

The photographs of Luis Barraquer Roviralta

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ABSTRACT

Introduction. In 1882, Luis Barraquer Roviralta (1855-1928) founded Spain's first neurology department, which was known as the "Electrotherapeutic Dispensary". This dynamic centre for neurological study was created at the same time as Jean-Martin Charcot's Chair for Nervous Diseases in La Salpêtrière Hospital and The Neurological Institute of Vienna under Heinrich Obersteiner. Barraquer Roviralta compiled a vast archive of clinical and anatomical photographs, including some 2000 images which he took and developed himself.

Method. In this article, we present and analyse the photographs of Luis Barraquer Roviralta, providing an explanation of their medical and historical contexts. (These images are now kept by the Spanish Society of Neurology's historical archive, MAH SEN).

Results. Items in the collection can be divided into three categories: anatomical pathology, clinical radiology, and clinical aspects in neurological patients. We observe that a substantial part of the photographic collection is dedicated to cases of tabetic arthropathy, which was very prevalent during this period.

Discussion. In the late 19th and early 20th centuries, Barraquer Roviralta created a sizeable collection of photographs that he used for illustrating clinical signs, providing anatomical and pathological definitions of neurological diseases, documenting his publications and research, and for teaching purposes.

KEYWORDS

History of neurology, history of photography, medical illustrations, L. Barraquer Roviralta

Introduction

Three of Spain's founding fathers of the neurosciences were born in the 1850s: Luis Simarro Lacabra (1851-1921), Santiago Ramón y Cajal (1852-1934), and Luis Barraquer Roviralta (1855-1928). Each of these creators of dynamic care, training, and research centres used photographic techniques and explored new developments in photography in the course of their scientific studies.

Luis Barraquer Roviralta amassed a sizeable collection of clinical and anatomical photographs –some 2000 in all– which he took and developed himself. He used photographs to document his research, publications, and conferences.¹ His collection was catalogued and expanded by his son, Luis Barraquer Ferré, who published many of these photos in *Tratado de enfermedades nerviosas*, the first Spanish-language treatise on neurology.²

Duchenne de Boulogne published the first medical text illustrated with photographs of patients, *Album de photographies pathologiques* (1862). The first laboratory for medical photography was set up in La Salpêtrière in 1878. It was directed by Albert Londe, who in 1863 had published the first monograph dedicated to medical photography (*La photographie médicale*). Other such important publications included *Revue Photographique des Hôpitaux* (1869), directed by Bourneville, and *Iconographie photographique de la Salpêtrière* (1876).^{3,4} After Röntgen's discovery of X-rays in 1895, radiography technology was quickly adopted in La Salpêtrière and there was considerable interaction between the budding disciplines of neurology and the different types of imaging.

This article aims to showcase the photographs of Luis Barraquer Roviralta which were catalogued by his son Luis Barraquer Ferré and are now preserved by the Spanish Society of Neurology (SEN) in its historical archive. We will endeavour to present them in their

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proper medical and historical contexts.

Luis Barraquer Roviralta (1855-1928)

Luis Barraquer Roviralta (Fig. 1) was born in 1855 and finished his degree in medicine in Barcelona in 1879. He made several extended visits to Paris between 1879 and 1880, where he met and corresponded with leading figures in neurology who would influence him greatly: Duchenne de Boulogne, André-Thomas, J. M. Charcot, W. Hammond, A. Vulpian, W. H. Erb, W. Gowers, H. Oppenheim, J. Déjerine, P. Marie, J. Babinski, J. Grasset, R. Bing, and others. The clinical-semiological approach typical of the French school is reflected in all of Barraquer Roviralta's clinical activity.^{5,6}

