Shaking palsy and other neurologic illness in *The Quixote*

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DOI: https://doi.org/10.36104/amc.2023.2830

Abstract

Miguel de Cervantes had seasoned knowledge of medical care in his time. Here we provide evidence of his having read medical texts from his personal library and of his relationships with relatives and friends who were physicians. As an example of his knowledge, we analyze the references to palsy and other neurological diseases like epilepsy, tremors and head trauma, which are mentioned or described in his great literary masterpiece titled *The Ingenious Gentleman Don Quixote*. **(Acta Med Colomb 2022; 48. DOI: https://doi.org/10.36104/amc.2023.2830).**

Keywords: *literature, history of medicine, Don Quixote of La Mancha, neurological diseases, Miguel de Cervantes.*

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Received: 10/I/2023 Accepted: 14/II/2023

> "Cervantes's works are an inexhaustible store of flavorful lessons and welcome joys, especially *Don Quijote* and *Novelas Ejemplares*. I consider *Rinconete y Cortadillo*, *El celoso extremeño* and *El casamiento engañoso* to be priceless jewels."
>
> SANTIAGO RAMÓN Y CAJAL
> *El mundo visto a los ochenta años. Impresiones de un arteriosclerótico (1934)*

Miguel de Cervantes (1547-1616) published the first part of *The Ingenious Gentleman Don Quixote* in 1605, and the second part in 1615, under pressure due to the appearance, in 1614, of the apocryphal Quixote attributed to one Avellaneda. For several centuries, Spanish critics considered the book to be a comic and adventure book, while the writer was labeled as a "lay author," which meant, among other things, that he had no university training and that his genius was intuitive and wild, similar to the flowers' beauty or the force of a hurricane. The appearance, in 1925, of the book *El Pensamiento de Cervantes* [The Thinking of Cervantes] by the great scholar Américo Castro, revealed its amazing intellectual dimension, which is emphasized in the following comment: "The reader will see that, together, Cervantes's work implies extremely vast reading and serious meditation on the essential problems of contemporary culture." (1, translated).

This "extremely vast reading" is appreciated in different areas of the knowledge of his time and, especially, in the field of medicine and its Renaissance classification based on the influence of Celsus: pharmacopeia, surgery and clinical practice (2). In fact, there is an anecdote regarding the famous English clinician, Thomas Sydenham (1624-1689) who, when asked by the young Dr. Richard Blackmore what books he would recommend reading to improve his practice answered, "Read *Don Quixote*, it is a very good Book, I read it still" (3). That is, Sydenham was saying that he had not only read the book, but that *The Quixote* was a book he still re-read. So, I agree with Edelstein's interpretation to take his answer seriously and not as a mockery of his questioner, although Blackmore himself took it that way.

That said, the importance of the book for Sydenham does not appear to lie in the medical knowledge found in its pages, but rather in the interpretation of the analogy of the gentleman wanderer. This gentleman sought to find in reality what he had read in books about knighthood, just like most physicians of his time who, belonging to the iatrochemical and iatromechanical schools of thought, did not observe the patients' signs and symptoms and tried to accommodate their prior pathophysiological hypotheses while examining their patients, thus distorting the facts. That is, Sydenham (who

* Quotations from The Quixote are taken from the English translation by John Ormsby.

Publicación: Alicante : Biblioteca Virtual Miguel de Cervantes, 2002
Notas de reproducción original: Edición digital basada en la edición de Don Quixote (1605,1615) [en línea] ; translated by John Ormsby, Texas, Proyecto Cervantes 2001. http://www.csdl.tamu.edu/cervantes/spanish/spanindex.html.

was nicknamed the "English Hippocrates" for a reason) was indicating that clinical observation preceded theoretical information, and not the other way around. His impeccable and essential contribution to nosology and his concept of the "morbid species" are derived from this principle (4).

Although medical readers of *The Quixote* have increased exponentially and the interpretations of the "insanity" of Alonso Quijano are especially diverse (5-8), only since the 20th century and in the current 21st century has the soundness of his clinical, pharmacological and surgical knowledge been discovered and studied (9-13). In this article, I will analyze the allusions to neurological diseases found in the novel and the bibliographic sources which Cervantes may have read or had knowledge of.

