

# Händel's stroke: a clinical and topographic diagnostic challenge

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## ABSTRACT

**Introduction.** At the age of 52 years, Georg Friedrich Händel had the first of a series of strokes, which varied in terms of symptoms and cause.

**Methods.** This study reviews the main articles on Händel published on MEDLINE/PubMed, and a wide range of biographies of the renowned composer, to gather clinical data that may help establish a diagnosis of the cerebrovascular disease Händel suffered.

**Results.** Based on the clinical profiles of each vascular event, the first stroke (1737) may have been a deep brain haemorrhage, resulting in subcortical haematoma. Six years later, in 1743, Händel presented a lacunar ischaemic stroke, and similar episodes 2 and 8 years later (in 1745 and 1751). The composer gradually developed multi-infarct encephalopathy due to involvement of the penetrating arteries.

**Discussion.** This article discusses different pathophysiological factors that may explain this peculiar sequence of cerebrovascular events. Many of the vascular risk factors observed in Händel are common to the three syndromes proposed. The composer's powerful personality and overwhelming creative capacity alternated with periods of deep sorrow; these mood and behaviour changes suggest bipolar disorder. The article also analyses possible causes of Händel's blindness and the treatments he received after consulting the ophthalmologists Samuel Sharp, William Bromfield, and John Taylor, in 1751, 1752, and 1758, respectively.

## KEYWORDS

Bipolar disorder, blindness, brain haemorrhage, Georg Friedrich Händel, lacunar stroke, multi-infarct encephalopathy

## Introduction

The great musician Georg Friedrich Händel (1685-1759) presented cerebrovascular disease at the age of 52 years. Determining stroke subtypes and lesion location, and describing the unique clinical progression 281 years after the first cerebrovascular event constitutes a fascinating challenge. This study is novel in that it supports the hypothesis that Händel suffered successive episodes of different types of cerebrovascular disease, beginning

with a haemorrhagic stroke and followed by lacunar strokes, and subsequently developing multi-infarct encephalopathy due to involvement of the penetrating arteries. Previous studies have proposed large-vessel disease as the cause of recurrent left hemisphere stroke.<sup>1,2</sup>

An avid reader of the Bible, Händel was well learned and spoke several languages. A tireless traveller, he was born in Germany but educated in Italy, and was held in high esteem by the English court. He composed both operas



Figure 1. Georg Friedrich Händel, by Sir Thomas Hudson (1749)

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and oratorios; the former were written in Italian and the latter in English.

Händel's musical output was exquisite and vast, including 43 operas, 26 oratorios, and countless odes and choral and orchestral works. He was a keyboard virtuoso and a brilliant conductor. *Messiah* (1741) is one of his most beautiful and best known oratorios.

### Methods

This study is based on the results of a literature search using the keywords "Georg Friedrich Händel," "bipolar disorder," "brain haemorrhage," "lacunar stroke," "multi-infarct encephalopathy," and "blindness" in the MEDLINE database through the PubMed search engine. The author also consulted numerous biographies,<sup>3-5</sup> pieces published in London newspapers at the time,<sup>3,4</sup> and

scientific studies of Händel's disease by neurologists,<sup>1,2</sup> ophthalmologists,<sup>6</sup> and psychiatrists.<sup>7,8</sup>

The centuries that have passed, the often unreliable clinical data available, and the myths surrounding Händel's life represent the main challenges to the study. However, advances in our clinical understanding of cerebrovascular disease, and the development of brain MRI techniques enabling visualisation of characteristic lesion images, encourage attempts to diagnose the cerebrovascular disease of this great figure of Baroque music.

### Results

A robust and tall man, Händel was temperamental, irritable, and on occasions violent: he displayed an incredible energy (Figure 1). He was extremely

demanding of his musicians and singers, bordering on arrogance, and an obsessive perfectionist.

Händel presented numerous vascular risk factors, including arterial hypertension, obesity, smoking, alcohol abuse, a love of indulging in copious meals, a sedentary lifestyle, and probably snoring associated with sleep apnoea, in addition to poor treatment adherence.

Regarding family history, both his mother and his maternal grandmother died of stroke.<sup>1</sup>

Several psychiatrists have analysed Händel's personality, suggesting that he had bipolar disorder, with frequent periods of depression followed by periods of intense musical production.<sup>8</sup>

On the morning of 13 April 1737, when he was 52 years old, Händel had a violent argument and arrived home upset and red-faced, shouting, complaining of vertigo, severe headache, nausea, and vomiting. He suddenly lost consciousness and fell to the ground; he initially remained immobile, with his eyes open, a fixed gaze, and stertorous breathing, and subsequently began to groan while he developed mild focal seizures.<sup>5</sup> Dr Jenkins, Händel's personal doctor, arrived 30 minutes after symptom onset and found the composer semi-conscious; his voice was weak and speech was slurred but coherent. Händel displayed complete, predominantly faciobrachial right hemiparesis; he was diagnosed with apoplexy and treated with blood-letting for the following three days. After a week, Händel displayed severe dysarthria, and would say "over... all over with me." Dr Jenkins commented that "we may be able to save the man, but we have lost the musician. [He will not work again] in default of a miracle." Händel was confined to bed during the following months; he was desolate, unable to walk or write, and dependent in all the activities of daily living, although he could slur some words and recognised music. In September 1737, five months after stroke, he was transferred to Aachen to continue rehabilitation. Through strength of will and countless hours of effort, Händel recovered from his right-sided motor deficits; surprisingly, at six months he was able to play the organ as masterfully as before the stroke.

