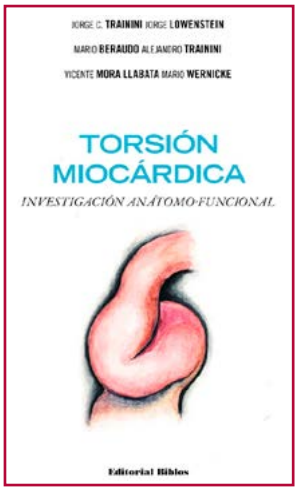

Torsión miocárdica
Investigación anátomo funcional

(Myocardial Torsion
Anatomo-functional Interpretation of Cardiac Mechanics)

Authors: Jorge Trainini, Jorge Lowenstein, Mario Beraudo, Alejandro Trainini, Vicente Mora Llabata and Mario Wernicke

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Probably, and only because of my age, I have had the good fortune to comment on several books, usually of disciples and friends. It was always a very enriching honor for me and really a personal pleasure rather than an obligation; a diversion in which one tries to provide future readers with a global and necessarily synoptic view of the virtues of the work. I have to admit that the work of preparing this review of the book by Jorge Trainini, Jorge Lowenstein, Mario Beraudo, Alejandro Trainini, Vicente Mora Llabata and Mario Wernicke, *Torsión Miocárdica. Interpretación anátomo-funcional de la mecánica cardíaca* (Myocardial Torsion Anatomo-functional Interpretation of Cardiac Mechanics), has been very dissimilar to others, simply because this book is different. Moreover, I dare say with admiration that it is a strange book, in part magical, full of personality, for beginners, revealing, provocative, and challenging as a book of the Knights of the Round Table, exposing the reasons and paths traveled in the search and, perhaps, in the discovery of the Holy Grail.

The book by Jorge Trainini et al. connects with one of the most beautiful, romantic and, for some time, misunderstood stories in the world of cardiology over the past hundred years: the life and work of Torrent Guasp. His life, on its own, would deserve a film, or, better still a great opera, as was the life of the master, with its scientific zeal, its misfortunes, its incomprehensible pathways and an unexpected and strangely beautiful end that would not be believable in real life and would only be perceived as the exaggeration of the writer of the work, passionate about the main character.

The attraction of a scientific book of these characteristics is enhanced by the distinct prose of Jorge Trainini, the director of the work. The book has an unusual peculiarity and is mostly based on original, personal and multidisciplinary research led by Trainini, which gives it an important added value.

The text deals essentially with the anatomy and dynamic function of the heart illuminated by Torrent Guasp's revolutionary anatomic studies which, with his legendary dissections, defined how the ventricular myocardium was made up of a set of muscle fibers twisting unto themselves similarly to a rope and flattened laterally as a band, forming a helix delineating both ventricles and setting their functionality. All his studies converged in the great, outstanding and revolutionary contribution: diastolic suction as an active process due to the contraction of the ascending segment of the myocardial band.

The authors define their intentions from the first pages of the book: to provide robustness and validity and to go beyond the concepts of the master. The book tries to answer a series of questions about cardiac physiology which emerge when the focus is placed on Torrent's anatomy and that constitute its essence: are the bands that surround the ventricles supported by a fulcrum like most muscles or is blood their support? How is ventricular torsion produced? Cardiac torsion involves friction: is there any organic lubricant? Which is the relationship between the ventricular vortex and the torsion mechanisms of the myocardium? How is active protodiastolic ventricular suction mechanically explained? The answer to these and other questions means fitting a large part of the loose pieces that make Torrent's anatomy even more robust.

The book is originally organized in four general sections:

In Section 1, the authors present, in nine chapters, one of the most beautiful and original expositions of the functional anatomy of the myocardium

that has ever been read. I would like to highlight the novel concept of cardiac fulcrum which I consider particularly interesting and surprising. Master Torrent Guasp considered that the myocardial ventricular band lacked a point of attachment as muscles have in the musculoskeletal system providing the basis for muscle strength. The authors describe here the structures where the myocardial band originates and ends, which they call cardiac fulcrum as a parallel and tribute to the concept of fulcrum supporting a lever expressed by Archimedes of Syracuse. It is surprising that in the first quarter of the 21st century the authors demonstrate the existence of this structure with its own anatomic and histologic entity for the first time, which is even more striking in animal dissections. It is like finding an unknown island that does not appear in updated maps. Just for this reason this book will delight and surprise the reader.

In Section 2, the authors elegantly demonstrate that cardiac activation in Torrent Guasp's myocardial band can be analyzed with electrophysiological tests and 3D mapping in human hearts, which surpass the theoretical ideas of the master.

Section 3 presents the theoretical and historical considerations of the heart suction pump with an overview reached through the experimental models developed by the authors to confirm the hypothesis. Finally, in Section 4 the book ends with a global synthesis of the complex function of cardiac mechanics, particularly with the explanation of the heart as a suction pump, the basic mainstay of the master's theory. In this section, the beautiful and difficult synthesis of explaining ventricular torsion with the help of myocardial deformation using echocardiography, in which the authors prove to be exquisitely expert, deserves special mention.

Undoubtedly, it is a different book in structure, content and elaboration. The reader will be able to admire or criticize this text, be skeptical or surprised by the new data it proposes, but surely no one will remain indifferent and that is something very few books can achieve.

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