



## Special article

# The history of gastric cancer: legends and chronicles

EUGENIO SANTORO

Department of Oncologic Surgery, Division of Digestive Surgery and Liver Transplantation, Regina Elena Cancer Institute, Rome, Italy



Eugenio Santoro  
Department of Oncologic Surgery, Division of Digestive  
Surgery and Liver Transplantation  
Regina Elena Cancer Institute

The first cases of possible gastric cancer were reported in the *Ebers papyrus*, written in 1600 BC, and in the Hippocrates reports related by Galen in the second century AD in Rome. Legend tells us that Hippocrates, who lived in Greece between Kos and Athens in the

fourth century BC, was the 18th successor of Aesculapius as Master of the Greek Medical School. He was the first to use the words “cancer” and “carcinoma” (in Greek, *Karkinos* and *Karkinoma*), but he believed that this pathology attacked the human body from outside, penetrating through the skin and infiltrating soft tissues and internal organs. Hippocrates had direct experience only of external tumors, because in the Egyptian, Greek, and Roman civilizations corpses could not be utilized for medical anatomical studies.

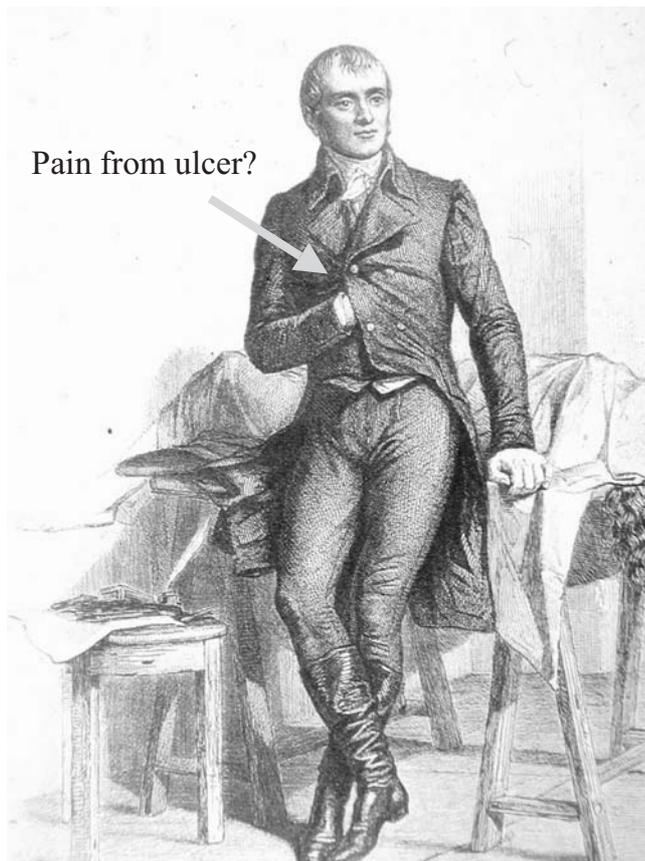
The anatomy described by Galen in his famous books was the anatomy of the monkey, which was considered not different from human anatomy. The prohibition of the examination of human corpses was confirmed and maintained by the Catholic Church for at least 10 centuries, including the Middle Ages. Until then all diseases, according to Hippocratic theory, were caused by the absorption of black bile from the bowel into the blood, and were therefore cured by purging, enemas, and blood-lettings.

At the end of the first millennium AD, a possible description of a gastric cancer could be read in Avicenna’s *Medical Encyclopaedia*. Avicenna was the most eminent exponent of Arabic medicine. In the eleventh century his encyclopedia included all the medical knowledge of the time from both Greek and Islamic civilizations, but it did not differ in any important respects from the Hippocratic bioclinical theory.

