



# Reumatología Clínica

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## Editorial

### Clinical anatomy: a basic discipline for the rheumatologist<sup>☆</sup>

#### Anatomía clínica: una disciplina básica para el reumatólogo

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40 years ago, one of us became interested in musculoskeletal clinical anatomy. It was an interest forced upon by circumstances. Few of the patients he saw at his workplace had lupus, amyloidosis, scleroderma or other of the diseases prevalent where he had trained. There was, however, a great deal of bursitis, shoulder pain, lower back pain and osteoarthritis, as well as gout, rheumatoid arthritis and spondyloarthritis. His new reality definitively did not fit within the cutting edge of progress, molecular biology and immunology, but with the dull side of rheumatology, routine and pedestrian. Once he asked an expert what were the characteristics of bursal fluid in different diseases. This rheumatologist, who had worked closely with Dr. Marian Ropes, author of a classic text on synovial fluid, answered: «no idea». His academic development within this area meant a lot of work and few satisfactions. If an abstract was accepted at the yearly meeting of the American Rheumatism Association, its presentation invariably occurred on the last day and at the last hour, between everyone leaving and the hammering associated to the dismantling of the commercial exposition installations.

However, in multiple sessions denominated as breakfast with the professor at the *American College of Rheumatology* (ACR), and afterward in theory-practice presentations at the same institution with Robert A. Kalish from Boston and culminating with the formation of the Mexican Group for the Study of Clinical Anatomy (GMAC) in 2008, the constant has been the extraordinary interest shown by the participants, be it department heads, residents or rheumatologists dedicated to private practices. They all want to learn what they perceive, and justly so, as a hole in their formation.

To state it clearly, what law or set of rules obliges us to ignore anatomy?, why can't we know what is under the skin, moves a finger or increases its consistency during resisted movement?, what impedes us from recognizing the changing profile of the anatomical snuff box

when taking the hyperextended thumb from the plane of the palm of the hand to its vertical position?, what bony prominence is the one whose horizontal angle changes upon elevation of the arm?, is it possible to palpate the radial and lateral peroneal nerves?, among which tendons do we find the median nerve?, that ball that changes its consistency in front of the lateral malleolus when extending the fingers, is it truly a muscle group?, why is it possible to know molecular biology, which is nothing but molecular anatomy, and biochemistry and biophysics underlying it, and immunology derived from them – none of which are visible – while anatomy, which covers all of the above and can be palpated and seen, remains ignored? Because rheumatologists deal with diseases affecting muscles, tendons, entheses, bursas, joints and bones, plus certain nerves and blood vessels, wouldn't it be appropriate to improve our knowledge of these structures in order to clarify it? Delving into the analogy, if biochemistry and biophysics underlie molecular biology and this in time immunology, isn't anatomy the basic science of semiology and semiology that of ultrasound?

When we ask a patient with a painful elbow to alternate between a supine and prone position, we act in darkness if we do not know the anatomy of the radiocapital and radioulnar joints, the disposition of the supinator and biceps muscles and the insertions of the pronators and the anconeus. And having referred to technology that we as rheumatologists sometimes use when investigating a possible proximal compression of the median nerve, wouldn't the ultrasound be more productive if before using the transducer we palpate the pronator teres during its contraction? In the same way, if the process that we consider is an ulnar neuropathy and an elbow ultrasound is justified, shouldn't we flex the ulnar flexor of the carpus proximally in order to find its origins, identify the entrance to the ulnar tunnel and explore the ulnar groove before throwing the towel? What is the point of extending to its limits our anatomical and semiological abilities? Because, in some cases, we will identify the cause of the problem and in others we will reduce the probability of false positive results by not proceeding with imaging studies without a prior diagnostic hypothesis.

From our perspective, rheumatology unfortunately continues to work with a strictly biological anatomical knowledge, oversimplified and lacking in nuances and isolated from the organism as a whole.<sup>1</sup>

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It is obvious that there is no one “muscle” but muscles, “diarthrodial joint” but diarthrodial joints, “bursa” but bursas, “bone” but bones. Ignoring fundamental variables is always considered as clumsy in the laboratory. This would occur if in the analysis of a joint process we forget to mention that in some cases we are talking about the knee and in other cases the elbow, with very different functions, or if we compared the sacroiliac joint with the shoulder when the former carries a lot of load but is less mobile and the latter is very mobile and carries less load.

