

## Seizures Among Public Figures: Lessons Learned From the Epilepsy of Pope Pius IX

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Epilepsy is one of the most stigmatizing of neurological conditions. Understanding how epilepsy affects the lives of important historical figures illuminates the psychosocial burden of disease for modern-day patients. Pius IX, one of the most consequential Popes in Catholic history, was reported to have epilepsy. Thus, this study aimed to assess how epilepsy influenced Pope Pius IX's life and his papacy. Librarians from Mayo Clinic, Library of Congress, and Vatican Library were consulted to identify all sources pertaining to Pius IX's health history. Twenty-one sources were consulted, and we conclude that Pius IX had partial epilepsy, likely a temporal lobe focus with secondarily generalized seizures. A near-drowning event in his youth coupled with a preexisting central nervous system lesion (as evidenced by photos showing facial asymmetry) likely contributed to his epilepsy. Epilepsy played an important role in Pius IX's life because it led him to the Papacy. At least one doctrine (the immaculate conception of the Virgin Mary) was influenced by his seizures, but there is no direct evidence that epilepsy played any role in the creation of other Catholic dogma ratified during his reign. Analysis of bias in references showed that favorable views of the Pope tended to minimize any discussions of his epilepsy, whereas negative references discussed his epilepsy at length. Pius IX's life holds lessons for modern-day epilepsy advocacy.

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On September 3, 2000, Pope John Paul II beatified Pope Pius IX.<sup>1,2</sup> Beatification is an essential step in the Catholic religion's process of declaring an individual a saint, and it celebrates a person of heroic values whom the church considers a model of Christian life. Instead of favorable worldwide news coverage that is typical for this type of occasion, protests ensued because of controversial aspects of Pius IX's papacy. Pope Pius IX (born Giovanni Maria Mastai Ferretti in 1792, died in 1878) was reported to have epilepsy (the condition of repeated seizures) about 100 years ago, and his legacy continues to be enshrouded by debate of this condition. Because epilepsy is one of the most stigmatizing of neurological conditions,<sup>3-6</sup> the natural question that follows is: How did epilepsy affect this historical figure's life?

Few know much about Pope Pius IX. He was the longest-serving Pontiff in the history of Catholicism, and his reign is arguably the most consequential, laying the framework for the modern papacy.<sup>7-27</sup> Catholic doctrine created during his reign includes the immaculate conception of the Virgin Mary, antisocialism (defined as an extension of scientific methodology to assess areas beyond its competence), antisocialism, and papal infallibility, the result of his convening Vatican Council I. Pius IX also presided over the tumultuous transition from Pope as king and ruler

of the Papal States to Pope as a spiritual leader with the creation of the current Vatican City state. Considering that today's 1 billion Catholics are all potentially influenced by the legacy of decisions laid down by Pius IX, the objective of this investigation was to assess whether Pius IX had epilepsy and, if so, the etiology and type of seizures, and the role epilepsy played in his life.

Stigmatization has been demonstrated to reduce the quality of life for people with epilepsy just as much as the physical symptoms themselves.<sup>4,6</sup> Historically, stigma arises because epileptic seizures have been considered a sign of "demonic possession, mental infirmity, or moral laxity."<sup>6</sup> Even today, people with epilepsy can believe that stigma limits their ability to achieve their full social, educational, and vocational potential. Combating stigma requires education and intervention at multiple levels from individual to societal.

Similarly feared medical diagnoses, such as human immunodeficiency virus infection or AIDs and mental illness, have been destigmatized when public figures have openly disclosed their diagnosis, offering a positive role model to set against negative stereotypes. However, few currently known figures before US Supreme Court Chief Justice John Roberts<sup>28</sup> have willingly disclosed an epilepsy diagnosis. A better understanding of how epilepsy affected the lives of important historical figures might illuminate the struggles of modern-day patients with epilepsy.

