

SAINT VITUS OF LUCANIA. PATRON SAINT OF CHOREA. THE POWER OF TRADITION IN MEDICINE.

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Abstract

St. Vitus of Lucania was a third century roman saint, who became posthumously associated with abnormal movements and chorea. He was put to death by command of Emperor Diocletian (Ruled from 284 A.D. – 305 A.D.) and was thrown into a cauldron of boiling oil. People who witnessed this monstrous execution saw Vitus dancing enthusiastically whilst he was being burned alive, and regarded it as a miracle. We explore in the present paper the historical context and the medical implications of what became known henceforth as *St. Vitus dance*, a term still used today to describe chorea, mainly minor chorea or Sydenham's chorea, in patients with rheumatic fever. Very few people today, including physicians, are aware of the origin of many commonplace words used in medical jargon.

Keywords: *Chorea; St. Vitus Dance; Rheumatic Fever; History; Neurology.*

SAN VITO DE LUCANIA, SANTO PATRÓN DE LA COREA. EL PODER DE LA TRADICIÓN EN MEDICINA.

Resumen

San Vito de Lucania fue un santo romano del siglo III, que fue asociado después de su muerte con movimientos anormales y corea. Fue ejecutado por orden del emperador Diocleciano y arrojado a un caldero de aceite hirviendo. Las personas que presenciaron esta monstruosa ejecución vieron a Vito bailando con entusiasmo mientras lo quemaban vivo, y lo consideraron un milagro. En este artículo exploramos el contexto histórico y las implicaciones médicas de lo que se conocería en adelante como la *danza de San Vito* o el *mal de San Vito*, un término que aún se usa hoy para describir la corea, principalmente la corea menor o corea de Sydenham, en pacientes con fiebre reumática. Muy pocas personas en la actualidad, incluidos los médicos, conocen el origen de muchas palabras comunes utilizadas en la jerga médica.

Palabras Clave: *Corea; Mal de San Vito; Fiebre Reumática; Historia; Neurología.*

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Introduction

Vitus of Lucania was a saint and martyr of the church, born in the ancient city of Dioclea in 245 A.D. His life story, the miracles attributed to him and his link to chorea and epilepsy in later years are of both historical and medical interests, and shed light for authors into the designation that chorea had for many years: “Saint Vitus Dance” (1).

Some biographical data

Vitus was born in the region of what is now modern Sicily in Italy. He was the son of a wealthy Sicilian man named Hylas, or, according to other versions, a Roman senator from Sicily. His father, like many other Romans of high social stature, professed paganism, but his wetnurse Crescencia and his tutor Modesto, educated him from the age of seven in the Christian faith, converting him into it, against his father's wishes (2). After his conversion to Christianity, Vitus alongside his guardian and wetnurse, fled from Mazara del Vallo supposedly guided by an angel to (3) the Lucania region. Many years would pass before Christianity became the official religion of the Roman Empire in 313 A.D. thus avoiding persecution (2). In Lucania, travelers started to profess the Gospel, converting more people to Christianity. According to tradition, from the moment of his conversion, Vitus began to perform miracles in the city of Regalbuto, all of these were curiously related to dogs: saving the life of a child who had been attacked by a herd of dogs and reattaching a pastor's hand who had been bitten off (3). Even today it is believed that part of the skull, an arm and a foot of St. Vitus remain in the Mother Church of St. Basil in Regalbuto, Sicily (3). Shortly after this, Vitus moved to Rome to exorcise the son of Diocletian (244 - 311) emperor of Rome, who was believed to be possessed by a demon due to the uncontrollable movements that he presented and could not control. It is difficult to determine if these were abnormal movements or epileptic seizures (2).

There was no kind of treatment available at the time for this sort of ailment, but the young saint miraculously healed the emperor's son. A short time later it was discovered that Vitus and his tutors were Christians, and they were accused of sorcery. Diocletian offered them a chance to convert into paganism but they refused, and so they were sentenced to death in 303 A.D. Legend has it that just before being tortured, the saint said that everyone who commemorated his day would be protected from mania dance. Vitus was then submerged in a cauldron filled with searing hot oil. Those who witnessed this dreadful and tortuous execution noticed that before he died he appeared to be dancing energetically causing stupor and great surprise. This dance was believed to be miraculous and supernatural since, having healed the emperor's son of epilepsy or chorea, the movements attributed to these conditions would have passed into the body of the saint. Others consider that during the torture he had presented a seizure and the movements were produced by epileptogenic discharges, mistakenly viewed as a dance. Some of Vitus' relics are preserved in Ulm, Germany and chorea patients who touched them were, supposedly, miraculously cured from their disease (4). The Saint Vitus' cult grew thanks to the construction of multiple chapels dedicated to him throughout the European territory, and became more popular among the Slovaks, Czechs and Germans who sought to find with their prayers the cure for hydrophobia and other illnesses (5).

The relationship of saints with diseases became popular in the Middle Ages and their popularity varied according to medical, sociological, religious and even geographical criteria. Along with San Vitus, Saint John is also known as the patron of the *dance mania*. Numerous altars built in Germany were visited multitudinously by patients hoping to remedy their symptoms (6). However, the most famous procession of patients and pilgrims with chorea in honor of Saint Vitus happened originally in the eleventh century - and still takes

place - in the chapel of St. Willibrord in Echternach, Luxembourg. After the great plague of choreal dances of 1518 in Strasbourg, patronage over this disease was awarded to Vitus (6, 7).

