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Infective Endocarditis and Phlebotomies May Have Killed Mozart

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Thirty-five year-old Amadeus Mozart died in Vienna after an acute illness that lasted only 15 days but no consensus has been reached on the cause of his death. From many letters written by his father it is almost certain that he experienced at least three episodes of acute rheumatic fever attack in his childhood, and a relapse of rheumatic fever was suggested to have killed Mozart, although death from acute rheumatic fever is very rare in adults. His last illness was characterized by high fever, massive edema, vomiting and skin rash. His last illness can be explained by infectious endocarditis and heart failure. During his last hours, he was given phlebotomy, possibly for the third time in two weeks, and soon after he became unconscious and died. As such, phlebotomy performed on a man dehydrated by high fever and vomiting may have caused systemic shock. In summary, Mozart probably died from chronic rheumatic heart disease complicated by infective endocarditis and heart failure, and repeated phlebotomy-induced hypovolemic shock. (**Korean Circ J 2010;40:611-613**)

KEY WORDS: Infective endocarditis; Bloodletting; Hypovolemic shock.

Introduction

Wolfgang Amadeus Mozart died on 5 December 1791 after having suffered 15 days of acute and mysterious illness. After his death, his doctor, Franz Closset, made the diagnosis of "hitziges Frieselfieber" (acute or severe miliary fever) which was a common diagnosis made on patients with fever and skin rash at that time. There was no reason to suspect any foul play and autopsy was not performed.

Seventeen ninety-one was one of Mozart's most productive years and he led an active life traveling widely and conducting his music, but became bed-ridden only 15 days before his death. The last days of Mozart was described by Sophie Heibel, Mozart's sister-in-law, to Nissen who was writing Mozart's biography and ultimately married Mozart's widow.¹⁾ In her letter to Nissen, Heibel described "when the doctor was called in, he bled Mozart and put cold compresses on his burning head, whereupon his strength declined rapidly and he fell unconscious and never came around again."²⁾ Indeed, Mozart

died 2 hours after being bled. However, no consensus has been reached on the cause of Mozart's death.

Literature Review

In 1994, Austrian internist and pianist Neumayr reviewed Mozart's childhood disease and wrote "A doctor today could hardly have written a better description of an attack of acute rheumatic fever", and suggested that relapse of rheumatic fever was a probable cause of Mozart's death.³⁾ However, relapse of acute rheumatic fever at the age of 35 is unlikely. Although death from fulminating myocarditis due to acute rheumatic fever is possible, as a rule it does not happen in adults.

Leopold Mozart, Wolfgang's father, wrote many letters concerning Mozart's childhood illnesses. These letters described symptoms typical of acute rheumatic fever on at least three different occasions. In 1762, the six year old Mozart and his family arrived in Vienna and performed in front of Empress Maria Theresa. Leopold wrote: "he complained a good deal of backache and hip pain. When he got into bed, I examined these places and found a few spots as large as a kreutzer, very radish and painful to the touch. But they were only on his shins, on both elbows and a few on his posterior. They were very feverish"⁴⁾ The description fits the diagnosis of erythema nodosum and muscular pain secondary to acute rheumatic fever.

In January 1764, Mozart arrived in Paris and performed at the Versailles, and met the future Queen Marie Antoinette of

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France. On 22 February, Leopold wrote again “my dear Wolfgang suddenly got a sore throat and a cold, so that on the 10th, he developed such an inflammation in the throat he was in danger of choking. He also had a very high fever.”⁵⁾ This is a good description of tonsillar abscess that usually precedes acute rheumatic fever.

In November 1766, Mozart experienced another attack of apparent acute rheumatic fever associated with polyarthralgia. On the 15 November, Leopold wrote again: “Now he has had a similar attack. He could not stand on his feet or move his toes or knees, No one could come near him for four nights and (he) could not sleep. He was very hot and feverish. Today he is noticeably better, but it will certainly be a week more before he is restored to health.”⁶⁾ Leopold seems to describe the rapid onset and resolution of excruciating pain typically seen in acute rheumatic fever.⁷⁾ In addition, Mozart had typhoid fever in November 1765, and small pox in October 1767.

Regarding the cause of Mozart's death, many hypotheses have been proposed. In 1983, Australian gastro-enterologist Davies suggested the diagnosis of Schönlein-Henoch syndrome complicated by renal failure.⁸⁾ This immune-mediated disease can cause fever and rash, though rarely causes renal disease. As a rule it is a self-limiting disease and is seldom fatal, but this hypothesis was rejected by Karhausen.⁹⁾

In 1991, Treves mentioned the possibility of infective endocarditis by stating “we wonder whether Mozart did not die of an infections endocarditis following three attacks of acute rheumatic fever”, but concluded “he possibly died of Bouillaud's disease”.¹⁰⁾

In 1992, Guillery suggested that chronic renal failure was the cause of death.¹¹⁾ In 1998, Karhausen, a nephrologist, also proposed that Mozart died from chronic renal failure,¹²⁾ a slowly progressing condition which can cause edema and death, but it does not explain the high fever associated with rash and there was no indication that Mozart was suffering from chronic kidney disease.