### METHODS

A literature and document search was conducted with help from the librarians of Mayo Clinic, the Library of Congress, and the Vatican Library. All known sources pertaining to Pius IX's health history were identified. Italian and German references were included and translated. Three epileptologists evaluated all materials. One neurologist (J.I.S.) culled the references into a clinical history, whereas the other 2 neurologists (J.F.D. and K.H.N.) were blinded to Pius IX's identity for their assessment of the material. All

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items that could identify the individual as a Pope were deleted from text or photos. Pius IX's facial photos from age 17 to 60 years were analyzed for neurological abnormalities. Finally, references were analyzed for bias to evaluate how various biographers in discussing Pius IX's life and legacy portrayed epilepsy. Seven distinct questions were addressed: (1) Did Pius IX have epilepsy? (2) If so, what type of epilepsy did Pius IX have? (3) What could have caused Pius IX's epilepsy? (4) How did epilepsy affect Pius IX's choice of career? (5) Could epilepsy have influenced any Catholic doctrine created during Pius IX's papacy? (6) Did Pius IX undergo any treatment for epilepsy? (7) What lessons does Pius IX's case offer modern-day patients with epilepsy?

## RESULTS

Our findings are based on data from 21 various sources and biographies of Pius IX.<sup>7-28</sup> No known medical or health records were kept on Pius IX.

### DID PIUS IX HAVE EPILEPSY?

All 3 epileptologists concurred that Pius IX likely had epilepsy. All documentation (including quotations from Pius IX himself) state that he had epilepsy as a child and young adult. No source contradicts this issue. Pius IX himself proclaimed that, after a pilgrimage to Loreto, Italy, in 1819 to visit the shrine of Our Lady of Loreto, he considered himself cured of his epilepsy.<sup>7,13,15</sup> However, some evidence suggests that he had recurring seizures in his later life. The following 2 quotations illustrate the epilepsy of Pius IX.

Between 1807 and 1809 while at the College of St. Michael, Pius IX had the first of his epileptic attacks, which made life difficult for him and obscured his vocation for several years. The subject himself wrote that "that is where I had my first epileptic attack that seemed to be the end of everything as far as I was concerned."<sup>13</sup>

One morning in the study hall, a giddiness seized Pius. It came in stronger waves. He stood up at the side of his desk, gave a half inarticulate cry and fell into a fiery blackness. When he awoke he felt calm and quiet. He did not know what had happened to him, he was in a small infirmary and all the people were gathered around him.<sup>21</sup>

### WHAT TYPE OF EPILEPSY DID PIUS IX HAVE?

Pius IX likely had partial epilepsy of a temporal lobe focus with secondarily generalized seizures. This diagnosis is characterized by repeated seizures and focal cortical neurological lesions. Moreover, patients with partial epilepsy are more likely to report memory disturbances and other cognitive difficulties. The evidence for Pius IX's epilepsy is based on observations of his appearance throughout his lifetime as well as his own report of the effect epilepsy had on his

thoughts. The following passage suggests the typical sequelae of partial epilepsy, including cognitive difficulties: "In the same year, he wrote to the Pope: owing to the fact of his epilepsy, he had a very weak memory and could not concentrate on any subject for any length of time without having to worry about having his ideas getting terribly confused."<sup>12,23,24</sup>

### WHAT COULD HAVE CAUSED PIUS IX'S EPILEPSY?

Two important findings in Pius IX's history are likely responsible for his epilepsy. First, he had a traumatic near-drowning event as a young child, which several sources cite as having contributed to his epilepsy.<sup>7-11,13-15</sup> A near-drowning event could lead to a global CNS hypoxia. Second, he likely had a CNS lesion from some developmental process, as evidenced by an asymmetry in photos of Pius IX's face that was apparent to all 3 epileptologists (Figure 1). Asymmetry affecting the lower half of the face suggests an upper motor neuron lesion of the 7th cranial nerve, which would be consistent with a focal lesion often seen among patients with partial epilepsy.<sup>29</sup> Pius IX was the youngest of 9 siblings, none of whom were reported to have had epilepsy, making it less likely that there was a generalized inherited condition. Suggestions of the traumatic events are demonstrated in the following passage: "As a youth in Italy, Pius IX annually went to visit his mother at the Shrine of Our Lady of Loreto. When he was small he fell into a stream after which he was frequently tortured with fatigue and fever. The doctors were never able to pinpoint the cause."<sup>7</sup> Developmental anomalies are evident based on the following quotation:

The vestiges of epilepsy were clearly visible. Pius IX's body was slightly less developed on the left. This could be seen even in the face, which was asymmetric with lips awry and a head that inclined to the right. The subject was considered highly impressionable, capricious, impulsive, and unpredictable. These characteristics were all attributed to epilepsy.<sup>27</sup>

### HOW DID EPILEPSY AFFECT PIUS IX'S CHOICE OF CAREER?

Epilepsy greatly influenced Pius IX's career. Because of his seizures, Pius IX's goal of becoming a Papal Noble Guard was abandoned. As a result, he entered into the priesthood, leading him to the pathway of church leadership. Interestingly, Pius IX had to be decreed seizure free before he could be anointed a priest. On November 4, 1818, the Bishop of Sinigaglia (what is now Senigallia) produced a report of the candidacy of the future Pius IX for potential priesthood.<sup>13</sup> He wrote: "To my knowledge he no longer suffers from the epileptic attacks to which he was subject in his more tender years. I am sure that it is many months since he had a single attack of this malady."<sup>13</sup>



FIGURE 1. Do photos of Pius IX demonstrate a neurological lesion? Note asymmetry in the lower half of the face on the left side (left and center), demonstrated by differences in the formation of the nasolabial folds. Right side of the lower face appears normal, but left side shows a slight droop suggestive of a central nervous system lesion, consistent with a diagnosis of partial epilepsy. To highlight this finding, we have superimposed the right side of the face from the center image on the left side of the photo to illustrate how the portrait would have appeared if the face were symmetric (right). Compare the new portrait with the original and note the marked differences demonstrating the asymmetry.

Pius VII agreed, on condition that in the future, as a priest, Pius IX would celebrate Mass only with the assistance of a deacon or another priest.<sup>13</sup> Seizures were documented at several times in Pius IX's life (Figure 2). The following quotation suggests how epilepsy led Pius to a career in the Church:

The epileptic attacks continued to affect Pius IX. In February of 1812 he was found in a state of collapse, foaming at the mouth at the entrance of the family's mansion. It was the epilepsy that excused the individual from military service. Pius' request to enter the Noble Guard was real, and the epileptic attacks [appeared] to become much rarer.<sup>13</sup>

#### COULD EPILEPSY HAVE INFLUENCED ANY CATHOLIC DOCTRINE CREATED DURING PIUS IX'S PAPACY?

Epilepsy might have been part of the historical backdrop during the approval process of 2 central doctrines of the Catholic Church: the immaculate conception of the Virgin

Mary and papal infallibility. Pius IX was responsible for affirming both; however, he was not responsible for the creation of either concept. Rather, he presided over the ratification of these beliefs, commonly accepted by Catholics, as church teachings. Evidence to this important point is Murillo's painting of the immaculate conception of Mary (Figure 3) some 200 years before Pius codified the concept. Paintings such as these were commissioned after Pope Paul V issued an edict that forbade preaching or teaching of anything contrary to the doctrine of immaculate conception of the Virgin Mary.<sup>30</sup> Thus, this concept was quietly accepted for centuries as church thought before the rule of Pius IX. Some biographers have suggested that promulgation of these teachings was influenced by epilepsy. Investigation of references on the doctrine provides evidence that the Pope's seizure disorder influenced this central teaching of the church, but in an unexpected manner.<sup>7,8,13,15,21,22</sup> An example of one of the references follows.

