

Catalepsy: then and now

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ABSTRACT

Catalepsy is a condition that occurs in a variety of physical and psychological disorders and it is characterised by lack of response to external stimuli, muscular rigidity and fixity of posture, so that the limb remain in whatever position they are placed. There are several causes for catalepsy like Parkinson’s disease, epilepsy, cocaine with drawl, schizophrenia treated with antipsychotics, treatment with inhibitors of adrenergic neurotransmitters, such as reserpine or anaesthesia with ketamine. The cataleptic person has rigid body and limbs staying in the same position when moved (waxy flexibility), no responses, loss of muscle control and slowing down of body functions, such as breathing.

There is a lot of confusion about some terms used like: *catalepsy*, *cataplexy*, *narcolepsy* and *catatonia*. This article aims to clarify this confusion by explaining and exemplifying the terms. Also it presents a review of the etymological origin of catalepsy, its uses in the past, in the literature, both medical and fiction one, but also nowadays in movies, art and texts.

The term *catalepsy* appears to have been used quite frequently in the last centuries in the work of great intellectuals. Apart from the fact that when you write about this disease you must have some knowledge about it, it also can make the plot much more interesting and attractive to the public, regardless of age and social area. Nowadays, this term is not so much used as a disease, but much more as a symptom in different psychiatric and neurological conditions that may or may not be reversible or treatable.

KEYWORDS

catalepsy, narcolepsy, Poe, literature

During ages, many writers and art people experienced some sort of attacks, registered as catalepsy. Before starting an incursion among the artistic world searching for those suffering of this condition, we should first define this state so that there will be no confusion between some medical terms.

Catalepsy is a condition that occurs in a variety of physical and psychological disorders and it is characterised by lack of response to external stimuli, muscular rigidity and fixity of posture, so that the limb remain in whatever position they are placed. There are several causes for catalepsy like Parkinson's disease, epilepsy, cocaine with drawl, schizophrenia treated with antipsychotics, treatment with inhibitors of adrenergic neurotransmitters such as reserpine or anaesthesia with ketamine. The cataleptic person has rigid body and limbs staying in the same position when moved (waxy flexibility), no responses, loss of muscle control and slowing down of body functions, such as breathing. It can also be perceived as a trancelike state and its etymologic roots are from the Medieval Latin *catalepsia*, variant of Late Latin *catalepsis*, coming from Greek *katalepsis*, meaning literally "seizing" (1).

Beside clarifying the terms used, we must take into consideration that catalepsy could have a hereditary basis. Kulikov has done some experiments on mice in 2004 and came to the conclusion that the predisposition to catalepsy has a monogenic transmission linked to the distal fragment of chromosome 13, which contains the gene of the 5HT1A-serotonin receptor (2). In investigating catalepsy,

besides using new age technology like MRI or CT scan, in 1988, Sanberg developed "the catalepsy test" (3). The typical test consists of placing an animal into an unusual posture and recording the time taken to correct this posture, time regarded as an index of the intensity of catalepsy.

Some remarks must be done regarding some confusion with the term *cataplexy* or *narcolepsy* or *catatonia*. Cataplexy is a form of epilepsy very similar clinically with catalepsy, narcolepsy is a primary sleep disorder which may or may not arise associated with catalepsy and catatonia is a state of apparent un-responsiveness to external stimuli in a patient who appears to be awake. Narcolepsy is a chronic disease commonly diagnosed in middle adulthood, the first symptoms often appearing in childhood and/or adolescence. Typical symptoms include: excessive daytime sleepiness, sleep paralysis, hypnagogic/hypnopompic hallucinations and sometimes catalepsy. (4) The European Federation of Neurology issued in 2006 (now updated and revised) guidelines about the management of narcolepsy with or without catalepsy. This management relies on different classes of drugs, among which are stimulants for the excessive daytime sleepiness such as modafinil and amphetamine-like drugs and antidepressants and sodium oxybate for the cataplectic symptoms (5). The etiopathogenesis of narcolepsy is poorly understood, but recent experimental evidences suggest that a protein called "orexin", which is supposed to play a role in the control mechanisms of both sleep and eating behaviour, is involved in its

pathogenesis. Also, in the narcolepsy-catalepsy syndrome typing for HLA DR2DQ1 plays a key role in its pathogenesis. Recently, new pharmacological agents, acting on the serotonergic and/or noradrenergic systems, allow a better control of the cataleptic attacks (6, 7).

