



Pierre Mollaret (1898–1987)

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Pierre Mollaret was born in Auxerre, France, on 10 July 1898. He began his studies in medicine in 1916, but soon his education was interrupted by World War I. During 1917 and 1918, he served as an assistant physician and when the war ended he was decorated with the Croix de Guerre. In 1919, he was a volunteer with a Polish group of light infantry and received the Order of the Campagne de Pologne. He returned to his medical studies in 1920 and finally received his degree in 1926 [1, 2]. During medical school, his interest in the nervous system was specially instigated by one of his professors, the eminent neurologist Georges Charles Guillain (1876–1961) [3], with whom he had the pleasure of working for more than 20 years. In parallel to his activity as a clinician, Mollaret defended a doctoral thesis in the field of nervous physiology, under the direction of Louis Lapicque. In addition, during the years 1928–1946 he was in charge of the conferences of the diseases of the nervous system at the Salpêtrière, in Paris, and in 1938 he was appointed as the general secretary of the journal *Revue Neurologique*. Mollaret's interest in the nervous system resulted in important advances in neurology in the twentieth century [1, 2, 4] (Fig. 1).

In 1931, Guillain and Mollaret located the lesions responsible for palatal tremor and oculopalatal tremor within an anatomical triangle with which their names have become synonymous. This functional pathway is composed of the contralateral dentate nucleus, ipsilateral red nucleus and ipsilateral inferior olivary nucleus and is now referred to as the Guillain–Mollaret triangle. Later, in 1935, the same

authors emphasized the role of the dentato-olivary complex in the pathophysiology of velopalatine myoclonus [5, 6]. They proposed that fibres from the inferior olivary nucleus project first to the cerebellar cortex before reaching the dentate nucleus. Subsequently, further studies have confirmed the dentato-rubral-olivary pathway and the neuropathology of palatal and oculopalatal tremors initially outlined by Mollaret is now better understood [5].

In 1944, three patients came to the attention of Pierre Mollaret, all of whom presented short-lived recurrent attacks of fever, generalized myalgia, headache, vomiting and meningeal irritation caused by sterile meningitis. Mollaret also observed particular cells in the cerebrospinal fluid (CSF) that he called “fantomes cellulaires”. These cells were described as large mononuclear cells with blunt pseudopods and bean-shaped, bilobed nuclei. He described for the first time a syndrome of recurrent attacks of meningitis with no evident cause, now known as “Mollaret's meningitis”, “benign recurrent aseptic meningitis” or “benign recurrent endothelial–leukocytic meningitis” [3, 7]. It is a rare type of meningitis that usually lasts for 2–7 days, results in complete recovery but has unpredictable recurrences. Clinically, Mollaret's meningitis is indistinguishable from cases of recurrent herpetic meningitis [3]. HSV-2 is the most commonly identified cause of Mollaret's meningitis.

Mollaret's contribution to medicine was also evident in the Scandinavian poliomyelitis epidemic of the early and mid 1950s. At that time, there was a consensus in France about the need to be prepared for the polio epidemic that was spreading throughout Europe. Pierre Lépine (1901–1989), a polio specialist at the Pasteur Institute, asked Mollaret to deal with the most seriously affected patients [1, 2]. Mollaret spent the winter of 1953–1954 drawing up plans for a medical centre equipped to care for a large number of polio victims suffering from respiratory paralysis. His preparations were not in vain. When the expected epidemic hit France, ultramodern wards equipped with new Engström respirators

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Fig. 1 Pierre Mollaret (1898–1987), responsible for many contributions to neurology

were ready to receive polio patients for treatment. In 1954, there were 2000 polio victims in France, but Mollaret's intervention helped to make the French mortality rates much better than those in northern Europe. Mollaret contributed to the improvement in the survival of many affected in the polio epidemics [1–3].

One of the most important works of Pierre Mollaret was published in *Revue Neurologique* in 1959 [8]. Together with Maurice Goulon, Mollaret characterized a clinical condition called “coma dépassé” based on a series of 23 patients with severe neurological impairment hospitalized at the Claude Bernard Hospital in Paris. Goulon and Mollaret publicly reported their observations at the 23rd International Conference of Neurology. They proposed the term “coma dépassé” for an irreversible state of coma, with no spontaneous respiration, no reflexes, and absence of all EEG activity [8, 9]. Furthermore, they introduced the concept of the right to set the time of legal death. For the first time, two physicians initiated the discussion of “brain death”. With their publication, the boundaries of life and ethics of death began

to be discussed. In addition, Mollaret and Goulon indirectly contributed to the development of organ transplantation in medicine [1, 2, 9].

Mollaret's contribution to medicine is also evident in many scientific articles dealing with Friedreich's disease, tetanus treatment, physiopathology of barbiturate intoxication, and nervous system physiology. He was responsible for the first description of cat-scratch disease in 1950 [10]. In addition, being a lover of classical music, he was also intrigued by how musical abilities could arise in individuals who suffered an acute cerebrovascular disease.

Pierre Mollaret was a French physician who made important contributions to neurology. Besides being remembered as an eminent neurologist, Mollaret was also noted for the rigidity of his character and the inflexibility of his decisions. His generosity and altruism were also remarkable. He died on 3 December 1987 at the age of 89, in Montgeron, France.

Compliance with ethical standards

Conflicts of interest The author declares that there is no competing interest.

References

1. Sarikcioglu L, Sindel M (2007) Pierre Mollaret (1898–1987) and his legacy to science. *J Neurol Neurosurg Psychiatry* 78(10):1135
2. Théodoridès J (1989) Le Professeur Pierre Mollaret (1898–1987). *Histoire des Sciences Médicales, Organe officiel de la Société française d'histoire de la médecine*, t. XXIII, no. 1
3. Pietrzak K, Grzybowski A, Kaczmarczyk J (2016) Georges Guillain (1876–1961). *J Neurol* 263(10):2148–2149
4. Pearce JMS (2008) Mollaret's meningitis. *Eur Neurol* 60:316–317
5. Tilikete C, Desestret V (2017) Hypertrophic olivary degeneration and palatal or oculopalatal tremor. *Front Neurol* 29:8:302
6. Guillain G, Mollaret P (1931) Deux cas de myoclonies synchrones et rythmées vélo-pliaryngo-oculo-diaphragmatiques. Le problème anatomique et physio-pathologique de ce syndrome. *Rev Neurol (Paris)* 2:545–566
7. Mollaret P (1977) La méningite endothélio-leucocytaire multirécurrenente bénigne. *Rev Neurol (Paris)* 133:225–244
8. Mollaret P, Goulon M (1959) Le coma dépassé. *Rev Neurol (Paris)* 101:3–15
9. Goulon M, Babinet P, Simon N (1983) Brain death or coma Dépassé. In: Tinker J, Rapin M (eds) *Care of the critically ill patient*. Springer, London, pp 765–771
10. Arlet G, Perol-Vaucher Y (1991) The current status of cat-scratch disease: an update. *Comp Immunol Microbiol Infect Dis* 14(3):223–228