

On dementia and politics: Gaius Marius, frontotemporal dementia in Ancient Rome

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ABSTRACT

Frontotemporal dementia is a neurodegenerative disease that, in its behavioral variant (bvFTD), manifests with behavioral and psychiatric symptoms. We analyze the biographical data provided by Plutarch, a Greek writer of the first century AD, in his work *Parallel Lives*, about the famous Roman general and statesman Gaius Marius, who, through an extraordinary capacity for commitment, rose from humble origins to be elected consul seven times, a unique case in Republican Rome. The objective of this article is to evaluate whether the remarkable changes in the behavior and personality of this distinguished Roman during the latter years of his life are consistent with the development of bvFTD. These changes included inappropriate social behavior, loss of manners and decorum, apathy, diminished empathy, and hyperorality. He also developed complex compulsive behaviors, anosognosia including inability to perceive his own limitations, and a delusion of ruin. These alterations are consistent with the current clinical criteria for the diagnosis of bvFTD.

In conclusion, the biographical description of Gaius Marius collected in Plutarch's work *Parallel Lives* is possibly the first historical record of clinical bvFTD, and highlights an ancient, perilous connection between the aging of key politicians and cognitive-behavioral changes.

KEYWORDS

Ancient Rome, frontotemporal dementia, Gaius Marius, history of neurology, *Parallel Lives*, Plutarch, politics.

Introduction

The term frontotemporal dementia (FTD) involves a group of neurodegenerative diseases of focal onset, usually with asymmetric brain involvement, characterized most frequently by behavioral symptoms and language dysfunction. The behavioral variant (bvFTD) is distinguished primarily by alterations in social and personal behavior.¹ Its diagnosis is mainly clinical, but often poses challenges, as it may share similar symptoms with other conditions, including psychiatric disorders, other neurodegenerative dementias, or chronic cerebrovascular disease. Structural and functional neuroimaging studies, cerebrospinal fluid markers, and genetic studies in

patients with family history of the disease contribute to the accuracy of the diagnosis, which may be confirmed at autopsy.^{1,2} In 1998, Neary and colleagues³ published the first systematic approach, establishing the original diagnostic criteria. In 2011, Rascovsky and colleagues⁴ reviewed these criteria, analyzing their sensitivity, and subsequently developed the most recent diagnostic criteria.

Plutarch (Figure 1) was a Greek writer born in Chaeronea around 45 AD. He is the author of *Parallel Lives*, a work that collects the biographies of relevant figures, mostly soldiers and politicians, from the ages of splendor of the Greek and Roman cultures. One of these

prominent actors was the Roman general and statesman Gaius Marius (c. 157-86 BC), who gradually rose from obscure origins to unprecedented political power, being elected consul seven times. Plutarch's astute descriptions encompass not only the rise and fall of this prominent Roman, but also the remarkable behavioral changes he presented during the last years of his life.

Material and methods

We conducted a critical reading and analysis of Gaius Marius' biography in *Parallel Lives* and the changes described by the author in the light of the current diagnostic criteria for bvFTD.^{4,5}

Results

Plutarch provides relevant data regarding Gaius Marius' family background and early years. According to the Greek author, Gaius Marius "was born of parents altogether obscure and indigent."^{5(p666)} His first years of life were "rude and unrefined, yet temperate, and conformable to the ancient Roman severity."^{5(p666)} In his first military campaign,

he signalized himself to his general by courage far above his comrades, and, particularly, by his cheerfully complying with Scipio's reformation of his army, before almost ruined by pleasures and luxury.^{5(p666)}