Miguel Cervantes's experiences and medical reading

Cervantes was born and raised in an environment of doctors and surgeons. His maternal great-grandfather, Juan Díaz de Torrealba, was a respected doctor and surgeon who practiced in the city of Córdoba. His father, Rodrigo de Cervantes, practiced as a bleeder surgeon in Seville, Valladolid and, perhaps, in Madrid. His sister, Andrea de Cervantes, was a nurse (14-20). Furthermore, his medical friends in adulthood are well known, with names like the urologist Francisco Díaz (21), the clergyman and clinician Antonio Ponce de Santa Cruz (22), or some of the almost 25 medical writers he mentions and honors in his work *Canto de Calíope* [Calliope's Song], which is Book VI in his novel *La Galatea*. Some of these are as outstanding as, among others, Francisco Campuzano, Alonso El Pinciano, Alonso Suarez de Sosa, Enrique Vaca de Alfaro, Dionisio Daza Chacón, Juan de Garay, Juan de Vergara, Alonso de Morales, Hernando Maldonado de Matute, Marco Antonio de Vega, Diego de Funes Mendoza and Diego Duran (23). Furthermore, he was apparently a regular visitor at the Hospital de los Inocentes [Hospital of the Innocents] in Seville, into which hundreds of poor patients were crowded, suffering from insanity and other mental and neurological disorders (24, 25).

Meanwhile, the most important documentation lies in the knowledge we have today of his personal library. According to Ensenberg's (26) detailed scrutiny, Cervantes owned 214 volumes, of which the following are medical works: *Materia Médica* by Dioscorides, translated and annotated by Andrés Laguna in 1555. *Libro de las quatro enfermedades cortesanas que son catarro, gota arthética, sciática, mal de piedra y de riñones e hijada, e mal de búbas,* published in 1544 by Luis Lobera de Ávila. *Practica in Arte Chirurgica Copiosa* by Giovanni de Vigo, translated by Miguel Juan Pascual in 1537. *Práctica y theórica de cirugía en romance y latín* by Dionisio Daza Chacón, published in 1584. *Tratado nuevamente impressso de todas las enfermedades de los riñones, vexiga, y carnosidades de la verga* by Francisco Díaz, edited in 1586 and containing a poem by Cervantes himself in honor of his friend. And, finally, *Examen de ingenios para las ciencias* by Juan Huarte de San Juan, published in 1575.

The most important part of these bibliographic findings is the certainty that Cervantes read and studied the mentioned works as, not surprisingly, in a clear autobiographical confession, he states in the novel that "When I was in Alcaná de Toledo, a young boy came to sell some binders and old papers to a silk weaver; and since I am an avid reader of even ripped papers in the streets" (27, translated). However, he only explicitly mentions Laguna´s version of Dioscorides's book in *The Quixote*.

Therefore, as I tackle the clinical passages to be analyzed, I will take into account:

1. The works Cervantes owned and definitely read.
2. The diseases he mentions in light of medical knowledge at his time in history.
3. The nosological interpretation of the medical knowledge of his contemporaries, to avoid the error of an anachronistic view of history based on current scientific knowledge.
4. The contextualization of medical terms according to the philological knowledge of his time in history. For this, the vocabulary used in *The Quixote* will be contrasted with the book by Sebastián de Covarrubias titled *Tesoro de la lengua castellana o española* [Treasury of the Castilian or Spanish Language] (1611) (28) and *El diccionario español de términos médicos antiguos* [Spanish Dictionary of Ancient Medical Terms] (29).

