Jean-Martin Charcot Pathologist, Neurologist, Psychiatrist and Physician

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Abstract

Jean-Martin Charcot is known as father of modern neurology. Before him, neurology was only limited to select disorders like chorea. His contributions were not limited to neurology only, as he was instrumental in many new developments in the field of pathology, psychiatry, and internal medicine. Even after 100 years, Charcot`s clinical methods remain the pillar of modern neurology.

Key Words

Jean-Martin Charcot, neurology, Sâlpetrière Hospital

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Introduction

Jean-Martin Charcot was born in 1825 in France in an artisan family that was financially not well off.[1] He pursued a medical career, and at the age of 28 years he graduated in Medicine from University of Paris in 1853. He was appointed as Professor in Medicine in 1862 at Sâlpetrière Hospital, Paris, and was elected as Professor of Anatomy in 1872. In 1882, he was appointed as Chair of Neurology in University of Paris.[2] In fact, he was the first ever professor of Neurology.

Salpetriere hospital and contributions of jean martin charcot

Salpetriere Hospital, Paris, was originally built by King Louis XIII and the real purpose was to store gunpowder. But in the 17th century, it was converted into a public hospital, which was mainly used for dumping illegitimate children of prostitutes in Paris.[3] This was taken as an opportunity by Charcot to do his work and he was able to conduct autopsies in many of the unclaimed bodies. There was a great contribution of Pierre Rayer and Guillame Duchenne in the career of Charcot. Pierre Rayer was the Dean and Pathology Professor of his medical school, and he taught Charcot how important pathology is for a good clinician. Duchenne was famous for his great work on muscular dystrophy and he allowed Charcot to see his patient population. Working on this patient population, Charcot and his assistant, Pierre Marie, were able to describe peroneal muscular atrophy.[4] Simultaneously, it was also reported by Howard Tooth, and the disease is also known as Charcot-Marie-Tooth (CMT) disease. Because of strong argument of Charcot, CMT was considered to be neuropathy and not myopathy. He classified his tremor patients into two groups: one with resting tremor and another with intention tremor. Following his observations on autopsy, he differentiated into those having intention tremor patients had sclerotic plaque in brain known as multiple sclerosis and those having rest tremor had normal brain and were consistent with Parkinson's disease.[5] Multiple sclerosis (la sclerose en plaques) as a separate disease category was first coined by Charcot in 1868. He described in great detail about involvement of brain, spinal cord, and combination. He diagnosed multiple sclerosis on a living patient and described post mortem findings also.[6] There were many other important contributions by Charcot [Table 1].

Concept of hypnosis was given by Charcot and his student Georges Gilles de la Tourette while working on patients of epilepsy and hysteria after 1870. Later after death of Charcot, his student Joseph Babinski carried this work and revised the definition of hypnosis and used a term known as pithiatism.[8]

Charcot's students and controversies

Charcot was a great teacher and he was a mentor of many great neurologists. He was averse to animal experiments but made important contributions for cerebral localization.[9] Charcot started his free Tuesday clinics an exercise primarily to teach, which evolved as the benchmark of clinico-pathological studies in neurological practice.[10]

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Table 1: Important contributions of Jean-Martin Charcot[1,2,4,5,7]

General Medicine	Gout
	Charcot's joint in Tabes dorsalis
	Ischemia as a cause of intermittent claudication
	Clinical triads for cholecystitis (jaundice, fever and upper quadrant abdominal pain)
	Charcot-leyden crystals due to eosinophils lysis in cases of allergic diseases
Neurology	Lenticulostriate artery
	Charcot-Bouchard aneurysm in cerebral hemorrhage, Amyotrophic lateral sclerosis
	Clinical triads for multiple sclerosis (nystagmus, intention tremor and scanning speech)
	Charcot Wilbrand syndrome (visual agnosia and inability to re visualize images)
	Parkinsonism
	Essential tremor
	Benedikt's syndrome
	Tourette syndrome
Psychiatry	Hysteria and hypnosis

He was admired and respected by his students. Some of his great students were Charles Bouchard, Joseph Babinski, Gilles de la Tourette, Édouard Brissaud, Gilbert Ballet, Mathis Duval, Pierre Janet and Sigmund Freud.

Like every successful man, he also had some controversies. He was described as secretive and cold by a few of his colleagues. Charles Bouchard who was helped by Charcot in becoming Professor of Pathology turned against his mentor.[7] In 1892, he opposed Charcot's student Joseph Babinski's nomination as Medicine Professor. Babinski was not selected and he never applied for this post again. This was the most tragic outcome of rivalry between Charcot and Bouchard.[11]

Personal life

He was married to Madame Durvis and had two children, Jeanne and Jean Baptiste. He had a passion for good food and smoking. He developed joint pain and cardiac disease at the age of 65. In 1893, he died at the age of 68 leaving behind a legacy, which changed modern neurology.

Conclusion

Establishing neurology as a separate specialization, cerebral localization by clinical methods and mentoring a large pool of bright people are most important contributions of Jean-Martin Charcot.

To take away from neurology all the discoveries made by Charcot would be to render it unrecognizable. - Joseph Babinski[1,2]

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