Historical evolution of the concept of Chorea

The word chorea comes from the ancient Greek *choreia* which means “dance in choir”. Terms like chorus or choreography have the same etymological origin (8). The first descriptions of chorea originated during the Middle Ages in Europe as a result of the black plague. People all over Europe were infected. Women were found to gather in a circle and dance frantically for hours until they fell to the ground, exhausted. In addition, some authors have stated that during the joint dance people experienced hallucinations and others suffered from abdominal distension, so it was often seen how they tied pieces of cloth around their abdomen (2). It is even attributed to the Belgian painter Pieter Brueghel (1525-1569), also known as *the old one*, the representation of what could be several people dancing with choreiform features (6).

In Italy, it was believed that the collective hysteria was caused by a venomous spider known as a tarantula. A musical rhythm known as “tarantella” was created to deal with the tarantismo derived from this spider’s bite (7,8). In turn, during this long period of time, an association between saints and different diseases became a common thing. And thus, *dance crises* started to be referred to as *Saint Vitus Dance* (chorea Sancti Viti). No doubt the miracle and the death of the saint are linked to this denomination, but also, miraculous healings were attributed to people affected by this ailment, when they had contact with some of Vitus’ relics in different Catholic temples in the old continent (9).

The prestigious Swiss physician Theophrastus Phillipus Aureolus Bombastus von Hohenheim, also known as Paracelsus (1493-1541), coined the term *Saint Vi-*

tus Dance in medical terminology and classified it into three types: imaginative, lascivious and naturalist. In the year 1686 Thomas Sydenham (1624-1689) made a very precise clinical description of a condition that has been known for a long time as “minor chorea” (9). He also described rheumatic fever but did not associate it with chorea at the time. In 1850 Germain See (1818-1896) linked these two conditions. Near the end of the 19th century, with the advancement of neurology, Jean Martin Charcot (1825-1893), Silas Weir Mitchell (1829-1914), William Osler (1849-1919) and William Gowers (1845-1915) made significant contributions related to the etiology of chorea, particularly regarding diagnosis and differential diagnosis. In 1841, Charles Oscar Waters gave a very complete description of what later, thanks to the contributions of the American physician George Huntington (1850-1916), would carry his surname as an eponymous to this day and it is known as major chorea or Huntington’s chorea (10).

In 1894 a diplococcus was isolated from brain tissue of a young man affected by Sydenham’s chorea. From that moment several observers including Triboulet and Croyon (1897) Wesphal, Wassermann and Walkoff (1899) isolated different cocci from the pericardium and cerebrospinal fluid of children who had died from rheumatic pericarditis and had presented chorea (11).

Diseases such as erysipelas and puerperal fever have been described since the fourth century by Hippocrates (460-370 B.C.), father of medicine. In spite of these, the cause for these conditions was not found until the eighteenth century, thanks to the work of Anton van Leeuwenhoek (1623-1723), a microbiologist, who first observed microorganisms and proposed them as causal agents for various diseases (12).

One of the first descriptions of Streptococcus was conducted by the Austrian surgeon Theodor Billroth (1829-1894) who isolated the germ in fluids extracted from wound found in patients with erysipelas, and described

it as a chain of four up to twenty links. Sometime after that Louis Pasteur (1822-1895) studied uterine blood from women with puerperal fever and, was able to isolate once again copious amounts of diplococci, rendering it responsible for the clinical presentation of the fever (12).

In the early twentieth century Paine and Holmes were able to induce pericarditis and abnormal movements in rabbits injected with intravenous diplococci found in the bloodstream of patients who had died from rheumatic pericarditis (13).

Around 1930 techniques involving titration of antistreptolysin antibodies were developed in patients suffering from streptococcus-secondary pharyngoamygdalitis, and diagnostic criteria for rheumatic fever were established (14). Today it is well known that there is a crossed-reaction between previously mentioned antibodies and basal ganglia, following a streptococcal infection (15).

In Latin America, the groundbreaking work of Dr. Americo Negrette a Venezuelan Neurologist, alongside Dr. Milton Wexler and the Hereditary Disease Foundation, led to a better understanding of Huntington's disease including the thorough clinical descriptions of patients in Maracaibo, and the description of the huntingtin gene (16).

Currently, several types of causes for chorea are better understood (genetic, structural, infectious, autoimmune, toxic, metabolic, and drug-induced) and different therapeutic strategies to treat patients are available (10).

PANDAS (pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections) have been associated with Sydenham's chorea, due to its similarity with the clinical background. In both aforementioned conditions, patient gestures are character-

ized by choreiform movements of limbs particularly fingers and legs, mimicking the action of playing a piano. Aside from the observable characteristics of the movement, there is a molecular correlate. Antibodies produced both in PANDAS and Sydenham's Chorea act on D2 dopamine receptor (17).

In addition to being the patron saint of chorea, Vitus is the saint of dance, probably because of the manner of his gruesome end.

It is worth noting that several scientific papers written in the past 20 years, continue to use the term "Saint Vitus' dance" as a synonym of chorea (18–20). The influence of this historical occurrence and its supernatural character is indubitably major.

As it is true about many things in history, religion is a paramount influence over art, and more infrequently over science. The tragedy of Saint Vitus, has been imprinted on medical language for centuries, and it remains today, unknowingly applied in hospitals across the globe.

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