The palsied and palsy

In the chapter titled *Wherein Is Continued the Account of How Sancho Panza Conducted Himself in His Government,* a farmer who wants a letter from the governor of Barataria for his son's father-in-law, approving their children's marriage, relates:

> *"Well then," said the farmer, "this son of mine who is going to be a bachelor, fell in love in the said town with a damsel called Clara Perlerina, daughter of Andres Perlerino, a very rich farmer; and this name of Perlerines does not come to them by ancestry or descent, but because all the family are paralytics, and for a better name they call them Perlerines.*
>
> (Second part, XLVII)*

What does palsy mean for Cervantes? Researching the cultural and medical context of his times, it can be concluded to be the paralysis of an extremity, with "sensory and/or motor abnormalities, and could at times mean stuttering, but in that case it was referred to as 'tongue palsy'" (29, translated). For Covarrubias (28), "palsied" is synonymous with "paralytic." Meanwhile, a review of the medical text editions we know he had in his library shows palsy" in two of them. In" *El libro de los Ingenios*, by Huarte de San Juan,

two very brief references are made to the disease as being due to a loss of function in "a ventricle" and associated with mania and melancholy (30).

The other work is *Práctica y theórica de cirugía* by Dionisio Daza Chacón, and here palsy is given detailed treatment. Chapter XXXVI is titled *Regarding palsy*; Chapter XXXVII is *Regarding the causes and signs of palsy;* Chapter XXXVIII is *Regarding the prognosis of palsy,* and Chapter XXXIX is titled *Regarding the cure for palsy*. Let us look at a fragment from Chapter 36 which clarifies what the disease meant to the author, Dionisio Daza (31), and, therefore, to his reader, Cervantes, who also may have been his patient when he was injured in the Battle of Lepanto in 1571, although it is highly unlikely (32).

> *This is known in Greek as paralysis, and the Latins call it resolutio, as can be seen in Galen, and this is when feeling or movement is lost, not in the whole body, which would be apoplexy, but rather on the right or left side, or in an extremity, as Cornelius, Galen, Paulo, and Avicenna would have it, and is more properly called resolution when all feeling and movement is lost, as Aetius, and Paulo, and Alexandro Traliano would have it, and Celio Aureliano said: Palsy is losing sometimes only movement, sometimes feeling, and sometimes one or the other. But let us see now, how can you lose movement and not feeling, and sometimes lose the latter but not the former, when feeling and movement arise from the brain and travel along the same nerves? I will tell you, because some of the nerves (as shown by anatomy) branch into the substance of the skin and some into the substance of the muscle; and the damage may well be in those disseminated throughout the skin, damaging feeling without this being transmitted to those that go into the substance of the muscle; and thus movement remains and feeling is lost and, vice versa, those in the substance of the muscle may be damaged with movement lost, with no damage to those branching into the skin, and the extremity may maintain its feeling, and when both movement and feeling are lost, you may be sure that the damage lies in the nerves which make up the muscle and those that branch throughout the skin. This is what Galen says, although with such obscure words that he does not make himself easily understood.*
>
> *Knowing, then, that palsy is a relaxation or mollification of the nerves […] as Galen said, that when all the nerves together lose feeling and movement, then it is apoplexy, but when this only occurs to the nerves on the right or left side, then it is called palsy or convulsion, and when this only occurs in a single extremity it has the same name, as when there is palsy in a hand, or an arm, or a leg, or a foot: from this we deduce that there is universal and particular palsy. The universal is when an entire side loses feeling and movement. The particular is when a single extremity receives this damage.*
>
> *But let us know that, where this palsy occurs, it occurs with the brain being affected, and not the whole brain, because when the whole brain is affected, the person necessarily becomes apoplectic, but rather the right or the left brain, and thus palsy occurs on the side on which the brain is affected, and when this effect is also communicated to the parts of the face, you will be more certain that the brain suffers. Palsy also tends to occur without the brain being affected, with the substance of the first spinous process being affected, and when it arises here, the parts of the face are preserved.*
>
> *Palsy also occurs due to effects on the spinal substance of one of the vertebrae of the spine, and then the so-called particular palsy occurs, because it only affects one extremity, such as the arm, the hand, the leg or the foot or one of the fingers, and for this it is very useful to know the anatomy of the nerves very well, from whence and from which spinal vertebrae they arise, as recommended by Galen. [Translated]*

So, palsy for Cervantes meant hemiplegia or paralysis of an upper or lower limb, with or without loss of feeling. The causes were internal (thick and viscous humors in the cerebral ventricles, the spinal cord or a vertebra which kept the "animal spirits" of the nerve flow from reaching the extremity) or external (a fall, blow or lesion to the nerves in the injured limb). It was more common in the elderly, during winter, and the treatments employed included bleeding, enemas and purges with mallow, camomile, rue and green vine shoot brews, among others. The common goal was to dilute these viscous humors which blocked the affected organs.