In recognition of his military merits, he "had several honors conferred upon him."^{5(p666)} Credited for his achievements in the military field, Gaius Marius threw himself into political life, and among his noteworthy initiatives, "he brought forward a bill for the regulation of voting, which seemed likely to lessen the authority of the great men in the courts of justice."^{5(p666)} Although "he had neither riches nor eloquence to trust to [...]" his vehement disposition, his indefatigable labors, and his plain way of living, of themselves gained him esteem and influence^{5(p668)} to the point of achieving a brilliant marriage to Julia, of the distinguished lineage of the Caesars. On multiple occasions, he showed signs of correct behavior and high capacity for commitment. For instance, in the Jugurthine War, Gaius Marius "gained great popularity matching the very common soldiers in labor and abstemiousness"^{5(p669)} and "his uprightness in judging more especially pleased the soldiers."^{5(p675)} He demanded the same principles of his subordinates and "sharply reprehended those that were too forward and eager



Figure 1. Portrait of the Greek writer Plutarch, by Leonard Gaultier.

to show their courage" because "they were not now to think of the glory or triumphs and trophies, but to save Italy."^{5(p676-677)} In addition to his executive capacity as a strategist, we must also note his ingenuity and skill in technical matters. For example, among other inventions, he introduced an innovation in the design of the javelin that allowed it to break easily after being used against the enemy, thus preventing reuse against the Roman forces.

In the following years, he continued to reap military and political success, and his popularity grew, which contributed to his election as consul five consecutive times (Figure 2).

A clear turning point in this successful career appears to have occurred before he won his sixth consulship. In order to maintain this position, he had to take advantage of his power and influence and proceeded to distribute "vast sums of money among the tribes."^{5(p689)} His social



Figure 2. *Marius Victor over the Cimbri*, by Francesco Saverio Altamura. Source: ©Museo di Capodimonte, Napoli.

recognition began to suffer to the point that in his last consulship “he contracted a great deal of hatred, by committing several gross misdemeanors in compliance with Saturninus.”^{5(p689)} It seemed to him that “his power and glory would by little and little decrease by his lying quietly out of action.”^{5(p691)} During the Social War, Marius “was thought tardy, unenterprising and timid” as if “his age was now quenching his former heat and vigor.”^{5(p692)} He “was above sixty-five years old” and “his body was unfit for action.”^{5(p692)} As a result of his social success, Gaius Marius owned “a villa more effeminately and luxuriously furnished than seemed to become one that had seen service in so many and great wars and expeditions.”^{5(p693)} These refinements influenced his habits and customs and “he was undoubtedly grown bulky in his old age, and inclining to excessive fatness and corpulency.”^{5(p693)}

His judgment was impaired, and “unwilling to admit any limit to his high fortune,” he was unfit to “quietly enjoy what he had already got.”^{5(p694)} In addition, disregarding his physical decline, he finally decided to resume his military efforts fighting against Mithridates, which was regarded as highly incongruent at the time: “why [...] should he at so great an age leave his glory and his triumphs to go into Cappadocia [...]?”; “[his] pretenses for this action of his seemed very ridiculous, for he said he wanted to go and teach his son to be a general.”^{5(p694)}

Gaius Marius had to flee Rome due to his enmity with Sulla, his old rival (Figure 3). He later returned “wearing an ordinary habit, and still letting his hair grow as it had done, from that very day he first went into banishment,” and “he came slowly on foot, designing to move people’s compassion; which did not prevent, however, his natural

fierceness of expression from still predominating.”^{5(p701)} His behavior became unpredictable, loaded with impulsivity and aggressiveness:

to kill all those who met Marius and saluting him were taking no notice of, nor answered with the like courtesy; so that his very friends were not without dreadful apprehensions and horror, whensoever they came to speak with him.^{5(p703)}

This irascibility was inconstant, showing clear emotional lability:

Marius, himself now worn out with labor and sinking under the burden of anxieties, could not sustain his spirits, which shook within him with the apprehension of a new war and fresh encounters and dangers.^{5(p705)}

Plutarch further relates that,

perplexed with such thoughts as these, and calling to mind his banishment, and the tedious wanderings and dangers he underwent, both by sea and land, he fell into despondency, nocturnal frights, and unquiet sleep.^{5(p705)}