Over the following three years, he alternated between periods of tireless creative work and periods of sadness, apathy, and utter emptiness. In August 1741, Charles Jennens sent Händel the libretto for *Messiah*. Händel was immediately captivated, the text dragging him from

the shadows; music sprung from every word: beautiful, heavenly, sublime. In barely three weeks of ceaseless work, Händel completed the oratorio, today considered an icon of the music dedicated to God. The debut performance was a great success, taking place in Dublin on 13 April 1742 before an audience of 700 people, five years after Händel's first cerebrovascular accident.<sup>5</sup>

Händel subsequently experienced three further strokes (in 1743, 1745, and 1751); these episodes were different from the initial one. During these episodes, Händel presented dysarthria and paralysis of the right hand; symptoms were short-lasting, resolving within seven days. In 1751, coinciding with his last ischaemic stroke, Händel began to complain of decreased visual acuity in the left eye; although vision loss was not complete, it hindered his writing. The musician progressively lost his sight in the left eye. Two to three years later, he also began to lose the sight in his right eye; from 1757, he progressively developed impaired balance, with poor coordination and frequent falls. In the last months of Händel's life, he became progressively more dependent, mainly due to the impaired balance and blindness. However, he continued composing and conducting until a week before his death on 14 April 1759, probably due to a cardiovascular event. He died 22 years after the first stroke, in a period of intense professional activity.

## Discussion

The first stroke may have been due to a brain haemorrhage, associated with left subcortical intracerebral haematoma, greatly resembling the case published by Mori et al.<sup>9</sup> in 1985: the episode took place during the day after a heated argument, and the patient presented high blood pressure, was temperamental, and showed poor treatment adherence.

Motor impairment involved the right side of the body and was predominantly faciobrachial; it was accompanied by dysarthria with no signs of aphasia, which rules out cortical lesions but suggests involvement of subcortical motor pathways, which would explain Händel's recovery in a period of six months.

However, the subsequent cerebrovascular events (in 1743, 1745, and 1751) were clinically different, as they were associated with transient speech alterations and impaired motor control in the right hand; symptoms resolved completely within one week, and Händel was again able to play the clavichord with great dexterity.

This suggests dysarthria-clumsy hand syndrome, topographically associated with a lesion to the anterior limb of the left internal capsule.<sup>10</sup>

Some studies have reported an association between lacunar syndromes and atheromatous plaques in the internal carotid artery, which cause lacunar strokes in the ipsilateral hemisphere as a result of arterio-arterial embolism or haemodynamic phenomena.<sup>11</sup> These episodes may occasionally be preceded or accompanied by vision loss due to central retinal artery occlusion or optic nerve ischaemia ipsilateral to the stenosis; this diagnosis is supported by Miranda.<sup>2</sup> Bätzner and Hennerici<sup>1</sup> suggest both possibilities.

The clinical progression suggests that Händel's cerebrovascular accidents were the initial manifestation of multi-infarct encephalopathy due to involvement of the penetrating arteries supplying the basal ganglia, internal capsule, and brainstem. Händel's clinical condition during the last years of his life may be explained by the fact that lacunar stroke constitutes an initial focal manifestation of diffuse small-vessel disease, which over the years may progress to a wide range of symptoms, including impaired balance, gait impairment, frequent falls, and occasionally cognitive impairment and dementia.<sup>12,13</sup> At this stage, brain MRI usually reveals multiple small, deep, ovoid infarcts, located principally in the internal capsule, thalamus, and pons bilaterally, accompanied by leukoaraiosis.

The fact that Händel had chronic arterial hypertension is the main argument in favour of the hypothesis of lacunar stroke due to involvement of the penetrating arteries. Lacunar strokes usually manifest at younger ages than other types of ischaemic stroke and have a long and initially benign course.<sup>12,13</sup>

Blahak et al.<sup>14</sup> studied the neurological disease of Joseph Haydn, one of the greatest musicians of all time and a leading figure in classical music. During his last years of life, the Viennese composer displayed progressive gait alterations, with frequent falls, emotional lability, and progressive cognitive impairment leading to dementia; these symptoms were interpreted by Blahak et al.<sup>14</sup> as subcortical vascular encephalopathy.

In 1751, Händel began to experience decreased visual acuity in the left eye and consulted John Taylor, the ophthalmologist who had operated on Johann Sebastian Bach in 1749, with poor results. Händel did not recover

his eyesight after surgery; Bach developed an eye infection after the intervention by this eye surgeon of uncertain ability, and died several months later. Curiously enough, these two musical geniuses were born in the same year, 1685 (Händel on 26 February and Bach on 21 March), in relative proximity to one another (in the German towns of Halle and Eisenach), they both were gifted keyboard players, and despite being Baroque musicians, both were ahead of their time. Händel was soon acknowledged by Beethoven, who described him as "the greatest composer that ever lived." In contrast, Bach's music fell into obscurity for nearly a century after his death. Despite this common history, Händel and Bach never met personally.

Händel's blindness was probably due to bilateral glaucoma, as diagnosed by Dr Samuel Sharp<sup>2</sup>; this condition is nearly asymptomatic until the very late stages and constitutes the most frequent cause of irreversible amaurosis. However, several authors support the hypothesis that Händel's blindness was associated with unilateral or bilateral internal carotid artery stenosis, which led to progressive visual impairment.

Three major conditions stand out from Händel's medical history. Firstly, psychiatric disorders in the form of cyclothymia. Secondly, recurrent left hemisphere strokes, which were initially haemorrhagic and subsequently ischaemic, and progressed into multi-infarct encephalopathy (these processes share numerous risk factors). Finally, blindness, which was initially unilateral and subsequently also affected the right eye, probably due to bilateral open-angle glaucoma.

### Conflicts of interest

The author has no conflicts of interest to declare.

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