakness, vertigo, headaches, asthma and acute chest diseases and he stressed out the importance of building tobacco manufactories out of the city [3]. Four years later,

the distinguished French hygienist Alexandre Parent du Châtelet (1790–1835) and the chemist Félix d'Arcet (1814–1847), in an attempt to study the effect of tobacco on health, they monitored 4000 tobacco workers in France and surprisingly, they concluded that they were not particularly subject to a special disease, their life expectancy, on average, was as long as other workers, and most importantly they were enjoying an immunity from contagious diseases [4]. The scientific debate opened up and continued in the following years. In 1856, the Scottish professor of surgery John Lizars (1792–1860) published his influential manuscript entitled: "Use and Abuse of Tobacco" stating that tobacco could induce a number of diseases such as apoplexy, palsy, diseased liver, and bowel disorders [5]. One year later, the surgeon Samuel Solly (1805–1871) in his article: "The tobacco controversy: is smoking injurious?" published in *The Lancet*, he mentioned: "In the habitual smoker the heart is irritable, and the person nervous, the pulse frequently intermittent, and irregular in force and frequency... the fauces (oropharyngeal isthmus) of the smoker are always more or less rough, presenting the appearance of a piece of dirty red velvet, instead of the pale, pinkish, lilac of a healthy throat" [6] (Figure 1).

In 1861, the eminent French surgeon Etienne-Frédéric Bouisson scientifically proved that smoking could provoke oral cancer, ending a debate which lasted almost 40 years.

Etienne-Frédéric Bouisson's life and work

"Are you coming to take, young man, a lesson of anatomy? – No Sir, I am coming to give it to you" [7]. This was the reply of Frédéric Bouisson, a 24-year-old physician who presented in the Medical School of Strasbourg as candidate in the chair of physiology. He concurred distinguished physicians such as the promoter of biometry Jean-François Rameaux (1805–1878) and the anatomist Pierre-Paul Broc (-1848) and he succeeded [7].

Who was Frédéric Bouisson? Born on June 14, 1813 in the small town of Mauguio, in Occitan region, France, the last of 11 brothers and sisters, Bouisson developed from the early childhood a strong inclination for studies. Informed for his rapid progress, a brother of his mother, wealthy industrialist from Bordeaux, wished to contribute to his instruction. Bouisson entered in the prestigious institution of M. Worms in Bordeaux and at 16 years old he completed his education. Returning back to his hometown, his parents were questioning about his future. That period another brother

of Mrs. Bouisson, returned from Napoleonic wars (1803–1815) with several wounds, among which a concealed bullet which needed extraction. The professors of surgery Jacques-Mathieu Delpech (1777–1832) and Joseph-Marie Dubreuil (1790–1852) decided to remove it and the young Bouisson assisted impassively and coldly the operation [7]. Delpech was impressed by his attitude and after a discussion, he persuaded him to study medicine. Bouisson was enrolled at the faculty of medicine of Montpellier and in 1835, at 22 years old, he completed his studies. It is worth mentioning that nine months before his graduation he was elected chief of anatomical studies. In 1836 he completed his training in surgery and presented his thesis on "Purulent diathesis, pyogeny; abscesses and their treatment" [8]. Ambitious and impatient, he decided one year later to move to Strasbourg and to become directly professor and chairmen of physiology, instead of waiting for his turn in Montpellier. Bouisson believed that physicians should have a global perspective about medicine and his lectures on human physiology, connecting medicine and philosophy, became popular attracting a wide audience. He remained in Strasbourg for two years and in 1838, at 27 years old, he elected professor in the chair of surgery and external pathology in Medical School of Montpellier, succeeding Antoine-Léon Dugès (1797–1838) [7] (Figure 2).