With the Renaissance, medieval knowledge radically changed, and in the eighteenth century, cancer-origin theories were modified. In 1774 the thesis of Doctor Peyrile, entitled “*Dissertatio Accademica de Cancro*,” was published at the Academy of Lyon, and this may represent the origin of the modern oncological era. Despite this, in the eighteenth century, gastric cancers were unknown because benign and malignant gastric ulcers were only described later by J. Cruveilhier, in 1835. This explains the historical mystery about the death of Napoleon Bonaparte in 1821 (Fig. 1).

---

Offprint requests to: E. Santoro  
Opening lecture of the 5th International Gastric Cancer Congress at Rome, May 4, 2003.



**Fig. 1.** Napoleon Bonaparte suffered from vague abdominal symptoms, perhaps due to chronic gastritis which preceded his familial gastric cancer

The French emperor had been exiled to St. Helena, a small island in the Atlantic Ocean, in 1815 after the Waterloo defeat. During his life he had suffered from schistosomiasis caught in Egypt, brucellosis, malaria, pulmonary tuberculosis, and pituitary insufficiency with adipose genital dystrophy. During his St. Helena exile he enjoyed reasonably good health until 2 years before his death.

In 1819 the former emperor began to suffer from recurrent episodes of fever, abdominal pain, persistent hiccups, and vomiting. He was treated by frequent large doses of tartar emetic and calomel, and following the medical knowledge of the early nineteenth century he was also submitted to blood-letting and purging. The symptoms worsened from September 1820: he vomited almost every day and suffered from constipation, diarrhea, abdominal pain, progressive weakness, recurrent fever, and profuse sweating.

On April 27, 1821, he vomited coffee-ground-like material, associated with severe hiccups and tachycardia (105/min); the next day he was intermittently delirious. During a lucid moment he told Dr.

Antonmarchi, “. . . I desire you open my body to examine my stomach and to make a detailed report which you will give to my son.” He had a justified horror of gastric pathology because it had been the cause of death of his father and other relatives. On the 2nd of May the vomiting returned and was treated with 10 grains of calomel; 5 hours later the emperor had a massive bowel movement with tarry stools followed by circulatory collapse, severe perspiration, and rapid pulse. He died 2 days later, on the 5th of May, 1821, in the early morning.

Eight physicians attended the autopsy. Dr. Francesco Antonmarchi was the last personal physician of the emperor, a fellow Corsican who was among the French contingent on St. Helena. The other seven physicians were all British. Three different reports of the autopsy findings have survived. The most detailed was written by Antonmarchi, who was an anatomist and pathologist of Pisa University. The second was written by Walter Henry, and the third by the remaining physicians: “. . . the volume of the stomach was small, its anterior surface seems to be normal but on the right side exists a close adhesion with the inferior face of the left liver. Near the small curvature there was a hard area, perforated in the center. The perforation was closed by the liver adhesion. On opening the organ along its large curvature its capacity appeared filled with a considerable quantity of matters mixed with a liquid resembling the sediment of coffee. The internal surface of the stomach was occupied by a cancerous ulcer whose center was on the lesser curve and the digitations were extended from the cardias ’till 1 or 2 centimetres before the pylorus, with a scirrhus thickening of the wall.”

Since tissue microscopy had not developed by the early nineteenth century, autopsy diagnosis relied upon the gross appearance of the body and organs. Nevertheless the reports clearly show that Napoleon had an extensive scirrhus carcinoma of the stomach, probably complicated by partial gastric obstruction which manifested clinically as intractable vomiting and hiccups in the last few months of his life. Previously, for many years, the emperor had suffered vague abdominal symptoms, perhaps due to chronic gastritis which preceded his familial gastric cancer.

Napoleon’s death anticipated by a decade Cruveilhier’s anatomical description of gastric ulcers and cancer and the clinical picture of the symptoms of gastric cancer reported by Bayle in 1839.