His habits became disorganized: “he gave himself up to drinking deep and besotting himself at night in a way most unsuitable to his age” and “so what with his fear for the future, and what with the burden and satiety of the present, on some slight predisposing cause, he fell into a pleurisy.”^{5(p705)} It seems that:

in his sickness he ran into an extravagant frenzy, fancying himself to be general in the war against Mithridates, throwing himself into such postures and motions of his body as he had formerly used when he was in battle, with frequent shouts and loud cries.^{5(p706)}

Unable to accurately assess his personal situation and:

though he had lived seventy years, and was the first man that ever was chosen seven times consul, and had an establishment and riches sufficient for many kings, he yet complained of his ill fortune, that he must now die before he had attained what he desired.^{5(p706)}



Figure 3. *Gaius Marius sitting in exile among the ruins of Carthage*, by William Rainey. Source: Weston WH. Plutarch's lives for boys and girls: being selected lives freely retold. New York: Frederick A. Stokes Company; 1900.

Discussion

Behavioral variant FTD is a neurodegenerative disease whose symptom onset generally occurs between the ages of 60 and 70. Characteristic clinical manifestations include behavioral alterations and psychiatric symptoms.⁶ The disease usually develops insidiously and progressively, as is common in other degenerative diseases. Other conditions to be considered in differential diagnosis include other neurodegenerative dementias, metabolic alterations, nutritional deficiencies, central nervous system infections, substance abuse, cerebrovascular disease, heavy metal poisoning, neoplasms, paraneoplastic

diseases, and particularly major depression and bipolar disorder.¹

According to the biographical data provided by Plutarch, Gaius Marius showed himself in his youth and adulthood to be a righteous man, with irreproachable behavior under the social standards and the context of his time, prudent and with appreciable executive capacity. The level of success achieved in his personal, military, and political life are consistent with these virtues. As a soldier, he enjoyed success in numerous deeds. As a politician, he won the popular will and was elected consul as many as seven times. He was also successful in his personal and social life, to the point that, through marriage, he entered the lineage of the Caesars. All of these facts make it highly unlikely that he presented any psychiatric disorder. This possibility undoubtedly would have limited his personal and professional career, and at the same time probably would not have escaped the attention of his cunning biographer. Plutarch describes major behavioral and personality changes in Gaius Marius around 65 years of age. The symptoms of bipolar disorder generally begin at a younger age,⁷ and its cyclical course or the intense depressive state that sometimes constitutes its only manifestation undoubtedly would have been quickly noted in any biographical description. Obsessive-compulsive disorder usually begins before the age of 35 and causes severe personal and social limitations in everyday life. Other serious psychotic disorders, due to the handicaps they involve and the early disability they cause, seem even more unlikely options in this case.⁸

Given the standard of living reached by Gaius Marius, it is difficult to consider that a nutritional deficiency may have been the cause of his symptoms. It is true that in the light of the change in his eating habits during his latter years, we must consider the possibility of metabolic alterations linked to diseases or conditions prevalent in the general population and related to age, such as diabetes mellitus or arterial hypertension. However, it seems more likely that these modifications were a consequence, rather than the cause, of the behavioral disturbances. The same argument also applies to drug or alcohol use.

No data in the detailed description suggest a possible chronic central nervous system infection, nor a neoplastic disease or heavy metal poisoning, although these possibilities cannot be completely ruled out.

Cerebrovascular disease should also be considered as a possible cause of behavioral disturbances. The remarkable weight gain described by Plutarch is not incompatible with a metabolic syndrome that could favor small-vessel vascular damage. However, it frequently follows a staggered course of focal neurological deficits with episodes of abrupt worsening and gradual recovery, often incomplete, of which there is no evidence in Plutarch's description. Although people who suffer from cerebral small-vessel damage can present with apathy, depression or delusional ideation, these symptoms are by no means specific. Notably, the gait disorder that frequently accompanies vascular dementia is absent in Plutarch's fine-grained description.⁹

During his sixth consulship, around his sixth decade of life, Gaius Marius began to show striking personality and behavioral alterations. Whereas previously he had been strictly just and straightforward, he now seemed to accept the commission of criminal acts without personal conflict. His executive capacity seemed to decline, along with his capacity for waging war and taking complex decisions in general. The deadly fear he inspired, even among his friends, and the unnecessary violence that he deployed against both friends and enemies through the abuse of power, undoubtedly reflect a notable lack of empathy.