A gifted teacher and an excellent surgeon, Bouisson, despite the rumors and jealousy of his colleagues, practised surgery with success, making pupils and patients to speak for his kindness and skills. In 1845, after the resignation of professor Claude-François Lallemand (1790–1853), he received the chair of clinical surgery and became also chief surgeon at the hospital of Saint-Éloi [7]. In 1868 he elected rector of the university and he contributed to the creation of a chair of histology and anatomy, established the course of history of medicine, ameliorated the laboratories and the library, and restored the central pharmacy and the maternity unit. In 1871, he was elected deputy and he continued to contribute to Montpellier's education system aiming at academic freedom. He transferred in Montpellier the national school of agriculture, reinstalled the law school and reformed the military health service [9]. Two years later, he was appointed rector of the academy of Montpellier, chancellor of the universities and responsible for the whole educational system in Occitan region. On his own initiative, the statues of the founders of modern surgery François Gigot de La Peyronie (1678–1747) and Paul-Joseph Barthez (1734–1806) were erected at the entrance of the medical school and remain at this place till nowadays [10].



Figure 1. Tobacco controversy in daily life. A married couple, Mr and Mrs Potts, arguing about Mr Potts' habit of tobacco smoking. Lithograph by T.H. Jones, ca 1828 [Source: Wellcome Library, London].



Figure 2. The distinguished surgeon and politician, Étienne-Frédéric Bouisson (1813-1884) [Source: B.I.U.M., Paris].

TRIBUT A LA CHIRURGIE

OU

MÉMOIRES SUR DIVERS SUJETS DE CETTE SCIENCE

PAR

E.-F. BOUISSON

PROFESSEUR DE CLINIQUE CHIRURGICALE A LA FACULTÉ DE MÉDECINE DE MONTPELLIER, ANCIEN PROFESSEUR DE PATHOLOGIE A LA FACULTÉ DE MÉDECINE DE STRASBOURG, CHEVALIER DE LA LÉGION D'HONNEUR, CHIRURGIEN EN CHEF DE L'HÔPITAL CIVIL ET MILITAIRE SAINT-ÉLOI, MÉDECIN DU LYCÉE DE MONTPELLIER, ASSOCIÉ NATIONAL DE L'ACADÉMIE IMPÉRIALE DE MÉDECINE, MEMBRE CORRESPONDANT DE L'ACADÉMIE ROYALE DE MÉDECINE DE BRUXELLES, DE LA SOCIÉTÉ DE CHIRURGIE DE PARIS, DES ACADEMIES OU SOCIÉTÉS MÉDICALES D'ATRENTS, DE BORDEAUX, DE BRUXELLES, DE GENÈVE, DE LYON, DE MONTPELLIER, DE TOULOUSE, DE STRASBOURG, ETC.; TITULAIRE DE L'ACADÉMIE DES SCIENCES ET LETTRES DE MONTPELLIER.

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Figure 3. Frontispiece of Bouisson's work on surgery where oral cancer is analyzed.

In 1878, Bouisson was 65 years old; he was getting old and his authoritarianism aggravated; his colleagues forced him to resign [7,9]. Bouisson became depressive by the time and he took refuge in his castle of Grammont where he died on May 26, 1884 at the age of 71 years without offspring. He was survived by his second wife Amélie Bertrand (1833-1893), daughter of the wealthy surgeon Toussaint Bertrand (1793-1870). After her death, the fortune of the Bouisson-Bertrand couple was donated, according to their wish, at the faculty of medicine of Montpellier [7]. Currently, the Institute Bouisson-Bertrand continues to work for over 100 years on public health issues including disease control, vaccination, and epidemiology. During his career, Bouisson received several honorable distinctions: officer of the Legion of Honour, associate member of the Academy of Medicine, and corresponding member of the Institute of France. Furthermore, he is remembered for his administrative talent but also for his contribution in surgery and especially on hypospadias treatment, on bone fractures, spinal trauma and oral cancer [9]. His "Tribute to surgery" (1861) and the "Treatise on the anesthetic method applied in surgery" (1850) were considered landmark contributions in the field and instructed generations of physicians.

