

EDITORIAL

Radiology's and nuclear medicine's paths converge[☆]

Radiodiagnóstico y Medicina Nuclear: caminos encontrados



I would like to start this brief text by going back in time to the end of the 19th century, when two discoveries took place in less than a year which would be of great importance in medical science. At the end of 1895, the German physicist Wilhelm Conrad Röntgen discovered X-rays,¹ which were a milestone in the history of diagnostic imaging, as for the first time images could be obtained of the inside of the human body after passing radiation through it. They were called X-rays because at the time this was an unknown type of radiation. A few months later, in 1896, the French scientist Henri Becquerel discovered a mysterious radiation emitted by uranium salt while working with phosphorescent materials,² a phenomenon that two years later was given the name of radioactivity by Marie Curie,³ a French scientist of Polish origin. So, the almost simultaneous discovery of two unknown types of radiation were the beginning of what years later would become two medical specialties of great importance today: Radiodiagnosics and Nuclear Medicine.

X-rays quickly had numerous clinical applications and their use spread internationally. In Spain, in 1912 the *Revista Española de Electrología y Radiología Médicas* [Spanish Journal of Medical Electrology and Radiology] was published, and the *Sociedad Española de Electrología y Radiología Médicas* [Spanish Society for Medical Electrology and Radiology] was established in 1917. The clinical applications of radioactivity took longer to be incorporated, as artificial radioactivity had first to be discovered, finally occurring in 1934 thanks to the work of Frederic Joliot and Irene Curie.⁴ We therefore have to place the beginning of clinical Nuclear Medicine in the late 1930s.

However, in those times there were no medical specialties and there were medical professionals who used the different physical agents, both ionising (such as X-rays or gamma rays) and non-ionising, in the diagnosis and treatment of different diseases. The future specialties of Radiodiagnosics, Nuclear Medicine and Radiation Oncology

therefore started out together. The qualification of specialist was not established in Spain until 1955, by means of the Law on "Teaching, Qualification and Exercise of Medical Specialties"⁵ which established, for professional practice, a list of 31 medical specialties, among which is *Electroradiology*. Two decades later, in 1978, after having travelled this long road together, a Royal Decree was published regulating the obtaining of degrees in medical specialties,⁶ in which 51 specialist areas were recognised, including: *Electroradiology*, *Nuclear Medicine*, *Radiodiagnosics* and *Radiotherapy*. A few years later, however, in 1984, the Royal Decree regulating specialised medical training,⁷ dropped *Electroradiology* and the medical professionals who had this qualification had to replace it with that of specialist in Nuclear Medicine, Radiodiagnosics or Radiation Oncology.

From then on, Radiodiagnosics and Nuclear Medicine took very different paths. From the point of view of scientific societies, as mentioned previously, in 1917 the *Spanish Society for Medical Electrology and Radiology* was established, which in 1946 was reconstituted, becoming the *Sociedad Española de Radiología y Electrología Médica* (SEREM) [Spanish Society for Medical Radiology and Electrology]. SEREM was a kind of umbrella group in which Radiodiagnosics was twinned with the Radiotherapy and Nuclear Medicine associations, and in which *Electroradiology* had less and less weight. Over the years, Radiotherapy and Nuclear Medicine created their own societies and Electrology passed into the hands of other specialists. For Nuclear Medicine, the *Asociación Española de Medicina Nuclear* (AEMN) [Spanish Association of Nuclear Medicine], a subsidiary of SEREM, was born in 1969. In 1977 it became independent, creating the *Sociedad Española de Medicina Nuclear* (SEMNM) [Spanish Society of Nuclear Medicine], which renamed itself the *Sociedad Española de Medicina Nuclear e Imagen Molecular* (SEMNMIM) [Spanish Society of Nuclear Medicine and Molecular Imaging] in 2009. SEREM also changed its name to the *Sociedad Española de Radiología Médica* (SERAM) [Spanish Society of Medical Radiology] in 1986, the name by which it is still known.⁸

[☆] Please cite this article as: Pons F. Radiodiagnóstico y Medicina Nuclear: caminos encontrados. Radiología. 2020;62:435–436.

SEMN and SERAM followed parallel paths, albeit with more disagreements than affinities, until, as evidenced by an article published in April 2009 in *Diario Médico* [Medical Journal] with the headline Radiology and Nuclear Medicine together after 17 years going it alone; they met again. The then presidents of SERAM, Luis Martí Bonmatí, and SEMN, José Luis Carreras, signed a collaboration agreement to promote the professional development of both specialities, share information systems and optimise the criteria for diagnostic tests.

