

FERNANDO MARTORELL I OTZET

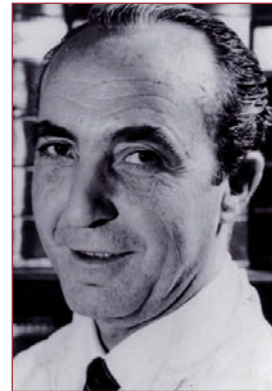
MARTORELL EPONYMS

The eponyms

Martorell ulcer. An ulcer appearing on the legs in hypertensive patients with intense arteriosclerosis leading to cutaneous ischaemia. It is extremely painful and slow to heal¹. It is also known as hypertensive ulcer or as Martorell I syndrome^{2,3}.

Martorell syndrome. A thrombotic or atheromatous obliteration of the branches of the aortic arch². Also known as Martorell-Fabré syndrome, Takayasu-Martorell syndrome, occlusive disease of the supra-aortic trunks, aortic arch disease, supra-aortic trunk syndrome, and Martorell II syndrome¹⁻⁴.

Martorell sign. An angiographical sign typical of Buerger disease (thromboangiitis obliterans), consisting of segmental obliterations and a collateral circulation network characterised by abundant, fine, and convoluted arterioles¹.



Fernando Martorell
i Otzet (1906-1984)

Martorell phlebography test. Application of phlebography to the surgical treatment of varices⁵.

Martorell stinger syndrome. Pain in the leg, in the form of a whiplash due to intramuscular venous haemorrhage (of unknown aetiology), followed by cutaneous haemorrhages in the leg (ecchymosis), signs of thrombosis (mainly Homans sign), and arteriospasm⁶.

Fernando Martorell i Otzet (1906-1984)

Fernando Martorell i Otzet was born in Barcelona in 1906. He was the son of Vicenç Martorell i Portas, a military engineer, who held the post of chief engineer with Barcelona City Council's *Agrupación de Servicios Técnicos de Urbanismo y Valoraciones* after the Spanish Civil War. Fernando Martorell received his degree in medicine in Barcelona in 1929, though a year earlier, he was already an intern in the general surgery department headed by Joan Puig-Sureda at the *Institut Políclínic - Clínica Plató*. Over the following years, he became interested in pathology, undertaking his training under the direction of Lluís Celis i Pujol, and in general surgery, where he also worked with Puig-Sureda. As a result of his work, he was appointed associate professor of pathology and surgical therapeutics at the *Universitat Autònoma de Barcelona* in 1934 and even took on the duties of the chair in the three years in which the chairperson was absent. After the Spanish Civil War, he had to leave the university^{5,7} and from then on all of his professional activity took place at Barcelona's *Institut Políclínic - Clínica Plató*⁴.

In the years following graduation, he became interested in patients suffering from vascular diseases who would go from one department to another without receiving correct treatment. Furthermore, he realised that numerous conditions could be treated without the need for surgery and, therefore, there was a need for a specialty that covered both the

Fernando Martorell
performing an open
heart surgery. *Institut
Policlínic - Clínica Plató,*
Barcelona. c. 1970



medical and surgical aspects of these diseases. After a year travelling around the USA to extend his specialty training in 1940, he founded a department in the *Institut Policlínic - Clínica Plató* devoted exclusively to treating vascular diseases⁸. In his own words:

“I immediately realised that only one in ten patients needed surgery. So I reached the conclusion that treatment of vascular diseases was medical-surgical. Along with my collaborators, we decided to call this specialisation angiology, of which vascular surgery would form part, as neurosurgery forms part of neurology”⁵.

In 1941, he published his first book devoted to vascular pathology, *El tratamiento de las varices basado en la flebografía* (Treatment of varices based on phlebography), where for the first time he wrote about the application of this technique to treating varices, which he called Martorell phlebography test⁵. His goal of publicising the new specialty led him to organise, starting in 1956, over 20 courses on angiology at the *Institut Policlínic - Clínica Plató*, attracting over 600 participants. The outcome of these courses was the creation of an alumni association that brought together almost 400 members from over 20 countries^{4,5}. Furthermore, he founded the journal *Angiología* in 1949, the first in the world devoted exclusively to vascular diseases⁷. Martorell was a prolific writer, producing

numerous monographs on his specialty, including *Tromboflebitis de los miembros inferiores* (Thrombophlebitis of the lower limbs, 1943), *Accidentes vasculares de los miembros* (Vascular accidents of the limbs, 1945), *Trombosis de la vena cava inferior* (Thrombosis of the inferior vena cava, 1948), *Úlceras de las piernas de origen neurovascular* (Leg ulcers of neurovascular origin, 1950), *Úlcera hipertensiva* (Hypertensive ulcer, 1953), and *Angiología. Enfermedades vasculares* (Angiology: vascular diseases, 1967), a magnificent treatise on the specialty that ran to several editions⁷.

