

Dr. Mauricio Rosenbaum

Sadly but not unexpectedly we have heard that Professor Mauricio Rosenbaum has passed away. I heard his name for the first time towards the end of the 1970s when I read his book *Hemiblocks*, which he wrote with Elizari and Lazzari. I had been appointed to the ECG Team of the new Cardiology Service at the Hospital de Sant Pau in Barcelona, moving there together with some of the members of the impressive School of Cardiology at the University of Barcelona. Electrocardiography was dominated at the time by the Mexican school of Sodi Pallares and Cabrera, which Casellas and Gausi, among others, had introduced into Spain. Of course, great North American electrocardiographers such as Grant and Wilson had influenced the Mexican School. Nevertheless, in a setting with little scientific tradition, the founders could take credit for original experimental work that clarified much about bundle branch blocks either with no underlying disease or associated with chamber hypertrophy or necrosis. We, like most cardiologists of our generation, drew on this work and came to realize the great contributions of the Mexican School to the complex world of intraventricular conduction disorders, one of the few aspects of electrocardiography that had eluded Sir Thomas Lewis. Despite this progress, experts had no clear idea about the association of conduction disorders with a fairly narrow QRS complex in the presence of infarction, the so-called focal or peri-infarction blocks. The cause of the often abrupt shifts in QRS axis to the left and right in the absence of chamber hypertrophy was poorly understood. The easy solution was to say that the ECG had been badly recorded. At the time, electrocardiographers thought that ventricular activation was bifascicular and nobody realized that the left bundle branch had two well defined electrophysiological divisions. Rosenbaum confided to us that he had carried some ECG traces with these sudden changes around in his jacket pocket for a long time because he did not understand them. He would look at them repeatedly, looking for possible explanations. Eventually he produced a possible idea which he later managed to confirm thanks to his extraordinary collaboration with Marcelo Elizari. These two put forward the idea that the intraventricular conduction system is trifascicular, with an undivided right bundle branch and a left bundle branch that divides into the left anterior and left posterior fascicles. They suggested that all three conduction paths could be bloc-

ked independently, leading to characteristic electrocardiographic signatures, and named the condition hemiblocks. This term is probably inaccurate because the signatures that are now so familiar to us are caused by block of one of the left fascicles. Nevertheless, the term has taken root and seems set to stay. We were fascinated by the book in which he explained these experiments in detail. The book was particularly enjoyable because it clarified phenomena that seemed inexplicable to us at the time. Shortly afterwards, we had the chance to meet Mauricio Rosenbaum in person in an extraordinary symposium on intraventricular conduction disorders. The symposium took place at the beginning of the 1970s in Oporto (Portugal). It was organized by Mario Cerqueira Gomes, who invited Mauricio Rosenbaum and Leo Schamroth, the best electrocardiographer of the time, as special guests. Mauricio Rosenbaum and his so-called hemiblocks were the main attraction of the symposium. Leo Schamroth was unable to undermine the proposal with scientific arguments and finally addressed Marcelo Elizari rather sarcastically, «Very well, your theories seem correct, but why call them hemiblocks?» Marcelo defended the correctness of the term with a wide range of arguments but Schamroth did not seem convinced and decided to give Mauricio Rosenbaum himself a chance to present his opinion in the hope, I believe, that his reply would be a repetition of what had already been said. But the answer Rosenbaum gave to justify calling these disorders hemiblocks admitted no riposte: «Because it is just a nice name.» After a prolonged burst of laughter mixed with applause, Schamroth gracefully brought the discussion to a close by noting, «That was the best reply of the symposium.» It was a moment of crowning glory for Mauricio and his school. The symposium in Portugal was the start of a sincere and active friendship with Mauricio Rosenbaum that has lasted for 30 years, a friendship that has included his most important colleagues, particularly Marcelo Elizari and Pablo Chiale. Through our contact with these collaborators, we were able to glimpse Mauricio's extraordinary intellectual capacity and his great leadership qualities, manifested through how he chose his collaborators and infused them with his enthusiasm. We have also been witness to his great tenacity and unwillingness to give up in the face of the unknown. It is true that he had the good fortune to have an experimental model of intraventricular conduction disorders, Chagas disease, available to him in Argentina. Of course this model was also available to all South American cardiologists, but it was he alone who managed to decipher the enigma. We stress the importance he placed on fin-

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ding the key to a scientific problem, and on his capacity to think through and discuss different hypotheses. We believe that this was crucial not only in his most important scientific achievement, the hemiblocks with their many facets, but also in other important work such as the concept of phase 3 and 4 aberrant conduction and «cardiac memory.» As he himself liked to say, «When you are from a less affluent country in the southern hemisphere with few resources, you need imagination and tenacity to be successful and to take advantage of the limited means available to you.» He and his team have certainly stood by these words and we think this has been of great importance, particularly in South America. We personally, at a very modest level, drew on his inspiration in the course of our own research into atrial conduction disorders. Another anecdote about Mauricio that we experienced personally comes to mind. In the mid-1980s we were invited to speak at some conferences in Israel, and he arrived some days earlier. We asked after him, and Samuel Sclarowsky told us that he had used his time there to visit hospitals and research centers of all types. Apparently they would say to him, «Dr. Rosenbaum, we work hard from 8 in the morning to 9 at night.» It seems that he was a little tired after so many visits, and perhaps thinking that the Israelis worked too much, he answered, «But if you work so many hours a day, when do you think?» Of course, if he had not spent so many hours thinking solely as an intellectual challenge rather than as part of routine work, he would not have made his scientific achievements. We were also witness to another anecdote that showed his sharp sense of humor. In another meeting in Venice, invited by Eligio Picolo, he whispered in our ear, «You Spaniards, when you give a talk in Italy, what language do you use?» We answered that we normally gave our talks in English, but that they generally understood Spanish. «Fine» he said, and on starting he announced, «With your permission, I am going to give the talk in Spanish, but don't worry, the slides are in English and the ECGs in Italian.» Fortunately, the efforts of Mauricio Rosenbaum have been recognized throughout the world. A summary of his book published in English, and his work on different aspects of hemiblocks, as well as other topics related with arrhythmias and electrocardiography, have circulated widely in the best cardiology journals in the world. Likewise, he has been the honored guest of scientific societies in many countries. We ourselves wanted to contribute to the recognition of his scientific work by naming the presence of right bundle branch block and left anterior hemiblock alternating with right bundle branch block and left posterior hemiblock associated with syncope or sudden death as «Rosenbaum Syndrome.» He himself had written that this association is a predictor of high risk of complete atrioventricular block and recommended immediate insertion of a pacemaker if this condition was observed in successive ECG examinations. The scientific merit of Professor Mauricio Rosenbaum is, we are happy to say,

recognized throughout the world, and particularly in Spain, where he had given many talks at congresses and courses. We still have fond memories of the enthusiasm with which he visited my home town of Vic near Barcelona, and how moved he was when he laid eyes on the beautiful Romanesque campanile of the cathedral there. Those who knew him are aware of his skills as a teacher, and how committed he was to his work and his co-workers. This explains why he will be so sorely missed by his friends, including ourselves. We would like to express our sense of deep admiration for a great man who has been an example of commitment and imagination that will last for many generations. Unfortunately, a cruel illness has shortened his life but his discovery of hemiblocks remains with us, and indeed remained with him until the end. Marcelo told us that in his last few days he would say, «How great those times were. Talking of hemiblocks was like talking about life itself.» Together, Mauricio and Marcelo seemed larger than life. We offer our deepest sympathies to all those who knew him, particularly Marcelo and Pablo, his main collaborators and scientific heirs.

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