The official history of gastric cancer surgery began 40 years later, when on the 9th of April, 1879, Jules Emile Pean, a very famous French surgeon, performed the first gastric resection for cancer. Unfortunately the patient died on the 5th postoperative day. More than a year later, on the 6th of November, 1880, Ludwig R. von Rydygier, professor of surgery at Krakow University,



**Fig. 2.** Theodore Billroth (1829–94) during an operation at the Allgemeine Krankenhaus in Vienna

made the second attempt, but the patient died on the night of the operation.

Finally the first successful operation, a subtotal resection with gastroduodenal anastomosis, was performed on the 22nd of January, 1881, by Theodor Billroth in Vienna (Fig. 2). The case report published in 1882 is very passionate. Therese Heller, a 43-year-old woman, mother of eight living children from 10 deliveries, was affected by a gastric obstruction from pyloric carcinoma, with symptoms of vomiting for 6 weeks, associated with pallor, emaciation, and rapid pulse. The tumor was palpable in the epigastric region. The day before the operation, the stomach was irrigated with 14 liters of water. The patient was anesthetized by Dr. Barbieri with a mixture of chloroform, alcohol, and ether. Through an 11-cm oblique incision the pyloric tumor was resected: the duodenum was divided 2 cm below the tumor and the stomach 3 cm above the tumor margin. The anastomosis was performed by closing part of the greater curvature of the stomach and joining the residual stomach wall and the duodenum with circular

sutures between. A total of 54 silk sutures were used. The specimen measured 14 cm on the greater curvature and 10 cm on the lesser curvature. The cancer was described as an alveolar, gelatinous carcinoma with involvement of all removed lymph nodes. Today it would be described as a mucinous adenocarcinoma, T3 N+, Stage IIIb. The postoperative course was favorable; from the second day the patient had one teaspoon of buttermilk every hour, and for 13 days wine enemas were given. She was discharged 26 days after the operation but died of recurrence about 4 months later. For Theodor Billroth the operation was a triumph, and 14 years later when he retired his series included 257 operated cases.

Sixteen years later, in 1897, Karl Schlatter performed the first total gastrectomy. Schlatter was a young, 32-year-old surgeon working in Zurich at the surgical department directed by Kronlein. The patient, Anna Zandis, was a 56-year-old woman who received a total gastrectomy for a diffuse gastric cancer with an esophagojejunostomy for reconstruction. She had a good postoperative course but was kept for 14 months at the hospital for nutritional and intestinal motility studies. She died of recurrent tumor.

The news of Schlatter's success spread rapidly in the world, and the total gastrectomy was repeated with technical differences on the other side of the Atlantic Ocean by Charles B. Brigham in San Francisco and by Richardson in Boston.

Subsequently during the late nineteenth and twentieth centuries and now, in the early twenty-first century, millions of patients have been recognized to be affected by gastric cancer and submitted to surgery. They include rich and poor; white, yellow, and black; men and women; all without any differences in the origin of the disease, the possibility of treatment, and the final results. Numerous eminent people during the last century lost their lives to gastric cancer. Among them can be mentioned Marshal Joseph Pilsudski, the Polish hero of the First World War who died of gastric cancer with liver metastases in 1935; the Irish writer James Joyce, a member of a family in which gastric cancer was a familial disease, who died of a bleeding gastric cancer in 1941; and the son of Henry Ford, named Edsel, who died of gastric cancer in 1943.

The most famous patient with gastric cancer was Pope John XXIII, an unforgettable person, loved throughout the world (Fig. 3). The history of his gastric cancer is not generally known except in Rome, where the pope, who is also the bishop of the city, is followed day by day. John XXIII had been elected to St. Peter's Chair in 1958, after the death of Pope Pius XII, the ascetic and conservative pope who never left the Vatican during and after the Second World War. John XXIII was a member of a farming family originating



**Fig. 3.** Pope John XXIII died of gastric cancer in 1963

from the north of Italy. He looked like a plump, smiling parish priest and was gifted with a great capacity for communication. Two of his numerous brothers and sisters died from gastric cancer. Within a few years of his election he realized a historical revolution and the renewal of the Catholic Church, traveling throughout the world and convoking the Second Vatican Council.