In the 1940s, Martorell insisted on the need for angiology to be internationally recognised as an independent field, and he promoted the creation of societies dedicated to its study. So in 1942 he wrote to René Leriche about creating an international society⁹. This passion led to the creation of the *Associació de Cardiologia i Angiologia* of the *Acadèmia de Ciències Mèdiques* in 1949⁵. Martorell's efforts were finally rewarded in 1951 with the creation of the International Society of Angiology, of which he was appointed vice-president. The new society held its founding congress in Atlantic City, New Jersey, on 9 June 1951. Martorell was the president and read the inaugural speech, substituting for Leriche, who was unable to attend^{4,5}. Four years later, he also chaired the First Spanish Angiology Conference, leading to the creation of the *Sociedad Española de Angiología* of which he was the founder and Honorary President. During his professional career, many honours were bestowed upon him, such as his appointment as president of the European Society of Cardiovascular Surgery, awarded after Martorell organised its congress in Barcelona in 1960⁵. Two years later, he was elected a member of the *Reial Acadèmia de Medicina de Barcelona* to which he bequeathed a vast specialised library⁷. In 1967, he also organised the congress of the International Society of Angiology⁵. He died in Barcelona on 16 September 1984.

Fernando Martorell is one of the Catalan physicians who gave his name to many medical eponyms. We will examine two of his best-known eponyms, which have contributed to his recognition in medical history. But one cannot omit his significant contribution to the birth of angiology. In this sense, one of his disciples wrote: "If angiology has a father, it is Martorell"⁵.

Martorell ulcer and Martorell syndrome

Martorell's great sagacity and clinical observation allowed him to describe numerous medical conditions, some of which would remain linked to his name. This chapter describes two of them, probably the best known: hypertensive ulcer and supra-aortic trunks occlusive disease.

Martorell first described hypertensive ulcer of the leg in 1945⁹. Years later he recalled it as:

"The name 'hypertensive ulcer of the leg' is given to an infrequent complication of hypertensive disease. In some patients with diastolic arterial hypertension, sluggish ulcers appear in the supramalleolar region as a result of the elimination of more superficial zones of ischaemic skin necrosis. Histologically, these ulcers show arteriolar lesions similar to those found in other organic regions in hypertensive patients, such as the retina, brain, kidney, etc."¹⁰.

Martorell initial description was confirmed the next year by Hines and Farber at the *Mayo Clinic* and several authors from other countries later published numerous cases. Years later, some authors would argue that Martorell ulcer was in fact not due to arterial hypertension, but rather to other common conditions, such as chronic venous insufficiency or diabetes, which would mean it should not be classified as an injury exclusively due to hypertension, as Martorell had described it. Nevertheless, in 1995 a review concluded that there was not enough



Martorell hypertensive ulcer
in a patient's leg¹⁷

evidence to stop classifying it as due exclusively to hypertension, recommending further studies to definitively resolve the issue¹¹.

The second eponym, by which Martorell is better known, is the syndrome of obliteration of the supra-aortic trunks. Once more, we allow Martorell himself to explain the discovery of this syndrome¹²:

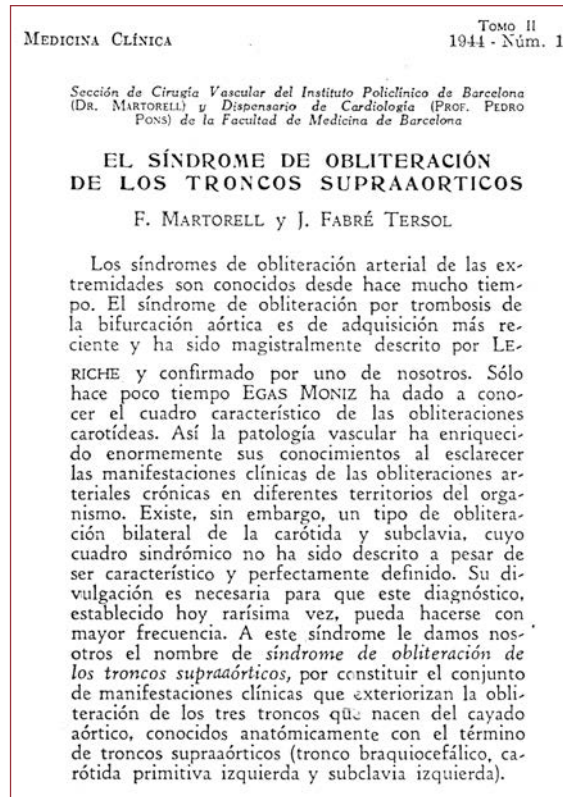
“In 1943, I had the occasion to see a patient manifesting a strange set of symptoms: she suffered a transitory loss of sight and consciousness when she had to stand for a long time, but recovered immediately if she fell or was put in a horizontal position. On the other hand, the pulses in her upper limbs or carotids were absent, and it was impossible to measure the arterial pressure in her arms.”

The next year Martorell and Fabr  i Tersol published this case report and literature review, naming it "syndrome of obliteration of the supra-aortic trunks"¹³. In reality, isolated cases had already been reported in the medical literature, such as in the patient reported by Davy in 1839 due to a syphilitic aneurysm or in a patient with an aortic aneurysm published by Savory in 1856. Martorell always recognised that he had not described the first case, rather he had systematised the syndrome for the first time. In 1951, a similar syndrome was described in a Swedish journal with a wider distribution, and two years later, Ross and McKusick labelled it aortic arch syndrome. Yet finally, in 1953, Da Costa and Mendes recognised the authority of Martorell's discovery at the II Congress of the International Society of Angiology held in Lisbon¹².

Yet the controversy did not end here. In 1952, the American ophthalmologist Caccamise and the internist Whitman observed a case of occlusion of the supra-aortic trunks with strange lesions in the fundus of the eye. Their Japanese assistant, Okuda, informed them that in Japan the disease had been known since Mikito Takayasu, an ophthalmology professor, had described the same ocular manifestations in 1905. Caccamise believed that this was the first case described outside Japan and began to speak of Takayasu disease. A year before Caccamise's observations, Shimizu and Sano had compiled the characteristics of Takayasu arteritis and described the so-called "pulseless disease"¹⁴.

Had Takayasu described Martorell-Fabr  syndrome? Martorell himself¹², firstly, and later Alonso¹⁵ and Planas¹⁶, explained this confusion. In fact, Takayasu had only described the ocular manifestations in a 21-year-old woman who had "strange anastomosis in the fundus of the eye" at a meeting of the Japanese Ophthalmology Society held in 1905. At this same meeting, Onishi and Kagosha brought other cases and reported that their patients had no radial pulse¹⁴. In 1920, Ohta confirmed that the observations described were due to panarteritis and that the ocular manifestations were a consequence of vascular obstruction. So Takayasu

First page of the original publication of Martorell syndrome where he first described it as the “syndrome of obliteration of the supra-aortic trunks”¹⁷



disease is a chronic vasculitis affecting the aorta and its main branches, such as the brachiocephalic, carotid, subclavian, vertebral, and renal arteries, as well as the coronary and pulmonary arteries¹⁴. Consequently, Takayasu disease is a clinical entity with a specific aetiology (an inflammatory arteritis), while Martorell syndrome can be due to multiple causes, basically arteritis (in half the cases, in which case it is Takayasu disease) and arteriosclerosis (40%)^{16,17}, but also to aneurysms or congenital anomalies¹². Furthermore, Takayasu arteritis affects the entire aorta and not merely the supra-aortic trunks. When arteritis only involves the supra-aortic trunks, it manifests as Martorell syndrome¹⁸; however, if it

involves the aortoiliac bifurcation, it manifests as Leriche syndrome, and if it affects the renal arteries, it causes hypertension¹⁶. Despite such considerations, references to Takayasu disease are more common than those to Martorell syndrome.

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