

## The brain abscess that changed European history

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The death of the French king Henry II (1519-1559) changed the balance of power in Europe and led to the Wars of Religion in France, England, and Spain.<sup>1</sup> The destruction of the Spanish Armada marked the end of Spain's hegemony in Europe. Several hypotheses have been proposed on the neurological aetiology of the lesion suffered by the French king.

We have reviewed the literature on the case and the clinical history and autopsy findings.

Henry II of France died in 1559, 11 days after being struck in the eye by a lance during a tournament against Gabriel, Comte de Montgomery, held to celebrate the marriage of his daughter Isabelle de Valois with Philip II of Spain, and Henry's sister Margaret with Emmanuel Philibert, Duke of Savoy. He was attended by the best doctors and surgeons of the time: Andreas Vesalius (1514-1564), physician to Philip II, and Ambroise Paré (1510-1590), the king's surgeon, who was responsible for the clinical history and autopsy report (Figure 1). He was succeeded by his eldest son, Francis II.

Paré reproduced the wound in the severed heads of four criminals sentenced to death to study how to treat it, and decided against intervening.<sup>2</sup> Philip II sent his royal physician Andreas Vesalius from Brussels. Andreas Vesalius was the founder of modern anatomy and author of *De humani corporis fabrica* (Figure 2).<sup>3</sup> Despite controversy as to whether he arrived on time to attend Henry II, there is evidence suggesting that he was able to treat the king, as mentioned in the clinical history recorded by Paré:

During the next two days, Saturday and Sunday, the King was fairly comfortable. Late on Monday Vesalius arrived, having travelled 300 km by mail coach in 48 hours. As soon as he entered the sick man's room, he made a test with a clean white cloth. He asked the King to bite on the cloth, then pulled it out with some force. Thereupon, the King threw

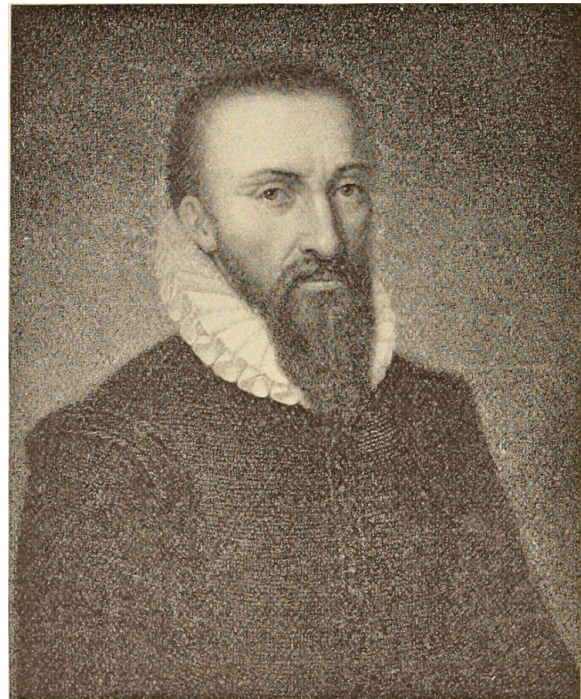


Figure 1. Ambroise Paré (1510-1590)

his hand to his head and cried out from the pain. By the depth of the pain, Vesalius judged that he would not recover.

On Tuesday evening fever reappeared, beginning the King's decline that would end in death the following Monday. Trepanation was discussed, but because pus already drained from the wound there would be no advantage in an operation to drain pus. The reappearing fever, they said, was "due to putrid material in venous type from bad humours, based on examination of the urine."