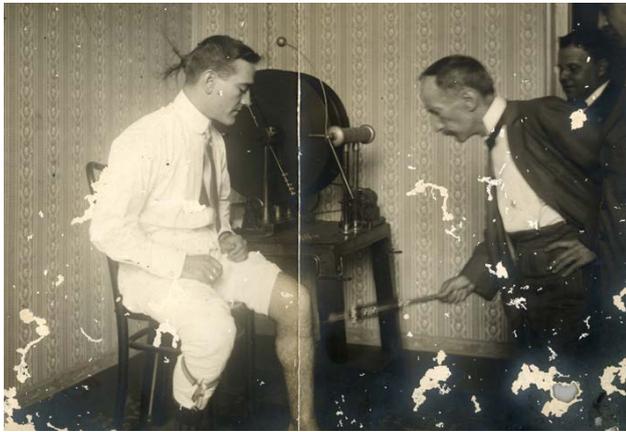


Figure 1. Examining a patient. Dr Luis Barraquer Roviralta. Barcelona (ca. 1910). Historical archive of the Spanish Society of Neurology.

Some of his most important influences in Spain were Bartomeu Robert Yarzabal (1842-1902),^{7,8} who advocated the definition of neurology as an independent specialty and assigned Barraquer Roviralta the task of creating the first neurology and electrotherapy dispensary at Hospital de la Santa Creu; and Eduardo Bertrán Rubio (1838-1909) who laid the groundwork for the development of clinical neurology and was the first doctor to be listed by the Royal Catalan Academy of Medicine as a neurologist and 'electrologist' in 1865.

In 1881, Barraquer Roviralta left Paris for Barcelona, where he worked as a member of the Medical Corps at Hospital de la Santa Creu. In 1882, he founded a department known as the Electrotherapeutic Dispensary, which became a dynamic centre for neurological studies. He later changed its name to the Neurology and Electrotherapy Department; the term 'electrotherapy' was eventually dropped. Dr Barraquer Roviralta went on to

found the Neurology Dispensary at Hospital del Sagrat Cor, where he acted as a consultant.⁶

Barraquer Roviralta shaped his department at a time when neurology was just beginning to emerge; recall that the world's first Chair of Nervous Diseases (at La Salpêtrière in Paris, held by Jean-Martin Charcot) and the Neurological Institute of Vienna (founded by Heinrich Obersteiner) were both created in 1882. The last decade of the 19th century was influenced by the advent of electrical diagnostic, stimulation, and therapeutic techniques, most of which were developed by W. H. Erb in Germany and Duchenne in France.^{5,6}

In 1887, Santiago Ramón y Cajal became the Chair of Normal Histology and Histochemistry and Anatomical Pathology at the College of Medicine of Barcelona, retaining that position until 1892. In 1888, the first issue of *Revista Trimestral de Histología Normal y Patológica*—a quarterly journal on histology which Ramón y Cajal himself founded and financed—contained his article outlining neuron theory. He published his textbook of general anatomical pathology in 1890. The College of Medicine was located at Hospital de la Santa Creu, which also housed Barraquer's department. Despite this fact, there is no evidence documenting a relationship between the two doctors.⁹

Although Spanish advances in science and medicine were quite sluggish in the late 19th and early 20th centuries, Spain was home to a few exceptional figures with an international impact; the best example would be Ramón y Cajal. Barraquer Roviralta published his contributions in international journals and also kept in contact with the most important centres and figures in neurology of his day. His correspondence includes three letters, now preserved by the SEN's archive, from the following scholars: J. M. Charcot (Paris, 188?), in which Charcot answers Barraquer Roviralta's inquiry regarding how he adapted his professional fees according to the patient's social standing, on a fee scale of 9000 to 12 000 francs; W. Hammond (New York, 27 August 1882), thanking Barraquer Roviralta in Spanish for having forwarded an article published by *Sociedad Médica Catalana*; and H. Obersteiner (Vienna, 15 June 1908), thanking Barraquer Roviralta for having sent photographs of his clinical cases.