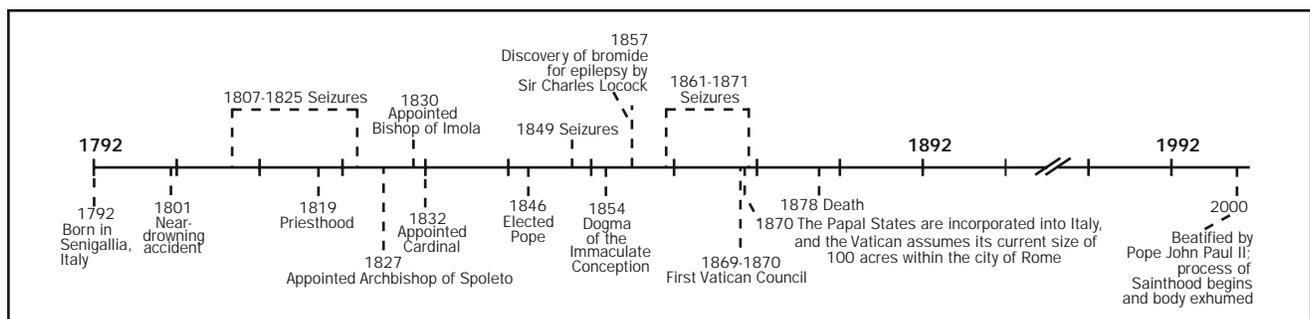


FIGURE 2. Timeline of the life of Pius IX, showing when seizures occurred.



FIGURE 3. The immaculate conception of Mary, as painted by Murillo. Reprinted with permission from the Prado Museum. All rights reserved.

Pius IX visited the Madonna of Our Lady of Loreto in Loreto, Italy, for help with his epilepsy. Loreto is the location of the sighting of the Virgin Mary based on the finding of the house in which the "Holy Family" lived when Jesus was a child. At this shrine Pius prayed for him to be rid of his epilepsy. The prayer on his lips was often as follows: "Mother behold your child—sick, miserable, useless. I am the shame of my family and disgust myself. Make me clean." After several visits to the Madonna, after Pius IX became Pope he proclaimed the dogma of immaculate conception in 1854. The dogma relates to the fact that the Virgin Mary was born of an immaculate conception herself.<sup>7</sup>

As the quotation illustrates, approval of dogma on the immaculate conception of the Virgin Mary was inherently Pius IX's thanks to the Virgin Mary for having cured him of his epilepsy. One point of clarification is that the concept of the immaculate conception refers to the birth of the Virgin Mary and not that of Christ; his immaculate conception had been accepted as Catholic dogma long before the concept of the immaculate conception of Mary.

As for the connection between papal infallibility and Pius IX's epilepsy, the argument is more ambiguous because no direct link exists, contrary to the claims of many critics of this doctrine. In the following excerpt we see that Pius IX's seizures appeared to recur during the Vatican

Council I when papal infallibility was approved as official church teaching:

Pius reports an epileptic disorder in the period between March 29 and April 2, 1825. During that year he wrote he had a very weak memory, which was a side effect of his seizures, and he could not concentrate on anything without having to fear a great deal of confusion. During the Vatican I Council on June 4, 1870, the Austrian envoy to the papacy reported that Pius had been threatened by seizures during the previous Lent. Another individual postponed that return to epilepsy to December 31, 1871, and reports on further falling episodes in 1872.<sup>12</sup>

The conclusion that seizures were occurring during Vatican Council I is inescapable, but no direct evidence suggests that the doctrine was concocted by a mind clouded by seizures, as some biographers claim.<sup>12,23,24</sup>

#### DID PIUS IX UNDERGO ANY TREATMENT FOR EPILEPSY?

No evidence documents that Pius IX had undertaken any treatment for epilepsy. Medical records were not kept, and all sources are silent regarding this issue. However, we, the authors, speculate that Pius IX likely ingested bromides in the last year of his life because of the following findings: (1) the recurrence of his epilepsy; (2) the growing acceptance of bromide therapy as a treatment for epilepsy by 1860<sup>6,31-33</sup>; (3) the emergence of a new dermatological condition most notably reported as a rash; and (4) the condition of his body when exhumed from his crypt. The following citation led us in reverse to that hypothesis:

On April 4, 2000, a delegation of bishops and monsignors in full regalia arrived at Rome's Basilica St. Lawrence outside the walls. They descended to the 6th-century cathedral's crypt and were led to a white stone tomb. A casket was opened for them. At that time there was a moment of profound and intense commotion. The body within, that of the 19th-century Pope Pius IX, was almost perfectly conserved. Pius, known universally in Rome as Pio Nono, died in 1878. Yet there he was "in the beauty of his humanity just as he is seen in the photographic documentation of his deathbed back when the entire city came and admired the beautiful face of the Pontiff smiling in the sleep of death."<sup>34</sup>

