

# Neurological examination: history, problems and facts in the 21<sup>st</sup> century

Exame neurológico: história, problemas e verdades no século XXI

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Much progress has been made in the complementary investigation of patients with neurological diseases in recent decades, particularly with the extraordinary advances in neuroimaging. However, clinical neurological assessment (assessment of clinical history and neurological examination) continues to be an essential activity and of the utmost importance<sup>1</sup>. The excessive importance attached to complementary examination as a means of compensating for inadequate assessment of a patient's clinical history and an incomplete neurological examination has led to various problems in clinical neurological practice<sup>1</sup>. It is against this background that some findings have been highlighted in the neurological literature. Callaghan et al.<sup>2</sup>, for example, recently investigated the relationship between complaints of headaches, which are particularly common in daily clinical neurological practice, and the use of neuroimaging tests. They reported that expensive neuroimaging tests are widely used despite the existence of multiple guidelines recommending that these be used sparingly in routine assessments of patients with complaints of headaches<sup>2</sup>. Other important findings related to the use of the ophthalmoscope during neurological examinations were reported by Nicholl et al.<sup>3</sup> in the UK and Bruce et al.<sup>4</sup> in the USA. In the British study, 48% of patients who had been referred to a neurologist had not been examined with an ophthalmoscope, while in the American study only 14% of patients seen in an emergency service (most of whom presented with complaints of headaches) had been examined with one<sup>3,4</sup>. This intriguing situation is reflected in an ironic editorial written by Prof. C. H. Hawkes in *Practical Neurology* under the title *I've stopped examining patients!*<sup>5</sup>. An adequate clinical history and correct neurological examination are still considered the cornerstones of clinical neurology. Nicholl and Appleton<sup>1</sup> concluded, in a recently published article, that even in the modern era wider dissemination of the essential neurological skills is required to ensure more thorough investigation and better care of patients with neurological diseases. In this edition of *Arquivos de Neuro-Psiquiatria*, Maranhão-Filho et al.<sup>6</sup>, from the Neurology Service at the *Hospital de Clínicas Clementino Fraga-Filho*, Federal University of Rio de Janeiro, present an interesting review of neurological examination, with an emphasis on pioneering authors and their books. They provide a brief introduction to the most important textbooks that seek to disseminate the teaching of neurological examination and their respective authors<sup>6</sup>. Among 19<sup>th</sup> century works, they discuss the books of pioneering authors in the field of neurology such as Hammond, Gowers and Mills, and in the 20<sup>th</sup> century they focus on the books of Monrad-Krohn, Denny-Brown, Wartemberg, Holmes and DeJong, as well that by the only Brazilian author included in the review, Aloysio de Castro<sup>6</sup>. Jean-Martin Charcot, the founding father of modern neurology, developed the renowned clinical-pathological method based on the studies of Laennec and his famous *méthode anatomo-pathologique*. However, Charcot did not publish any books on neurosemiology. One of the pioneering books in this field was *A Manual of the Nervous Diseases of Man*, by Moritz Romberg, which was published in English in 1853<sup>7</sup>. This exerted a great influence not only in Germany, but also in other European countries, particular the United Kingdom<sup>7</sup>. A general analysis of the books on neurosemiology highlighted by Maranhão-Filho et al. reveals the influence of three important schools of neurology: the French, the English and the American<sup>6</sup>. The last of these, represented by the books of William A. Hamond, Charles K. Mills, Derek E. Denny-Brown, Russel N.

DeJong and Robert Wartemberg, was also greatly influenced by English and French neurology<sup>6</sup>. British neurology made a significant contribution to neurosemiology with the publication of books by Sir William R. Gowers and Gordon M. Holmes<sup>6</sup>. Professor Georg H. Monrad-Krohn, from Norway, published the famous *Blue Book of Neurology*, which became known as *The Blue Bible*, and was much influenced by English neurology after studying at Queen Square Hospital<sup>6</sup>. Aloysio de Castro, considered the pioneer of neurosemiology in Brazil, was greatly influenced by French neurology, particularly by professor Pierre Marie, a fervent disciple of Charcot, at the famous Salpêtrière Hospital in Paris<sup>8</sup>. Castro published the famous book *Tractado de Semiótica Nervosa*,

as well as a thesis on gait disorders and their semiological value, which was published in 1904<sup>6,8</sup>. The important pioneering contributions of the various authors mentioned by Maranhão-Filho et al.<sup>6</sup> in the field of neurological examination should serve as examples and a stimulus for younger neurologists so that they may constantly improve the clinical examination of neurological patients as well as reduce costs during this period of great technological advances. The correct application of neurosemiology and recognition of its importance can not only be invaluable in reducing “neurophobia”<sup>9</sup> among medical students, but also stimulate a new syndrome characterized by a fascination with neurology, known as “neurophilia”<sup>10</sup>.

## References

1. Nicholl DJ, Appleton JP. Clinical neurology: why this still matters in the 21st century. *J Neurol Neurosurg Psychiatry*. 2014;29. Online first. <http://dx.doi.org/10.1136/jnnp-2013-306881>.
2. Callaghan BC, Kerber KA, Pace RJ, Skolarus LE, Burke JF. Headaches and neuroimaging: high utilization and costs despite guidelines. *JAMA Intern Med*. 2014;174(5):819-21. <http://dx.doi.org/10.1001/jamainternmed.2014.173>
3. Nicholl DJ, Yap CP, Cahill V, Appleton J, Willetts E, Sturman S. The TOS study: can we use our patients to help improve clinical assessment? *J R Col Physicians Edinb*. 2012;42(4):306-10. <http://dx.doi.org/10.4997/JRCPE.2012.405>
4. Bruce BB, Lamirel C, Wright DW, Ward A, Helpert KL, Bioussé V et al. Nonmydriatic ocular fundus photography in the emergency department. *N Eng J Med*. 2011;364(4):387-9. <http://dx.doi.org/10.1056/NEJMc1009733>
5. Hawkes CH. I've stopped examining patients. *Pract Neurol*. 2009;9(4):192-4. <http://dx.doi.org/10.1136/jnnp.2009.181958>
6. Maranhão-Filho P, Vincent MB, Martins da Silva M. Neurological examination: pioneering authors and their books. *Arq Neuropsiquiatr*. 2015;73(2):140-146. <http://dx.doi.org/10.1590/0004-282X20140215>
7. Keppel-Hesselink JM, Koehler PJ. Romberg's sign. In: Koehler PJ, Bruyn GW, Pearce JMS. *Neurological eponyms*. Oxford: Oxford University Press; 2000. p.166-71.
8. Maranhão-Filho P. Aloysio de Castro, the pioneer of neuro-semiology in Brazil. *Rev Bras Neurol*. 2014;50(3):66-9.
9. Jozefowicz RF. Neurophobia: the fear of neurology among medical students. *Arch Neurol*. 1994;51(4):328-9. <http://dx.doi.org/10.1001/archneur.1994.00540160018003>
10. Fuller GN. Neurophilia: a fascination for neurology - a new syndrome. *Pract Neurol*. 2012;12(5):276-8. <http://dx.doi.org/10.1136/practneurol-2012-000400>