As happened with the respective scientific societies, each discipline also progressed with its respective scientific journal. After having shared knowledge in the *Revista Española de Electrología y Radiología Médicas* (Spanish Journal of Medical Electrology and Radiology), created in 1912, which was renamed *Radiología* [Radiology] to be the "Boletín de la Sociedad Española de Radiología y Electrología Médica y de Medicina Nuclear" [Bulletin of the Spanish Society for Medical Radiology and Electrology and Nuclear Medicine], currently the journal *Radiología* is the official body of scientific expression of SERAM and the *Revista Española de Medicina Nuclear e Imagen Molecular* [Spanish Journal of Nuclear Medicine and Molecular Imaging], created in 1982, that of SEMNIM. Both are published by Elsevier.

Radiology and Nuclear Medicine have had fewer comings and goings in the university teaching field. A Ministerial Order of 1979⁹ incorporated *Radiology and Physical Medicine* as a university area of knowledge (replacing what until then had been called Physical Therapy), which continues to this day, and in which subjects related to Radiodiagnostics, Nuclear Medicine, Radiation Oncology and Rehabilitation are taught (being related to Physical Medicine).

Six years ago it seemed that, although in a somewhat forced manner, Radiodiagnostics and Nuclear Medicine would walk hand in hand once more. The publication of what was popularly called the "Core" Royal Decree in 2014 established an organisation of specialised medical training based on five core areas. One of these, called the Clinical Imaging Core, integrated two specialities: Radiodiagnostics and Nuclear Medicine. Despite the fact that the current training system for medical residents has been rated very positively both in Spain and abroad,¹⁰ a new training model was proposed for residents, which meant that specialities in the same core area had to follow a period of common (core) training.¹¹ For the two specialities which concern us, the *Comisión Delegada del Tronco de Imagen Clínica* [Delegate Committee for the Clinical Imaging Core Area] was created, made up of two radiologists (Jesús Pueyo and Luis Ros) and two nuclear medicine specialists (Juan Carlos Alonso and Francesca Pons). After an intense period of work, in which consensus was reached without too much difficulty, the competencies future Radiodiagnostics and Nuclear Medicine residents should jointly acquire during the common core period which was to be implemented were defined. However, this project did not prosper, as the "Core" Royal Decree was annulled after an appeal to the Supreme Court.

Although the "Core" Royal Decree did not prosper, the reality in diagnostic imaging has resulted in radiodiagnostics and nuclear medicine specialists having more and more points in common. The increasingly multidisciplinary nature of the medical sciences and the development of multi-modality techniques, such as SPECT/CT, PET/CT and PET/MRI, with components that historically belong to different specialist areas, have made the relationship between the two specialities increasingly close, and so made it necessary to establish common collaboration scenarios.

Let us hope that common sense can prevail over any Royal Decree or Ministerial Order and that we are able to establish bridges of dialogue and collaboration between the two specialities, in order that our paths once more coincide for the sake of the better diagnosis of our patients and for the advancement of our specialist areas.

References

1. Wilhelm Conrad Röntgen – Biographical. NobelPrize.org. Nobel Media AB 2020. Available at: <https://www.nobelprize.org/prizes/physics/1901/rontgen/biographical/>.
2. Becquerel H. Sur les radiations émises par phosphorescence. *Compt Rend Hebd Seances Acad Sci.* 1896;122:420–1.
3. Curie M. Recherches sur les substances radioactives. In: Thèse présentée a la Faculté des Sciences de Paris. 2.^a ed Paris: Gauthier-Villars; 1904.
4. Joliot F, Curie I. Artificial production of a new kind of radioelement. *Nature.* 1934;133:201–2.
5. Ley de 20 de julio de 1955 sobre Enseñanza, título y ejercicio de las especialidades médicas. *Boletín Oficial del Estado.* 1955;202:4440–2.
6. Real Decreto de 15 de julio de 1978 por el que se regula la obtención de títulos de especialidades médicas. *Boletín Oficial del Estado.* 1978;206:20172–4.
7. Real Decreto de 11 de enero de 1984 por el que se regula la formación médica especializada y la obtención del título de Médico Especialista. *Boletín Oficial del Estado.* 1984;26:2524–8.
8. Gayete A, Ferrer F. Les tècniques de diagnòstic per la imatge i medicina nuclear. *Annals de Medicina.* 2009;92:154–7.
9. Orden de 28 de abril de 1979 referente al cambio de denominación de cátedras agregaduras y adjuntos de Universidad que se indican por la de "Radiología y Medicina física". *Boletín Oficial del Estado.* 1979;161:15543.
10. Freire JM, Infante A, Cavalcanti A, Carbajo P. An analysis of the medical specialty training system in Spain. *Hum Resour Health.* 2015;13:42.
11. Garrido P, Ariza A, España ML, Fernández JM, Landín L, de Lucas P, et al. Retos de la troncalidad y su aplicación en el entorno hospitalario. *Educ Med.* 2017;18 supl 1:29–33.

F. Pons

Presidenta de la Comisión Nacional de Medicina Nuclear
Hospital Clínic, Universidad de Barcelona, Spain
E-mail address: fpons@clinic.ub.es