Barraquer Roviralta had a profound knowledge of neuroanatomy, and his main areas of interest were trophic disorders and diseases of the peripheral nervous system,

especially their semiology. In 1885, he published his first article in *Gaceta Médica Catalana*: “Parálisis periférica protopática de las cuatro extremidades”.^{10,11} His first original article, a clinical observation published in *Gaceta Médica Catalana* in 1897, constitutes the first description of torsion dystonia; showing the influence of W. Hammond, he termed it ‘double athetosis’.¹²

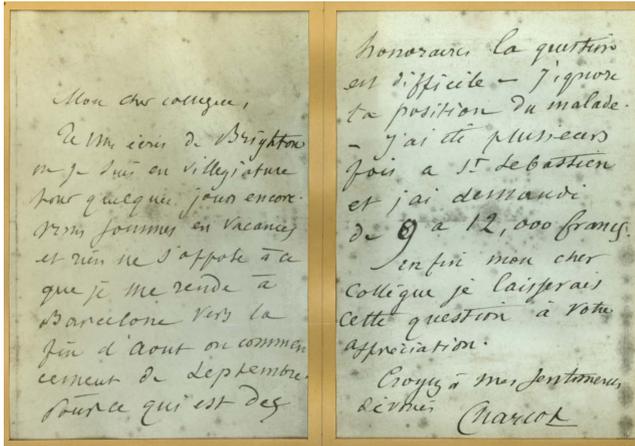


Figure 2. Letter from J. M. Charcot to L. Barraquer Roviralta (Paris, 188?), Historical archive of the Spanish Society of Neurology.

He also gave us the first observation of a type of adipose tissue atrophy occurring above the waist (Fig. 3). The description of this disease, later known as Barraquer-Simons syndrome or cephalothoracic lipodystrophy, first appeared in Spain in 1906 and was published in *Neurologisches Zentralblatt* and *Nouvelle Iconographie de la Salpêtrière* in 1907.¹³

One of Barraquer’s key contributions was his initial de-



Figure 3. Photograph of Dr Barraquer Roviralta’s contribution to cephalothoracic lipodystrophy research (1906). Historical archive of the Spanish Society of Neurology.

scription of the plantar reflex in “*Contribution à l’étude du reflexe plantaire pathologique*”, published in *Revue Neurologique* in 1921. The plantar or foot grasp reflex was thoroughly studied by Barraquer Roviralta and his students Peres Casañas and Roca y Munner.^{6,10}

His other original contributions included research on non-paralytic amyotrophic neuritic leprosy and maculo-anaesthetic leprosy (1914-1915); a sign in which reflexes are absent and idiomuscular response is exaggerated, which bears his name in Spanish literature, (1922); athetosis associated with paediatric encephalopathy; and generalised hemilateral atrophy (1925). After Barraquer Roviralta’s death, his son and student Luis Barraquer Ferré completed his study on brain compression lesions.^{2,4,7}

In light of his teaching and clinical work, he was appointed a numerary member of Hospital de la Santa Creu in 1906. The statistics published in the hospital yearbook *Anuario del Hospital de la Santa Cruz* for the Department of Neurology and Electrotherapy with Barraquer Roviralta as professor and consultant, Enrique Peres Casañas as his resident, and Alberto Roca Munner as junior doctor, are shown below (Table 1).

1920	1921	1922
Patients treated 894	Patients treated 805	Patients treated 867
Brain and meningeal diseases 411	Brain and meningeal diseases 457	Brain and meningeal diseases 508
Diseases of the medulla and tubercles 109	Spinal cord diseases 92	Spinal cord diseases 101
Nerve diseases 151	Nerve diseases 256	Nerve diseases 258
Neurodermias/angioneurosis 27		
Specific spasms 61		
Motor nerve failure in the absence of lesion 18		
Neurosis 115		
Other 2		

Table 1

The most frequently observed illnesses were degenerative vascular diseases, toxic infections, and traumatic lesions.¹³

He also worked in partnership with the surgeon Cardinal at the neurological practice at Hospital del Sagrat Cor. Well aware of the limitations of medical treatment for brain tumours after having diagnosed several cases, Barraquer convinced prestigious surgeons to attempt surgical resolution of this condition. Between 1910 and 1923, he indicated surgery for a number of cases of focal epilepsy, most of which were traumatic in origin. These procedures were performed by the surgeons Corachán and Ribas y Ribas.¹⁴