That said, it is clear in light of today's knowledge that internal palsy is caused by thromboembolic or hemorrhagic cerebrovascular accidents, but even so, we must be prudent in modern nosological interpretation and in the context of what the book expresses. Physicians like López Méndez assume, with no historical or philological argument, that the palsied in Cervantes's time had "Saint Vitus's dance" or "Sydenham's chorea" (33). The neurologist José-Alberto Palma thinks that the Perlerine family may have had "hereditary spastic paraparesis" (34, 35) and Dr. Iniesta suggests that these may have been neurological sequelae of smallpox (36). Paraparesis leads to patients developing cramps, severe muscle spasms, with exaggerated reflexes and a progressively impaired gait. In addition, they may have urinary and fecal incontinence and gradual cognitive impairment leading to dementia (37).

The neurological sequelae of smallpox hypothesis, given that Cervantes later states that Clara Perlerina had scars on her face and had lost an eye due to this disease, would be very unlikely. As William Osler states in his clas-

sical and pioneer book on internal medicine, *The Principles and Practice of Medicine* (1892), the neurological sequelae described in ancient times were pseudoparaplegia due to intense lumbar pain, peripheral neuritis, diffuse myelitis, pseudotabes and hemiplegia with aphasia (38), none of which correspond to Cervantes's palsy. However, even this passage in the novel should be understood in carnivalesque code, recognizing:

> *"the jocular weddings in which the physical and moral defects of the fictitious couple are jokingly listed as though they were qualities. This tradition penetrated the Court, as on Mardi Gras in 1638 one of these ridiculous weddings was verified. This same tradition fires up the genius of the farmer who presents himself to Sancho and makes such a burlesque description of Clara Perlina's and her boyfriend, the bachelor's, clothes." (39, translated).*

Therefore, familial causes of palsy need not be sought, as the exaggeration of clinical signs and symptoms is the aesthetic characteristic of this episode. However, what cannot be completely ruled out is that Cervantes may have been referring to the Perlerine family with the meaning of "stutterers". Not being explicit as to having palsy of the "tongue" may have been a humorous implication for readers in his time.

Epilepsy

Allusion to this disease may be suspected in the following passages from *The Quixote*:

In the same chapter in which we have been speaking of the Perlerine family, the farmer tells Sancho about his son, the bachelor's, condition:

> *—Querría, señor —respondió el labrador—, que "I want your worship, señor," said the farmer, "to do me the favour of giving me a letter of recommendation to the girl's father, begging him to be so good as to let this marriage take place, as we are not ill-matched either in the gifts of fortune or of nature; for to tell the truth, señor governor, my son is possessed of a devil, and there is not a day but the evil spirits torment him three or four times; and from having once fallen into the fire, he has his face puckered up like a piece of parchment, and his eyes watery and always running; but he has the disposition of an angel, and if it was not for belabouring and pummelling himself he'd be a saint."*
>
> (SECOND PART, XLVII))

The chapter titled *Of What Befell Don Quixote in the Sierra Morena, which Was One of the Rarest Adventures Related in this Veracious History describes* what happens to the character Cardenio.

> *But in the midst of his conversation he stopped and became silent, keeping his eyes fixed upon the ground for some time, during which we stood still waiting anxiously to see what would come of this abstraction; and with no little pity, for from his behaviour, now staring at the ground with fixed gaze and eyes wide open without moving an eyelid, again closing them, compressing his lips and raising his eyebrows, we could perceive plainly that a fit of madness of some kind had come upon him; and before long he showed that what we imagined was the truth, for he arose in a fury from the ground where he had thrown himself, and attacked the first he found near him with such rage and fierceness that if we had not dragged him off him, he would have beaten or bitten him to death,*
>
> (FIRST PART, XXIII)

In the chapter titled *Wherein is Continued the Adventure of the Knight of the Grove,* dawn arrives, and Sancho Panza sees the strange squire of the Knight of the Grove and his deformed nose.