Discussion

Only two months before his death, Mozart was complaining of fatigue and felt unwell in Prague, but was otherwise well enough to conduct *La Clemenza di Tito* for the coronation of the Emperor. Just one month before his death he was able to visit his wife in Baden. In September 1791, he conducted *Don Giovanni* and *Die Zauberflöte* in Prague and Vienna, and also composed concerto for the clarinet. In addition, just two days before he took to his bed, he was able to conduct Cantata music for the dedication of the new Masonic lodge. This level of activities did not fit with a man who suffered and to die from chronic renal failure within a few weeks.

In 2001, Fitzgerald also mentioned the possibility of acute rheumatic fever and subacute bacterial endocarditis but did



Fig. 1. Edema and cutaneous vasculitis in a patients with acute infective endocarditis.¹⁵⁾ Perhaps Mozart had similar skin lesions which may have prompted the diagnosis of acute or severe miliary fever.

not give any details.¹³⁾ In the same year, Hirschman suggested Trichinosis killed Mozart,¹⁴⁾ as he used to enjoy pork cutlet. Trichinosis was a relatively common disease in middle Europe at the time but it was seldom fatal, and his last illness cannot be explained by this diagnosis.

From the letters of Leopold, it is certain that Mozart experienced repeated episodes of acute rheumatic fever and could have developed valvular heart disease. Most patients with chronic rheumatic heart disease remain well until 30 to 40 years of age, when they may proceed to develop atrial fibrillation, heart failure and infective endocarditis. The onset of subacute infective endocarditis can be insidious and detection may take time. However, acute endocarditis due to virulent staphylococcus may cause acute and severe heart failure due to heart valve perforation and the patient may die within a few weeks. Thus, the clinical course of Mozart is compatible with acute infective endocarditis.

Nissen's biography states that “His final illness began with swelling of the arms and legs which were followed by sudden vomiting” (Fig. 1). This edema was probably due to severe heart failure, and Sophie's letter to Nissen suggests that Mozart was severely dyspneic before his death. She wrote “on the night Mozart died, Dr. Closset arrived and bled him then ordered cold compresses be placed on his burning heard, which was such a shock to him that he never recovered consciousness before he expired... to the very end, he tried to sound the drums in his Requiem with his mouth, I can hear it still”. This suggests that Mozart breathed with loud, drum-like, noise before he died. Sophie also made the observation that the unconscious Mozart was pouting his cheeks to breathe, which Sophie interpreted as practicing the part of trumpet of the unfinished Requiem. However, it remains unlikely that the critically ill Mozart would try to sound the drum or trumpet. Thus, we can assume that Mozart was in acute respiratory distress, probably due to acute pulmonary edema.

Another compounding fact is that Mozart's widow was

trying to collect royalty from the unfinished Requiem, and that the family was in need to convince everyone that the Requiem was actually completed before Mozart's death and he was trying to practice the music on his death bed.¹⁶⁾

Another mystery of Mozart's death is that he had remained lucid until he was bled, and soon after he became unconscious and died in two hours. In Mozart's time, Viennese physicians firmly believed in the humoral theory and practiced phlebotomy widely for severe inflammation. Dr. Sallaba, chief physician of the general hospital in Vienna at the time, was consulted by Mozart's family physician Dr. Closset. In his book, Dr. Sallaba wrote the importance of vigorous phlebotomy for the treatment of rheumatic inflammation: "Here the necessity for withdrawing blood is at its greatest, greater in fact than in real inflammation, and there is no other disease known that so easily tolerated withdrawal of blood" Accordingly, he would prescribe at least six to eight venesection or more, a fourth of a liter or more at a time in the first week of an inflammatory illness.¹⁷⁾ Neumayr suggests that Drs. Closset and Sallaba knew Mozart had inflammatory disease, and he was treated by repeated phlebotomy according to the accepted treatment of that time.

There is good reason to believe that Mozart was bled at least three times in the last two weeks of his life. Deiner reported that one week before Mozart died, Sallaba and Closset met and discussed phlebotomy for Mozart. Another statement by Bussy in 1816, stated that "The most famous doctor in the city diagnosed Mozart's disease as inflammatory and bled his veins".¹⁸⁾

Summary

Mozart was a small man who was vomiting and perspiring profusely for which Mozart's wife and Sophie had to make special shirts, but he did not receive fluid replacement. Therefore, we can assume that he was severely dehydrated and in such situation repeated phlebotomy could easily have caused hypovolemic shock, unconsciousness and death.

Phlebotomy was a common treatment since the days of Hip-

ocrates and Gallen, assuming that inflammation was caused by accumulation of pathological liquid. Thus, over 2,000 years of phlebotomy had been widely practiced until the French physician Pierre Charles Alexandre Louis (1787-1872), after making some careful observations on the effects of phlebotomies for the treatment of pneumonia, published an article in 1,835 and concluded that phlebotomy was of no use. This was the dawn of numerical medicine and the concept of evidence-based medicine that was to come more than a century later. Thus, it is likely that the greatest musical genius became another victim of phlebotomy-an example of useless and harmful medical practice. It is ironical that Mozart's life was probably shortened by two most famous physicians in Vienna at the time.

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