Catatonia was first described by Karl Kahlbaum in 1874 and has as an aetiology neurological disorders (encephalopathies, tumours, degenerative, central pontine myelinolysis, locked-in syndrome), psychiatry (hysteria, neuroleptic malignant syndrome, schizophrenia, psychosis, drug withdrawal), infectious diseases (AIDS, malaria, neurosyphilis), metabolic ones (Addison's, diabetic ketoacidosis, hepatic or renal failure, poisoning), but also inherited neurometabolic disorders such as homocystinuria, coproporphyrin, Tay-Sachs disease. Catatonia can occur in a wide range of conditions and it is crucial to identify the treatable causes like pyrexia, any infections or poisoning. Clinically, the patient will present with motor immobility like in catalepsy with waxy flexibility associated with mutism and negativism with involuntary resistance to passive movement or involuntary oppositional behaviour. There may be automatic obedience or exaggerated cooperation, echopraxia, echolalia or stereotypies. So, it is fair to say that catalepsy is a symptom of catatonia and also found associated with narcolepsy (8).

Ages ago, catalepsy was considered a form of epilepsy, being first described by Galen somewhere around 110 – 200 A. D. He classified epilepsy into idiopathic (located

in the head), analepsy (originating in the stomach) and catalepsy (with fever and mental disorder). Then, in the 6th century A. D., Caelius Aurelianus stated that fever was characteristic for catalepsy and was absent in epilepsy, concept that was maintained so far until the Middle Ages, but slowly disappeared in the Renaissance period. Then, catalepsy involved a sudden suspension of sensation and partial of vital functions, with rigid body, sometimes mistaken for death, the victim remaining unconscious throughout the attack. It was associated with hysteria, the attack lasting from a few minutes to several days, believing that it could be self induced or induced by hypnotism (9). This description of catalepsy was first adopted in 1722 by Boerhave in *Aphorismi*, but afterwards it was associated with delirium and somnambulism by Hughlings Jackson.

In the late 19th century, the neurologists gave varied definitions for *catalepsy*: Wilks described it as resembling to catatonia, but Grainger Stewart associated it more to epilepsy. In 1885, Gowers, a well known neurologist who studied the muscle disorders during his career, described catalepsy in his work: "trance and catalepsy" as being a "state of sleep-like unconsciousness, (...) accompanied by a peculiar plastic state of the limbs, and trance or lethargy when this condition of the limbs is absent". Also, he states that catalepsy is more frequent in females than males, around age 6 – 30 years old, induced by hypnotism in a hysterical person, with no relation to epilepsy. Afterwards, it was Babinski's, *Oppenheim and Dejerine*, turn to characterise catalepsy, each of them having a different opinion. In the late century, Wilson,

another well known neurologist who studied the copper metabolism inside the human body especially in the brain and got a disease named after him, said that catalepsy is a “state of sustained motionlessness with or without clouding of the *sensorium*” and concluded that it was usually hysterical. It was Wilson too that states “that both narcoleptic and cataplectic attacks may comprise a component which corresponds to the usual conception of catalepsy and trance”. Nowadays, catalepsy is discussed in the major neurological compendium along narcolepsy and other movement disorders, and viewed more as a symptom than as a disease on its own.

The subject of catalepsy was addressed by many writers in the 18th and 19th century. One of the most famous is Silas Marner, the main character from the novel with the same name by George Eliot. In the book, Silas was a middle-aged man who suffered from attacks of catalepsy, believed to have emerged from his adolescent years when he was forced to leave the village where he was born, having been accused (wrongly) of thieving. The author states that the triggers for this attacks might be the tension, prayer meetings and depression. The fit (attack) starts with the eyes fixed “like a dead man... and his limbs were stiff, and his hands clutched the bag as if they’d been made of iron, but just as he made up his mind... he came all right again, like, as you may say, in the twinkling of an eye”. Also, he describes one episode when Silas “fallen at a prayer-meeting into a mysterious rigidity and suspension of consciousness which, lasting for an hour or more, had been mistaken for death”. George Eliot, on her real name Mary Anne

Evans, mastered this character and described his medical condition so accurately from a childhood memory of a man and she may have learned about catalepsy from her contacts with the medical profession. She had as a brother-in-law a medical practitioner, one of her good friends was Herbert Spencer, a well known biologist at that time and probably from her partner, George Henry Lewes, who had been a medical student and later wrote on physiology; together they met in Germany, du Bois Reymond, a neurologist, who could have spoke to them about catalepsy. Eliot herself suffered from apparently what seems to have been migraine with frequent attacks and therefore she might have been interested in knowing more about her disease and related subjects (10).