> *It is, in fact, stated, that it was of enormous size, hooked in the middle, covered with warts, and of a mulberry colour like an egg-plant; it hung down two fingers' length below his mouth, and the size, the colour, the warts, and the bend of it, made his face so hideous, that Sancho, as he looked at him, began to tremble hand and foot like a child in convulsions, and he vowed in his heart to let himself be given two hundred buffets, sooner than be provoked to fight that monster.*
>
> (SECOND PART, XIV)

The expression "possessed" and the description of frequent attacks with loss of consciousness and falling to the floor, clearly shows us that the bachelor groom had epilepsy. Although the word continued to be popularly used, it actually represented a metaphor of a natural disease, as most people did not believe that witches and demons caused seizures anymore. The second example of Cardenio is compatible with an absence seizure (petit mal) (34), although, given the character's love madness, it could also be hysterical conversion (40). The third passage is very interesting, because when Cervantes says that Sancho "began to tremble hand and foot like a child in convulsions" he is clearly describing a tonic-clonic seizure of one side of the body, and he corroborates this with the word "convulsions," which was the common term used for epilepsy. Now, in this episode, Sancho's attack is caused by his terror in seeing the squire in disguise, but he never has another event like this.

Cervantes uses this phrase in exactly the same way in two of his exemplary novels: *El Licenciado Vidriera* and *El celoso Estremeño*. The most significant thing is that the character of Tomás Vidriera loses consciousness after

the attack and "without regaining consciousness remained like this for many hours, after which he came to as though stunned and said, with a troubled and stuttering tongue…" (41, translated). That is, the signs and symptoms of a seizure are complete, with loss of consciousness and a subsequent postictal period. In Cervantes's medical library there is no mention of epilepsy, but convulsions were commonly known and although they were said to occur in children, they were also a general synonym for epilepsy, which was known by other popular names: red gout, morbus comitialis, falling evil, lunatic disease and Herculean disease (28).

The Spanish physician Francisco Pérez Cascales published a great treatise in Latin in 1611 titled *Liber de Affectionibus puerorum, una cum tractatu de morbo illo vulgariter Garrotillo appellato, cum duabus Quaestionibus*. It contains an extensive chapter on convulsions which explains the disease as caused by obstruction and irritation of the thick humors and divides it into three types: primarily cerebral, originating in the stomach and secondarily affecting the brain, and produced in any part of the body with "sympathetic" brain involvement (42).

The first treatise on epilepsy in Spain, titled *Praelectiones Vallisoletanae*, was written by Alfonso Ponce de Santa Cruz (43), a physician named by Cervantes in *Canto de Calíope*, but it was only published posthumously by his widow in 1631 and, therefore, could not have been known to the author of Quixote.

Tremors

Body tremors appear in 15 passages in the novel and, on most occasions, are due to the characters' fear in the face of inexplicable situations which are later cleared up. However, there are two episodes which it is important to highlight.

In the chapter titled *Of the Shrewd Discourse Which Sancho Held with His Master, and of the Adventure That Befell Him with a Dead Body, Together with Other Notable Occurrences,* the two see some strange lights come toward them through the night and become agitated.

> *Sancho was taken aback at the sight of them, nor did Don Quixote altogether relish them: the one pulled up his ass by the halter, the other his hack by the bridle, and they stood still, watching anxiously to see what all this would turn out to be, and found that the lights were approaching them, and the nearer they came the greater they seemed, at which spectacle Sancho began to shake like a man dosed with mercury, and Don Quixote's hair stood on end;*
>
> (First part, XIX)
>
>)

At the beginning of the chapter titled Of the Reply Don Quixote Gave His Censurer, With Other Incidents, Grave and Droll, Don Quijote is angry because of the insults he has received from the clergyman who is in the dukes' castle, and so:

> *Don Quixote, then, having risen to his feet, trembling from head to foot like a man dosed with mercury, said in a hurried, agitated voice,*
>
> (Second part, XXXII: 971).