Oral cancer in Bouisson's work

In mid-19th century, x-ray did not exist to confirm the presence of lung cancer and oral mucosa was the first site that lesions related to tobacco were observed. Oral cancer was a well-known entity that time, described by several medical authors such as Lorenz Heister (1683-1758) [11], Raphael-Bienvenu Sabatier (1732-1811) [12], Jean-Baptiste Lévêillé (1765-1829) [13]. However its connection with tobacco consumption was not noticed. In 1861 Bouisson published his work entitled: "Tribut à la chirurgie ou mémoires sur divers sujets de cette science" (Tribute to surgery or dissertations on various topics of this science) in two volumes (Figure 3). In this work a whole chapter on "Oral cancer of smokers" reflects the bibliography and ideas of his time as well as his own observation on this subject [14].

According to Bouisson, Saint-Éloi hospital in Montpellier was a reference center for this type of cancer, diagnosing and treating cases from all surrounding regional departments. Oral cancer was also a frequently operated cancer in this hospital. Bouisson mentioned that oral cancer was considered a new disease connected with the habits of the society. It was affecting all social classes and among the patients he treated, we may find former soldiers, rich people, travelers, craftsmen, farmers,

of various ages having as common habit tobacco consumption. Oral cancer was located mainly in the lower lip and tongue but the irritating action of smoke, which is the vehicle of nicotine, could provoke lesions in the gums, the soft palate and the tonsils. At the beginning, the lesion looks benign but as it progresses severe ulcers and tumours appear and death may occur if left untreated [14]. Bouisson divided oral cancer in two forms: canceroid or epithelioma mentioned also as “cancer des fumeurs” (smoker’s cancer) and carcinoma. Epithelioma was the most frequent form of oral cancer, located mainly on the lower lip and histologically presented thickness of the epithelial layer and epidermal infiltration. It could affect not only men, as it was believed, but also women and children and surprisingly we read that children were smoking 40 to 50 cigars per day [14].

In his work Bouisson performed a retrospective study from 1845-1859 and presented 72 patients, suffering from oral cancer diagnosed in Saint-Éloi hospital. Only one patient was under 20 years old, two were between 20 and 30 years, seven from 30 to 40, twenty-two from 40 to 50, nineteen from 50 to 60, sixteen from 60 to 70, four from 70 to 80, and one was over 80 years old. The results of this study demonstrated that the frequency of oral cancer was increasing at 40 to 50 years, and it was decreasing after 60 years, either because the number of individuals who had reached this age was less or they were not predisposed to develop cancer. Concerning the location, 45 patients presented the lesion on the lower lip, 9 on the tongue, 5 to the tonsils, 4 on commissures, 2 on the upper lip and 1 on the gums. This predominance for the lower lip was related to the habit to leave in close contact the end of their pipe at this place. Fifty-four patients had histologically confirmed epitheliomas, and 18

had severe forms of cancer such as squirrhous and encephaloid. In the differential diagnosis of oral cavity epitheliomas Bouisson included carcinoma which develops rapidly, syphilitic lesions and “a lesion of herpetic diathesis, known also as “lupus”, probably what we call today herpes labialis [14].

Therapeutically, Bouisson proposed various types of excisions, according to the location of cancer: cuneiform excision, or V form excision (used in 33 of his cases), horizontal ablation of the lip corner (performed in cases that cancer invaded the entire lip corner) and cheiloplasty (in patients that the lower lip was destroyed and the lesion propagated in oral commissures). Finally he pointed out the importance of prevention and smoke cessation [14].

Conclusion

Étienne-Frédéric Bouisson provided the first well-documented clinical study on the impact of tobacco in oral mucosa and paved the way for further research in this field. Over the following years the medical community started to link tobacco consumption to cancer. In 1868 the first tobacco organization was founded in France and in 1872 added to its scope alcohol, becoming thus the “Association française contre l’abus de tabac et des boissons spiritueuses”, counting in 1880’s more than one thousand members, including Louis Pasteur (1822-1895) and Alexandre Dumas le fils (1824-1895) [15]. At the end of the 19th century and at the beginning of the 20th, the discovery of x-rays and their introduction in medicine permitted to detect lung cancer and linked it to tobacco consumption. On the other hand, smoking habit reached epidemic proportions and its restriction seems to be an endless fight lasting till nowadays.

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