Anosognosia is another remarkable feature in the progression of Gaius Marius. He seems to be unaware of his condition when he wishes to undertake new military campaigns that exceed his capacity. His delusion of ruin, inconsistent with his great achievements and deeds, may also be related with a loss of insight. Plutarch's biography also reveals other delusions accompanied by ritualistic and repetitive behaviors.

In sharp contrast with his previously austere lifestyle, Gaius Marius develops a striking hyperorality that leads him to indulge in excessive food and alcohol consumption, which may also reflect a severe difficulty in impulse control. Plutarch's picturesque description of an ill-shaven Gaius Marius, whose uncut hair is absolutely incompatible with Roman military tradition, effectively depicts neglect of appearance, hygiene and decorum, which is highly characteristic of bvFTD.

Other neurodegenerative diseases must also be taken into account in the differential diagnosis. Progressive symptom development is typical of primary neurodegenerative diseases causing dementia. Alzheimer disease (AD) is the most common primary degenerative dementia, and although there are indeed variants of the disease, the typical picture is characterized by gradual impairment of anterograde episodic memory and visuospatial skills, followed by other cognitive domains and behavior. Gaius Marius seems not to have had particular impairment of memory or language, nor do data from his biography suggest visuospatial dysfunction. As these symptoms would be evident, their absence in Plutarch's precise text is telling, and allows us to reasonably rule out not only a typical form of AD but also some of its variants, such as logopenic aphasia and posterior cortical atrophy. On the other hand, a frontal variant of AD cannot be ruled out immediately, as its clinical expression may coincide with some of the behavioral symptoms reported in Gaius Marius; however, the worthy Roman had no signs of the commonly associated hippocampal-type amnesia.^{10,11}

The aforementioned delusions may also suggest Lewy body dementia. However, according to Plutarch's description, Gaius Marius presented no signs of parkinsonism, nor are sleep disorders, cognitive fluctuations, or visual hallucinations clearly mentioned. For a clinical diagnosis of probable Lewy body dementia, the presence of at least two of the following criteria is required: asymmetric extrapyramidal syndrome, noticeable cognitive fluctuations, REM sleep behavior disorder, and complex hallucinations.¹² Indeed, the presence of behavioral alterations is also frequent in this entity, so although the clinical picture is clearly incomplete, it cannot be completely ruled out as a hypothesis.^{12,13}

Although unlikely, the possibility of chronic poisoning should also be considered in the differential diagnosis. Gaius Marius' military and political power over the decades undoubtedly would have earned him powerful enemies. There is evidence of the use in the ancient world of substances with long-lasting psychotropic effects, such as the anticholinergic effect of stramonium intoxication, which may overlap with the clinical picture of delusional ideation and behavioral disturbance described above.^{14,15}

Behavioral variant FTD characteristically presents with gradual, insidious, progressive development of behavioral dysfunction and psychiatric manifestations. Clinical criteria for probable bvFTD include inappropriate social behavior, loss of manners and decorum, and impulsive, reckless, or careless actions. Other symptoms include apathy; inertia; decreased empathy and social interest; compulsive, perseverative, and stereotyped behaviors; hyperorality; and loss of executive ability.⁴ In addition, patients may experience other, less specific behavioral changes, delusions, and loss of insight. Although the abundance of psychiatric symptoms may suggest a non-degenerative disorder of this nature, a misdiagnosis of psychiatric disorder is more common than bvFTD if the criteria are met.^{10,16,17} In our case, the symptoms presented by Gaius Marius seem to fulfill four of the six Rascovsky criteria required for the diagnosis of possible bvFTD. Table 1 shows the parallels between these criteria and Plutarch's biographical description.^{4,5} It is also worth mentioning that, unfortunately, Plutarch's description does not mention the possible existence of family history, which, given its high frequency in FTD, may also support the clinical diagnosis.¹⁸