George Eliot was not the only Victorian writer that dealed with catalepsy. This was also mentioned in Edgar Allan Poe’s novel, *Berenice*. The main character, Berenice, is described as having a mental disorder, “a species of epilepsy not infrequently terminating in trance itself”. As her illness worsens, Berenice has more seizures and one evening she appeared dead and was buried. The subject of catalepsy is also seen in Poe’s *The Fall of the House of Usher*, where the character Madeline of Usher is described as having a malady of cataleptical character and that she wakes up from her coffin and meets her brother. The possibility of being buried alive has fascinated Edgar Allan Poe’s. This is also featured in his novel “The premature burial”, in which he writes about prolonged cataleptic seizures which might be the consequence of being buried alive rather than its cause. It was published in

1844, in "The Philadelphia Dollar Newspaper" and it was based on the fear of being buried alive which was of very much public interest in those times. In "The Premature burial", the narrator describes his struggle with a disease manifested by "attacks of a singular disorder which physicians have agreed to term catalepsy", a condition where he randomly falls into a death-like trance. Poe mentions that "the true wretchedness is to be buried while alive", emphasizing his fear by mentioning several people who have been buried alive. The first case, the victim was already dead when the crypt was opened, and in the others, the victims revived and were able to draw attention to themselves in time to be freed from the grave. Having this phobia, he becomes obsessed that he will fall into this trance while being away and nobody would now to not bury him. He makes sure that all his friends know about his condition and makes them promise not to bury him prematurely, also refusing to leave his home. He then takes on an action to build an elaborated tomb with equipment allowing him to signal for help in case he should awaken after "death". This conception in which the dead person can call for help is also found in other works or popular beliefs, for example, in some countries near a tomb, was put a bell with a piece of rope going straight into the casket, so that if the person inside it was still alive could grab the rope and ring the bell. Unfortunately, all graveyards were much too far from any house so that the bell could be heard (11).

The culminant point of Poe's story is when the narrator awakens in pitch dark in a confined area and realised that indeed he

has been buried alive and all his precautions were in vain. He calls for help and he is moved out, realising that he was in the berth of a small fishing boat, not a grave. In the 19th century, the fear of being buried alive was deeply rooted that Victorians even organized a Society for the Prevention of People Being Buried Alive and also they build all sort of devices for the person inside the coffin to call for help. Also the vampire beliefs were build up on the fact that the person which was being buried alive would turn out to be a vampire after a time inside the coffin. Poe's narrator suffers a shock after the boat incident and realises that all his fear was built on his catalepsy, his fantasies and obsession with death and he reforms, but only after his greatest fear has been realized. It would have been very interesting to read how did he actually died at the end of his life and how he was buried by his friends (12).

Catalepsy, trance and lethargy lasting for days and weeks were subject of much interest to the 19th century writers. For example, Flaubert, in *Madame Bovary*, describes her as having catalepsy and some sort of magnetism that would actually bring her to life. Charles Dickens, in *A Tale of Two Cities*, writes about the members of a sect of Convulsionists, that would have these attacks with foam on their mouth and cataleptic seizures. Also, in *Bleak House*, Dickens describes the main character, Mrs. Snagsby, as having violent spasms and then becoming cataleptic and being carried "like a grand piano". In this case we can assume that the character's condition is much more closer to catatonia.

The poet Alfred Tennyson (1808 – 1892), who has a family case history of epilepsy (his father, brother and cousin) talks about catalepsy in his long narrative poem *The princess*, in 1847. He makes referral to some weird seizures with derealisation, where a prince sees a princess like a shadow and then passes into a dreamy state of mind. The court physician describes this attacks as catalepsy, based on a sudden suspension of movement and the princess's body would freeze, lasting a few minutes to a few hours, after which the prince was amnesic as if he awoke from sleep (13).

Catalepsy being used in a writer's plot is also found in Arthur Conan Doyle's *The Adventure of the Resident Patient*, where a man feigns catalepsy to gain access to a neurologist's office and the doctor tries to treat him with an unconventional and new drug. In Hegel's *Lectures on the History of Philosophy: Greek Philosophy to Plato*, he describes Socrates as having catalepsy caused by magnetic somnambulism when

in deep meditation. Also, 20th century writers, like Emile Zola in *La Mort d'Olivier Becaille*, talks about premature burial, Sax Rohmer character Dr. Fu-Manchu has a serum that induces catalepsy and Kathy Sweetscent in Philip K. Dick's novel *Now Wait for Last Year* becomes immobilized by withdrawal from an alien highly addictive drug.

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