Why was the body so well preserved (Figure 4)? One possibility is that Pius IX ingested bromides, which became common in Europe around 1860<sup>6,31-33</sup> and are still approved for epilepsy therapy in Germany. Potassium bromide is the typical salt form of bromides used for epilepsy therapy. Bromide salts are also a common ingredient in embalming preservatives because of their hygroscopic nature and deliquescent properties, making them ideal desiccants.<sup>35-38</sup> It is possible that the preservation of Pius IX's body was a result of this property, as bromides accumulate



FIGURE 4. The body of Pius IX as it currently lies at the Basilica of St Lawrence Outside the Walls (known as the Basilica San Lorenzo fuori le Mura) in Rome, Italy.

in the body stores because of poor renal excretion.<sup>38-40</sup> Toxic levels of bromides lead to a well-described syndrome of bromide toxicity known as bromism (Table 1).<sup>32,33,39,40</sup> Symptoms of bromism typically include bouts of confusion, memory disturbances, and a macular rash.<sup>6,31,34,37,38</sup> Indeed, the constellation of bromism symptoms including psychiatric, neurological, and dermatological abnormalities, is readily apparent in Pius IX's later life.<sup>12,13,15,24</sup> Recurrence of seizures would have made it likely that he would have managed his seizures with the latest therapy available, particularly because he had experience in managing hospitals during his time as both priest and cardinal.<sup>8, 13,15,21,22</sup> Second, the timing of his seizure recurrence along with biographers detailing dermatological and cognitive difficulties appears to support our contention: "There is a mention of impaired consciousness in 1870 and then he suffered from a new skin disorder after 1859, a disease that progressively worsened with his age along with changes in his personality."<sup>12,24</sup> Both this quotation and the aforementioned com-

TABLE 1. Symptoms of Bromism

Psychiatric	Disinhibition, memory impairment, irritability, emotional instability, confusion, hallucinations
Neurological	Headache, tremor, ataxia, blurred vision
Dermatological	Acne-like papular eruption or a macular rash, particularly in areas exposed to sun

ments of Whelton<sup>27</sup> (ie, that Pius IX was "capricious, impulsive, and unpredictable") appear to describe the diagnostic criteria for bromism (Table 1).

#### WHAT LESSONS DOES PIUS IX'S CASE OFFER MODERN-DAY PATIENTS WITH EPILEPSY?

Pius IX's example of living with epilepsy shows that people with seizures can achieve greatness despite obstacles that must be overcome. The stigma of epilepsy was apparent in the 19th century and continues to the present. Of the 21 references cited for this investigation, all references offered either an entirely positive or negative impression of this Pope. Supporters of the Pope portrayed having epilepsy positively, as an obstacle to overcome, a hurdle suggesting characteristics of a hero.<sup>7-11,13-22</sup> However, critics of the Pope used the epilepsy more to detracting any article of philosophy or faith with which they disagreed as being tainted by the condition.<sup>12,23,24,27</sup> Many who felt strongly about infallibility or other more controversial aspects of the papacy stated that the epilepsy likely contributed to psychological and psychiatric delusions, which would immediately call into question the validity of the thought process that led to those philosophies.<sup>12,23,24</sup>

#### CONCLUSION

It is clear that Pius IX had partial epilepsy resulting from a combination of anoxia from an accident at a young age and developmental anomalies, as evidenced by hemiplegia and facial asymmetry apparent from his photographs. Epilepsy clearly affected Pius IX's choice of vocation and could have had a role in the historical context of Catholic doctrine. Pius IX made substantial contributions to the Papacy and to modern Catholic theology, but epilepsy clouds the interpretation of his work because of the stigma that epilepsy continues to have today. Despite those stigmas, it is amazing to note that Pius IX was able to persevere despite the obstacles of his condition. His life is echoed in the plight of modern-day patients with epilepsy and should help us understand that the stigma of most neurological or psychiatric disease can be overcome to achieve greatness. The story of Pius IX and his epilepsy leads one to hope that future biographers of public figures will not use the prism of epilepsy to define their work and legacy.

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