



## Musculoskeletal Clinical Anatomy: A case-centered, cross examination-based teaching method

### Anatomía clínica musculoesquelética: un método basado en la discusión de casos clínicos y el examen cruzado entre instructores y participantes

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Clinical anatomy can be defined as “the application of human anatomy to the diagnosis and care of patients”.<sup>1,2</sup> In other words, clinical anatomy “emphasizes the structural and functional aspects of the human body which are useful to the practice of medicine”.<sup>3,4</sup> The point that these definitions make is that clinical anatomy is basic to the delivery of a sound medical care. While this is true across the entire field of medicine it is particularly true for specialties that focus on the musculoskeletal system such as rehabilitation medicine, rheumatology and orthopedics. In these, most clinically relevant anatomical structures are within the reach of the examiner’s bare senses. Indeed, the integration into each of these specialties, which though having different pathogeneses and treatments, can be aptly designated musculoskeletal medicine, is equally relevant and important.

The reasons why a solid foundation in clinical anatomy is a prerequisite for the delivery of high quality care in rheumatology have been previously highlighted.<sup>2</sup> These include, among others, (1) the ability to accurately identify the anatomic components affected in a given patient, (2) the confidence as we compare our musculoskeletal knowledge with that of our colleagues who possess an ultrasound machine and the information that can be obtained by magnetic resonance imaging (MRI) technology, (3) the capacity to understand problems that are not primarily “rheumatologic” in nature such as scaphoid fractures, shoulder instability, meniscal or ligamentous tears and (4) and most importantly, a sound knowledge of clinical anatomy is basic for the clinical evaluation of patients with regional pain syndromes (RPS). RPS is a term for a group of musculoskeletal conditions that consume

major utilization of rheumatologic services. A similar burden is placed by these conditions in orthopedics, and ultimately, in rehabilitation medicine. Recently, in a national survey performed in Mexico<sup>5,6</sup> that used the COPCORD screening methodology as well as validated syndrome-specific diagnostic criteria, the overall prevalence of RPS was 5%, which represents the second or third most prevalent rheumatologic diagnostic category depending on the studied geographic region in Mexico.<sup>6</sup> Remarkably, the prevalence of shoulder rotator cuff tendinopathy (2.6%), the most prevalent individual RPS, was only second to osteoarthritis in disease specific prevalence.<sup>5,6</sup> Likewise, it has been reported that RPS comprises 30% all outpatient consultations in rheumatologic care settings.<sup>7</sup> The logical conclusion is that a poor knowledge of clinical anatomy may result in the delivery of lower quality health care for a large proportion of rheumatic patients.

The last decades have witnessed remarkable advances in the understanding of pathogenesis in most of the rheumatic diseases that has advanced diagnosis and therapy. Because most of these advances have emerged from basic disciplines such as immunology, molecular and cellular biology and genetics, rheumatologists are required to widen their scientific background to understand the language of these basic disciplines. Unfortunately, this required widening of the scientific foundations of our specialty has not been paralleled by the acquisition or maintenance of the basic clinical skills, first and foremost clinical anatomy, to continue to provide a high quality care to our patients as a societal and ethical demand.

The preliminary results of two surveys performed by the “Grupo Mexicano de Anatomía Clínica” (GMAC) seem to support this notion.<sup>8,9</sup> The larger study was done in five Latin American countries and included 113 rheumatology fellows from 15 rheumatology training centers and 55 practicing rheumatologists. All participants were asked to show or identify 20 basic knowledge

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musculoskeletal structures. Correct answers had a mean of 9 (45%). Remarkably, only 5.8% of the participants answered correctly 15 or more queries. No difference was found between practicing rheumatologists and fellows; among practicing rheumatologists no correlation was found between the rate of correct answers and length of practice.<sup>9</sup> These results support the notion that a sub optimal knowledge of clinical anatomy among rheumatology trainees and rheumatologists is prevalent in Latin America and based in the impression of the senior authors, this deficit may be also true in other parts of the world.

An important goal for GMAC is to contribute to improve the clinical skills of Mexican and Latin American rheumatologists. Hence, since 2009 this group embarked on a series of practical workshops on musculoskeletal clinical anatomy based on the methodology of problem based medicine using paradigmatic RPS clinical vignettes. Although the numerical results of the evaluations of these seminars is still pending a qualitative evaluation, the workshops, as perceived by the participants, have consistently indicated a significant increase in the clinical skills that are required for the practice of musculoskeletal medicine. The seminars given during 2010 had ILAR and PANLAR funding. However, the interest has not vanished as unfunded GMAC's activities in Latin America have continued to the present and will include centers in the US and Spain during 2012.

The current supplement of *Reumatología Clínica* represents a major editorial effort to publicize, in a written document that spells out GMAC's methodology, the educational activities of this group. We believe that the current supplement will be instrumental to reinstate the principles of clinical anatomy in the training of rheumatologists of Latin America and beyond. Finally, I hope that

this document will ultimately contribute to an improved care of rheumatology patients worldwide.

### Conflict of Interest

The authors declare no conflict of interest.

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