Our analysis has some obvious limitations. The etiological approach is difficult if we have to rely exclusively on clinical criteria collected 20 centuries ago, in a literary work without medical intent, whose author was not a direct eyewitness, and in an era whose social reality was very different from our own. There is indeed an inherent controversy regarding retrospective diagnosis based only upon historical or literary documents concerning the distant past, as scientific verification is not possible.¹⁹⁻²¹

Another limitation arises regarding the trustworthiness of Plutarch's description. Some authors have suggested that Plutarch may in fact have sought to paint a defamatory portrait of the politician. This topic has been intensely argued in the literature, in an interesting debate whose length is beyond the scope of this article.²²⁻²⁶ However, we would like to emphasize that the issue has been studied in depth from a political and historical perspective, but probably lacks an elucidatory neurological viewpoint. For example, Kildahl²⁵ suggests that other Republican sources do not clearly depict Gaius Marius as "having gone mad." Remarkably, at the same time, he describes (yet fails to recognize) a possible delusion of

Table 1. Correlation between biographical data of Gaius Marius and clinical criteria for the diagnosis of behavioral variant frontotemporal dementia.^{4,5}

Diagnostic criteria for possible bvFTD At least 3 (A-F), which must be persistent or recurrent. Rascovsky et al., ⁴ 2011	<i>Parallel Lives</i> 12. Lives of Pyrrhus and Gaius Marius Plutarch, ⁵ 1st century AD
<p>A. Early disinhibition</p> <p>A.1. Socially inappropriate behavior</p> <p>A.2. Loss of manners and decorum</p> <p>A.3. Impulsive, rash or careless actions</p>	<p>“He contracted a great deal of hatred, by committing several gross misdemeanors in compliance with Saturninus.”</p> <p>His behavior became unpredictable: [...] “to kill all those who met Marius and saluting him were taking no notice of, nor answered with the like courtesy; so that his very friends were not without dreadful apprehensions and horror, whensoever they came to speak with him.”</p> <p>“He gave himself up to drinking deep and besotting himself at night in a way most unsuitable to his age.”</p> <p>He returned “wearing an ordinary habit, and still letting his hair grow as it had done, from that very day he first went into banishment”; “He came slowly on foot, designing to move people’s compassion.”</p> <p>To win his sixth consulship, he took advantage of his power and influence, distributing “vast sums of money among the tribes.”</p> <p>His behavior became unpredictable: [...] “to kill all those who met Marius and saluting him were taking no notice of, nor answered with the like courtesy; so that his very friends were not without dreadful apprehensions and horror, whensoever they came to speak with him.”</p> <p>“At so great an age leave his glory and his triumphs to go into Cappadocia [...] he said he wanted to go and teach his son to be a general.”</p>
<p>B. Early apathy or inertia</p> <p>B.1. Apathy</p> <p>B.2. Inertia</p>	<p>“Was thought tardy, unenterprising and timid”; “Marius, himself now worn out with labor and sinking under the burden of anxieties, could not sustain his spirits [...]”</p>
<p>C. Loss of empathy</p> <p>C.1. Diminished response to other people’s needs and feelings</p> <p>C.2. Diminished social interest, interrelatedness or personal warmth</p>	<p>“His very friends were not without dreadful apprehensions and horror.”</p>
<p>D. Perseverative, stereotyped or compulsive/ritualistic behavior</p> <p>D.1. Simple repetitive movements</p> <p>D.2. Complex, compulsive or ritualistic behaviors</p> <p>D.3. Stereotypy of speech</p>	<p>No explicit alteration is described.</p> <p>“Fancying himself to be general in the war, throwing himself into such postures and motions of his body as he had formerly used when he was in battle, with frequent shouts and loud cries.”</p> <p>No explicit alteration is described.</p>
<p>E. Hyperorality and dietary changes</p> <p>E.1. Altered food preferences</p> <p>E.2. Binge eating, increased consumption of alcohol or cigarettes</p> <p>E.3. Oral exploration or consumption of inedible objects</p>	<p>“Bulky in his old age, and inclining to excessive fatness and corpulency.”</p> <p>“Gave himself up to drinking deep in a way most unsuitable to his age.”</p> <p>No explicit alteration is described.</p>