The analogy of trembling like "men dosed with mercury" is very effective from a semiological point of view, as the tremor of chronic mercury intoxication was characteristic: intense and uncontrollable generalized tremors of the extremities, trunk and head that even made it impossible to walk. Therefore, he was emphasizing to the readers that these tremors were stronger and more serious than the others he relates.

Cervantes' experience in the knowledge of tremors due to mercury poisoning has two probable sources. The first is that he was familiar with the mercury mines in Almadén, close to Seville, and must have also seen affected miners at Hospital de los Inocentes. The other source is the epidemic of buboe disease (syphilis), which was notorious and very serious in Europe and Spain at that time. In fact, Cervantes's knowledge of the disease led him to discuss it in *El coloquio de los perros* and *El casamiento engañoso, in which his protagonist, by the name of Alférez* Campuzano, is a patient with buboes who undergoes the dangerous treatments of his time, which included:

> *The "bath" treatment consisted of putting the syphilis patients in a tub with hot water in an enclosed space, to which cinnabar powder (mercury sulfide) was added and this was heated and inhaled as a vapor by the patients. Two sessions were conducted per day for three to four days. In addition, they were then wrapped in blankets and laid on a hot bed to stimulate sweating. Several cycles could be repeated, but excessive salivation was the sign to stop this treatment, because it showed a life-threatening toxicity for the patient. Mercury treatment also caused hair and tooth loss (44, translated).*

Head trauma

There are countless blows and falls in the novel, and on most occasions Don Quixote and Sancho Panza are the ones who suffer them, especially in the first part. The injured and painful spots have been located in fifty-one different body parts (45), but there are only two direct references to the head. The first is in the chapter titled *In Which Are Contained the Innumerable Troubles Which the Brave Don Quixote and His Good Squire Sancho Panza Endured in the Inn, Which to His Misfortune He Took to Be a Castle,* in which Don Quixote receives a blow on the head with a lamp filled with oil wielded by an indignant cuadrillero. Although the wandering gentleman believes that he is gushing blood and holds his head in his hands because of the pain, in actuality it "had done him no more harm than raising a couple of rather large lumps, and what he fancied

blood was only the sweat that flowed from him in his sufferings during the late storm" (First Part, XVII).

In the chapter titled *In Which Is Concluded and Finished the Terrific Battle Between the Gallant Biscayan and the Valiant Manchegan,* the Biscayan has succeeded in wrenching off half of Don Quixote's ear with his sword's blow, and then:

> *Good God! Who is there that could properly describe the rage that filled the heart of our Manchegan when he saw himself dealt with in this fashion? All that can be said is, it was such that he again raised himself in his stirrups, and, grasping his sword more firmly with both hands, he came down on the Biscayan with such fury, smiting him full over the cushion and over the head, that—even so good a shield proving useless—as if a mountain had fallen on him, he began to bleed from nose, mouth, and ears, reeling as if about to fall backwards from his mule, as no doubt he would have done had he not flung his arms about its neck; at the same time, however, he slipped his feet out of the stirrups and then unclasped his arms, and the mule, taking fright at the terrible blow, made off across the plain, and with a few plunges flung its master to the ground.*
>
> (First part, IX)

The impeccable description of this injury undoubtedly allows us to make the probable diagnosis of a basilar skull fracture. Although, fortunately, the Biscayan did not die. Reading Daza Chacón's book must have guided him, since it contains a detailed semiology of skull fractures in the second part, Chapter V, titled *De las diferencias de las fracturas de la cabeza y quantas maneras ay de ellas* (31).

The examples in this article are enough to ratify that Miguel de Cervantes had significant knowledge of the medicine of his time and that his greatest literary work, *Don Quijote de la Mancha,* is a bona fide encyclopedia of the clinical, therapeutic and surgical knowledge in Renaissance and Baroque Spain.

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