

THE CAUSE OF GANGRENE OF QUEEN MARIE-LOUISE

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In the previous [publication](#), we had a question mark about the mention of gout in the setting of gangrene of the leg of the widow of King Christophe since this association is not usually seen among patients who present with this complication. Even as an academic exercise, it's worth engaging in a forensic inquiry based on the information available then and what we now know. Of course, we are relying on the tidbits of evidence provided in the bio as presented by Marie-Lucie Vendryes.

Medical history.

Patient was born in 1778, and she married in 1793. She had four childbirths: 1794 Ferdinand, 1798 Améthyste, Athénaïse in 1800, and Jacques-Victor in 1804. She was crowned queen in 1811. From then on, she started having arthralgia. She went into exile in 1821 to England. The weather there aggravated her arthralgia so much that she decided to move to Italy for its more temperate weather in 1824. While in Italy, she visited a physician, and the diagnosis of gout was made around 1839. Shortly after that, her left leg was amputated in 1839. She died in 1844. Another piece of the puzzle is that her first daughter kept having respiratory infections and died from some lung ailment in 1829.

Discussion.

Gout is a disease well-known throughout the ages^{1,2,3,4}, and the queen suffered from joint pain even during her reign. What are the hitches of accepting the diagnosis of gout being accurate so late for a condition that she suffered from for so long? What are some reasons that would support the diagnosis? Again, this is pure conjecture as we don't have DNA analysis available, but this is fun, and let's proceed.

The period of interest to us is from 1811 onward. So, she had arthralgia from the age of 33. We can presume she was still fecund in 1811. The date of her menopause is unknown. She mentioned in passing that the duties of the kingdom prevented her beloved from spending much intimate time with her, a break from the past. With just the above, what can we decipher?

There is the issue of gender. Gout is primarily seen in men and women when afflicted by it, they tend to develop it after menopause^{1,2,3,4}. Certainly, she consumed red wine and red meat in considerable quantities as royalties do, and we are all aware of acute gout developing after such feasts. As a queen, she had the benefit of being cared for by British physicians, and it is unfathomable that they would miss such a diagnosis among royalty because the presentation of acute gout is so characteristic as to be pathognomonic. Furthermore, this diagnosis was notoriously prevalent among such social class.

Let's suppose she did have it. Chronic gout causes tophus formation and can lead to renal failure with large uric acid deposits in the kidney⁵. Puncture drain of a tophus is avoided because of formation of a sinus tract that usually doesn't heal and may become infected, which in extremis can result in joint erosion and even osteomyelitis⁶. A vain person, she surely would have mentioned any deformity of her joints in her writings. Hence, there is no information available to deduce she had chronic gout. Even then, gangrene is not a known complication of gout, certainly in a person who has access to medical care. Either she didn't have gout, or she did she didn't have competent physicians.

Then what could have caused the gangrene and need for amputation? Obviously, diabetes is a consideration that comes to mind because gout keeps bad company and is known to be associated with the metabolic syndrome^{1,2,3,4}. However, not enough information is available to

make a diagnosis of diabetes. Her recovery from the amputation and lack of other complications makes one suspicious of the diagnosis of diabetes. CVA, blindness, and other vascular insults, including additional amputations, would have occurred. By the time a diabetic develops gangrene, more often than not, peripheral neuropathy/Charcot joint, etc., have become part of the landscape. None of that took place. What are we left with?

She probably had an autoimmune condition that she passed on to her daughter. This type of illness is more common in females. What was treated with amputation may not have been gangrene due to infection or vascular insufficiency but a simple complication of vasculitis⁷. *Pyoderma gangrenosum*⁸ could present this way.



Pyoderma gangrenosum in a patient with SLE

If she had rheumatoid arthritis that was not adequately treated, this could have developed. As for her daughter, she may have had *Granulomatosis with polyangiitis*, formerly called Wegener's granulomatosis^{7,9}. During her lifetime, such a diagnosis couldn't be made.

This is an educated guess and is not meant to be a definitive answer. Others can weigh in for sure.

References:

- 1). Ragab G, Elshahaly M, Bardin T. Gout: An old disease in new perspective - A review. J Adv Res. 2017 Sep;8(5):495-511. doi: 10.1016/j.jare.2017.04.008. Epub 2017 May 10. PMID: 28748116; PMCID: PMC5512152.
- 2). Snaith, Michael. Gout through the ages. The Lancet, Volume 353, Issue 9151, 505 – 506
- 3). Schliener, Jean-Louis. L'histoire des tourments de la podagre (goutte). Médecine des Maladies Métaboliques. Volume 8, Issue 2, April 2014, Pages 230-234.
- 4). Theodora Fragkou, Konstantina Goula, Ourania Drakoulogkona, FP904 The History of Gout Through Centuries, *Nephrology Dialysis Transplantation*, Volume 30, Issue suppl_3, May 2015, Page iii378.
- 5). Mei Y, Dong B, Geng Z, Xu L. Excess Uric Acid Induces Gouty Nephropathy Through Crystal Formation: A Review of Recent Insights. Front Endocrinol (Lausanne). 2022 Jul 14;13:911968.

- 6). Wallace, Adam B. and Johnson, William. "Gout Flare With a Draining Tophus" *Journal of Osteopathic Medicine*, vol. 116, no. 6, 2016, pp. 406-406.
- 7). Watts RA, Hatemi G, Burns JC, Mohammad AJ. Global epidemiology of vasculitis. *Nat Rev Rheumatol*. 2022 Jan;18(1):22-34.
- 8). Schmieder SJ, Krishnamurthy K. Pyoderma Gangrenosum. [Updated 2023 Jul 4]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK482223/>
- 9). Almaani S, Fussner LA, Brodsky S, Meara AS, Jayne D. ANCA-Associated Vasculitis: An Update. *J Clin Med*. 2021 Apr 1;10(7):1446.