<p>F. Executive function deficit with relative sparing of memory and visuospatial functions</p> <p>F.1. Deficits in executive tasks</p> <p>F.2. Relative sparing of episodic memory</p> <p>F.3. Relative sparing of visuospatial skills</p>	<p>“Was thought tardy, unenterprising and timid.”</p> <p>Episodic memory dysfunction is not mentioned nor alluded to in Plutarch’s description.</p> <p>Visual dysfunction is not present in Plutarch’s description.</p>
<p>Other (supporting criteria)</p> <p>Delusional ideation</p> <p>Anosognosia/loss of insight</p> <p>Other behavioral disorders</p>	<p>“[...] he ran into an extravagant frenzy, fancying himself to be general in the war... such postures and motions of his body with frequent shouts and loud cries.”</p> <p>“So what with his fear for the future [...], on some slight predisposing cause, he fell into a pleurisy.”</p> <p>“Though he had an establishment and riches sufficient for many kings, he yet complained of his ill fortune, that he must now die before he had attained what he desired.”</p> <p>His judgment ability was altered and “unwilling to admit any limit to his high fortune [...] incapable of quietly enjoy what he had already got.”</p> <p>“At so great an age leave his glory and his triumphs to go into Cappadocia to fight.”</p> <p>“He yet complained of his ill fortune, that he must now die before he had attained what he desired.”</p> <p>“Worn out with labor and sinking under the burden of anxieties [...] with the apprehension of a new war and dangers.”</p> <p>“Perplexed with such thoughts [...] he fell into despondency, nocturnal frights, and unquiet sleep.”</p>

grandeur in Gaius Marius, attributing his personality changes to a mere process of moral erosion due to “unbearable power”:

It became more than a mere mortal could bear. Marius insisted that he drink from a sacred cup dedicated to Dionysus, and his Spartan simplicity gave way to progressively more ostentatious behavior. His signet ring was now of gold rather than iron, two great houses were built to satisfy his new and sumptuous lifestyle, and special devices were emblazoned on his shield to advertise his exploits.^{25,26}

In any case, legitimate doubts may be cast on the credibility of Plutarch's description, as the author himself, although explicitly claiming to be precise and impartial at

the beginning of the biography of Alexander the Great (also collected in *Parallel Lives*) was logically not free from conflicts of interest.²⁷⁻³¹ In this uncertain context, the following argument may tilt the balance: it seems suspiciously unlikely that a non-medical author should have coherently forged a description that so exactly fulfills not only the core symptoms of bvFTD but also its relatively early age of onset.

Conclusions

We present what is probably the oldest and most precise description of dementia in classical literature. With the usual limitations inevitably imposed by using an ancient literary source of information, the biographical

description of Gaius Marius in Plutarch's *Parallel Lives* suggests that this Roman figure suffered from a form of dementia which meets international consensus criteria for possible bvFTD.

On the other hand, this fact highlights the longstanding and fascinating relationship between politics and dementia. It may also reinforce the historical need to establish a control mechanism so that the neurodegenerative or neurovascular processes occasionally presenting in political and social leaders do not harm the societies they lead.³²⁻³⁴

Declaration of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships.

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