Only 4 years after his election, while engaged fully in his extraordinary work, he began to feel nausea and experienced episodes of vomiting. At the end of October 1962, during the annual congress of the Italian Society of Surgery in Rome, four of the most eminent Italian surgeons were invited to the pope's apartment in the Vatican to attend him with the official papal physician. They could recognize on the X-ray film a distal gastric cancer narrowing the antrum. The pope allowed them to examine his abdomen where the gastric tumor was already palpable in the right hypochondrium. The Vatican board decided to delay informing the pope of his disease until some weeks later, permitting the four consulted surgeons to discuss deeply the case and to arrive at a final decision. One of the four surgeons judged the tumor inoperable because it was palpable; the other three did not exclude an operation but considered that the risk for the fat and aged patient was high and the possibility of cure very low. In those weeks the official papal physician suddenly died. The new *archiatre* and the Vatican secretariat informed the pope of the diagnosis and of the opinions expressed by the four surgeons. The final decision was not in favor of any

surgery. The pope continued his normal life and work for several months despite the episodes of vomiting and bleeding. He died quite suddenly on the 2nd of June, 1963, in his bed, after 24 hours of coma.

The pope's gastric cancer did not change the results of his work; and the spread of the Catholic revolution, realized in the Second Vatican Council convoked by John XXIII, continued. Neither did Napoleon's gastric cancer cancel the extraordinary social changes promoted by the French Revolution and by Napoleon's empire.

In parallel with the Western history of gastric cancer, an Eastern history exists.

In Japan, tradition tells us that many members of the shogun Tokugawa family, who dominated the country in the seventeenth, eighteenth, and nineteenth centuries, were affected by this cancer. The founder of the dynasty, the first shogun Ieyasu Tokugawa who unified Japan in 1615, probably died from gastric cancer in 1616. More recently, at the beginning of the last century, a famous Japanese victim of this cancer was Yatarou Iwasaki, the founder of the Mitsubishi company.

For more than a century in Japan, China, Korea, and the other countries of the Pacific area, gastric cancer has been well known as one of the most important killers. The evolution of surgical treatment was, in the beginning, limited by the different philosophy of traditional Eastern medicine. Nevertheless, after Yamagiwa's discovery in 1916 that tar could produce an experimental skin cancer, oncological studies and clinical advances in Japan advanced quickly, especially in the case of gastric cancer. During the twentieth century, Japan and the Eastern countries have become leaders in both the study of this disease and in clinical progress in its treatment.

## Bibliography

- Billroth T. Offenes schreiben an Herrn Dr. Wittelshofer. *Wien Med Wochenschr* 1881;31:162–5.
- Cabanne F, Gérard-Marchant R, Destaing F. *Storia del cancro*. Band 5, Salzburg, 1990.
- Hindmarsh JT, Corso PF. The death of Napoleone Bonaparte: a critical review of the cause. *J Hist Med Allied Sci* 1998;53:201–18.
- Laennec RTH, quoted by Welch WH. Cancer of the stomach. In: Pepper W, Starr L, editors. *A system of practical medicine*, vol 2. Philadelphia: Lea Brothers, 1885.
- Péan JE. De l'ablation des tumeurs de l'estomac par la gastrectomie. *Gaz Hop* 1879;52:473–5.
- Rutkow IM. *Storia illustrata della Chirurgia*. Roma: Antonio Delfino Editore; 1996.
- Santoro E, Ragno L. Cento Anni di Chirurgia. *Storia e Cronache della Chirurgia Italiana del XX° Secolo*. Edizioni Scientifiche Romane, 2000.
- Sawyers JL. Gastric carcinoma. *Curr Probl Surg* 1995;32(2):101–78.
- Sterpellone L. Stratigrafia di un passato. *Storie parallele della Medicina*. Ed. Milano: Puntoelina, 1990.