How is clinical anatomy defined? It has been postulated that clinical anatomy emphasizes those aspects of structure and function of the human body that are useful in the practice of medicine.<sup>2</sup> And in order to teach it we have designed a method based on prototype clinical cases with affection of soft tissue, peripheral joints and the spine (Kalish and Canoso, unpublished). This method consists in a variant called problem based teaching.<sup>3</sup> At present, our number of “cases”, augmented and refined by the members of GMAC, include around 60 such cases. The method followed is as follows:

1. A brief clinical presentation is done, for example a patient with a locked finger or thumb and the students emit their diagnosis.
2. The relevant anatomical structures are enumerated: the palm grooves, the finger pulleys and the sesamoid bones of the thumb, illustrating the anatomy with simple diagrams.
3. This step is the most relevant and the longest, and consists in distinguishing, in the hands of the instructors and participants the palm grooves, their relation to the finger pulleys and the sesamoid bones of the thumb, emphasizing the enormous anatomical variation that exists in reality and which is unperceived by anatomical diagrams.
4. Based on the third step, if pertinent, injection techniques are suggested.<sup>4</sup> This subterfuge incites the curiosity of even the staunchest participant.

We have experimented with three formats for these sessions under the sponsorship of the International league of Associations of Rheumatology (ILAR) and local rheumatology associations in 2010. The format has a duration of 8 hours (when the dorsolumbar spine is not involved) as has been imparted in Quito, Ecuador, San Salvador, El Salvador and México DF, México; another incomplete format lasts for 4 hours and has been presented annually at the *American College of Rheumatology* (ACR) meeting; The third format lasts for 4 days and took place in Montevideo, Uruguay, and included the spine. The number of participants should not exceed 10. At present we have 5 instructors in Mexico and one in Boston. All have received at least 400 hours of theory and practice and supplemented with sessions at the School of Ecography of the Mexican College of Rheumatology (ECOMER) and the chair of Anatomy at the Universidad Nacional Autónoma de México (UNAM). The clothing of both the instructors

and participants must be adequate to demonstrate the anatomical parts explored with due regard to decency. Before the session, a practical test is done in order to evaluate the baseline anatomical knowledge. Several themes have emerged from these experiences. One is the regional inconsistency in anatomical descriptions. For example, some countries still use the *Nomina Anatomica* and other classic French terminology in the texts, as exemplified by Testut and Quiroz. Both the baseline examination and submissions must comply with local terminology. Our plan is to complete our tour of the various regions of Latin America in 2011, involving our Canadian colleagues in the joint meetings that Canada and Mexico have every 5 years, with the next in 2011, and reach Spain if our means allow. Of course, none of the 3 formats creates a clinical anatomist. These are just a taste to prime participants in what may become a passion.

Among the research activities of our group, the main one is the anatomical delineation of the field that is relevant to rheumatology. The method followed is a Delphi study involving 10 colleagues from various countries including Canada, Spain (Dr. Francisco Javier de Toro Santos), Mexico, the UK and the USA. This massive study is being implemented in 2 parts. The second study is an assessment of interinstructor variation in the recognition of anatomical structures. Dr. Robert A. Kalish, a rheumatologist who specializes in education and a professor of anatomy at the Universidad Nacional Autónoma de México (UNAM) will serve as evaluators. We take this opportunity to thank ILAR for its sponsorship in 2010, as well as the various schools and societies of rheumatology in Latin America and the USA for allowing us to participate in their annual conferences or seminars implemented ad-hoc and each and every one of the participants whose inexhaustible curiosity and questions are appropriate proof of the interest. In conclusion, I want to emphasize that the physical examination is illuminated and routine is transformed into the extraordinary, if in our daily work we recognize the sublime beauty of the human body and the wonderful rewards that occurs when the function of a damaged structure is replaced by others.

#### Conflict of interest

The author declares no conflict of interest.

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