Barraquer Roviralta's students included Roca y Munner, Rahola, Peres Casañas, Ventura Clotet, Tolosa y Colomer, Gispert i Cruz, and his son Luis Barraquer Ferré (1887-1959). The latter trained exclusively at Hospital de la Santa Creu with his father, but would later visit La Pitié and La Salpêtrière Hospitals and meet Pierre Marie and Babinsky. Barraquer Ferré followed in his father's footsteps and worked as a resident (1917), a junior doctor (1929) and subsequently as head of the department (1929). In 1949, Belarmino Rodríguez Arias, Antonio Subirana, and Barraquer Ferré founded the Spanish Society of Neurology, with Barraquer Ferré as its first president.⁶

Luis Barraquer Roviralta died of pneumonia on 13 October 1928.⁶

Methods

We analysed primary historical sources and the Luis Barraquer Roviralta photograph collection preserved in the SEN's historical archive. The collection comprises 15 gelatin-bromide dry plates dating from the late 19th and early 20th centuries.

Results

The collection's contents can be grouped in three categories:

1) Anatomical pathology:

- Tumour of the cerebellopontine angle (?)
- Image of the brainstem. Separation of the pyramidal bundles at the medulla.

2) Radiology findings (complementary studies):

- Syringomyelia.
- Tabetic arthropathy of the tarsus.
- Tabetic arthropathy. Radiology study.
- Tabetic arthropathy. Neuropathic arthropathy or Charcot foot.
- Gunshot wound to the face.

3) Clinical profiles of patients with neurological disorders:

- Polyneuropathy predominantly in upper limbs with marked amyotrophy due to lead poisoning.
- Duchenne (pseudohypertrophic) muscular dystrophy.
- Case of progressive spinal muscular atrophy. Oppenheim disease.
- Dystrophic ulcer in a case of syringomyelia.
- Froelich syndrome. Adiposogenital dystrophy. Gynaecomastia, monorchism.
- Ulnar mononeuropathy due to nerve entrapment at the elbow.
- Frontal syndrome: amnesia, bradypsychia, cretinism, cranial asymmetry, puerility. Girl aged 9 years. Clinical study of the plantar cutaneous reflex performed by Luis Barraquer Ferré. Babinski sign.

We observe that a large part of the collection depicts cases of tabetic arthropathy, which had a high prevalence at the time (Fig. 4).



Figure 4. Tabetic arthropathy. Radiology study. Historical archive of the Spanish Society of Neurology.

Neurosyphilis had a high incidence rate and no effective treatment. After it was contracted, late-onset manifestations would appear.

A series of images of toxic polyneuropathies also deserves mention; in Barraquer Roviralta's time, most cases were caused by arsenic or lead poisoning.

Discussion

Photography and its uses in medicine evolved rapidly owing to the discovery of new emulsions. The first medical texts containing photographs addressed the subjects of neuroanatomy and neurophysiology. We agree with authors such as Aubert³ who state that photographic techniques were adopted quickly by neurologists in view of how important visual signs are for neurological diagnosis.

In the late 19th and early 20th centuries, Luis Barraquer Roviralta amassed an impressive collection of photographs which he used to demonstrate clinical signs, define the anatomical and pathological facets of neurological diseases, and document his publications and research. The fact that very few neurological images were taken at the time is another reason why Barraquer Roviralta's collection is so historically relevant, from a socio-cultural as well as a medical point of view.

As a researcher, he considered images to be very important and he adopted a number of new photographic techniques in his clinical and anatomical studies. He used photographs both to illustrate clinical observations and to provide evidence supporting new observations, such as the images used in descriptions of new conditions.

We can state that Barraquer Roviralta's relationship with his contemporaries, especially Duchenne and Charcot, may have influenced the importance which the former attached to photography in both his publications and his teaching activity. However, there is no evidence of his department's having had a photography laboratory

or darkroom as was the case in La Salpêtrière; the doctor took and developed the photographs using his own materials.

Conflicts of interest

The authors have no conflicts of interest to declare.

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