Gradually, day by day, more people thought damage to the brain caused the fever. Vesalius too began to

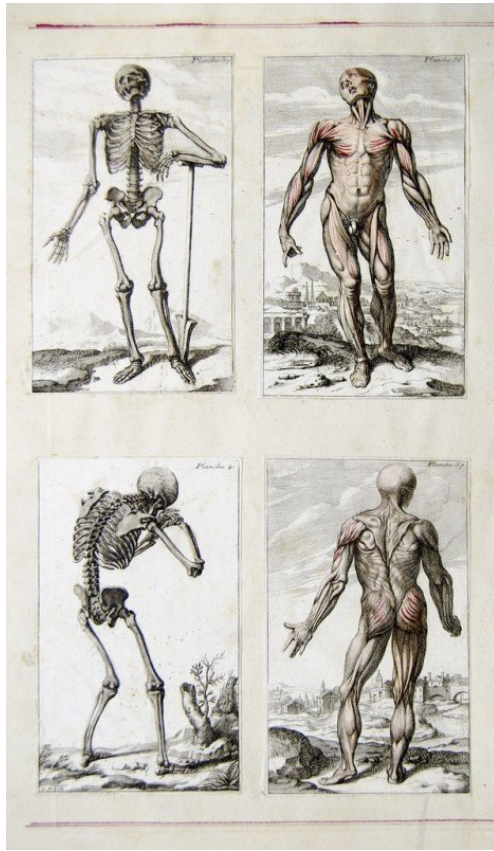


Figura 2. *De humani corporis fabrica* (1543) by Andrés Vesalio

say openly that it could only end in death. From Wednesday to Saturday, delirium with frequent sweats and rigors worsened with each day. The left leg and arm stopped moving, while a long convulsion shook the right.<sup>4</sup>

Regarding the autopsy, Paré described an occipital haematoma with secondary infection. Paré refers to a “head concussion” that caused the king’s death:

From this, because of the agitation or concussion of the brain, he died on the eleventh day after his injury. And after his death we found in his head, on the side opposite to the blow, just about the middle of the commissure of the occipital bone, a quantity of blood spread out between the dura and pia mater and an alteration in the brain substance which was red or yellowish in colour over an area of about an inch: and in this part there was the beginning of putrefaction.<sup>2,5</sup>

Ambroise Paré was the royal physician to four kings: Henry II, and then Francis II, Charles IX, and Henry

III, successively. Francis II died at 16 years of age. Paré was accused of being Protestant and in 1575, when he wanted to publish his *Complete works*, he was censored by professors from the Faculty of Paris. In 1584, at the age of 74, he became Doctor of Medicine; he died in Paris at the age of 80.

In the clinical history, Paré reported how the king presented fever on the fourth day, with meningeal symptoms and left-sided hemiparesis. He died 11 days later. Despite the trials conducted on the severed heads of four criminals, his physicians preferred to wait and observe his progression. In the 19th century, a forensic study confirmed a skull fracture in the periorbital region. Descriptions of the wood fragments removed from the right orbit and the translation of the autopsy report drafted by Paré and Vesalius support this diagnosis.

The Latin manuscript of Vesalius’ description of the king’s autopsy, conserved in the Bibliothèque Nationale de France, mentions that the dura mater was preserved and that no wood fragment had penetrated the dura. An empyema could be observed along the left side of the falx cerebri, and the infection covered an acute haematoma. Some wood fragments were found in the right orbit; the physicians had seen these but decided to leave them in place because the King yelled when they tried to remove them.

The King died at the age of 40, 11 days after the lance blow to the orbit; foreign bodies composed of wood were found in the orbit at the time of the autopsy. The dura mater had not been perforated, which suggests that the infection passed from the orbit to the brain, causing brain infection and abscess. The wound was not examined immediately after the lesion. Henry II suffered head trauma with right periorbital fracture, and could have died of meningoencephalitis caused by a foreign body, aggravated by a left interhemispheric empyema secondary to a traumatic interhemispheric haematoma.<sup>7</sup> He was buried 40 days later.

Henry II was the main instigator of the French Wars of Religion, defending the Catholic faith against the Reformation. After the King died, his wife Catherine de Medici called for the mass killing of the Huguenots (French Protestants who followed the Calvinist doctrine) in 1572 (the St. Bartholomew’s Day massacre), during the French Wars of Religion of the 16th century.

Today's Europe could not be understood without knowing the history of the continent, and how the early death of a king had such a significant impact.

#### **Conflict of interests**

The authors have no conflicts of interest to declare.

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