

ABSTRACT

The habilitation thesis entitled "Modern imaging techniques in the exploration of superficial soft parts" includes the most important aspects of my scientific, professional and academic activity carried out in the period between the time of obtaining the title of doctor of medicine and up to now.

The thesis is divided into three main chapters: the first part is dedicated to the presentation of the main scientific, professional and academic achievements, the second lists future development plans, and the third includes bibliographic references.

In the first sub-chapter, entitled "Scientific achievements" of the first part of the thesis, 9 of the scientific works carried out during the post-doctoral period, considered relevant to the research activity, are presented. They are structured in 3 subchapters: Contributions to the evaluation of musculoskeletal structures through new imaging techniques; Contributions to the evaluation of dermatological conditions by new ultrasonographic techniques and Contributions to the evaluation of other superficial soft structures by new imaging techniques.

The studies in the first sub-chapter, Contributions to the evaluation of musculoskeletal structures through new imaging techniques, are presented studies carried out on the two research sub-directions on the musculoskeletal system, actually continuing the ideas from the doctoral thesis, including 1 study related to the evaluation of ultrasonography and magnetic resonance imaging in rheumatoid arthritis, respectively 1 study on the contribution of new sonoelastographic techniques, more precisely shear wave elastography (SWE) and viscoelastography in the evaluation of musculoskeletal conditions. Also in this subchapter I have included the recommendations related to the elastography of the musculoskeletal system of the latest EFSUMB guide for the clinical application of elastography, to which I contributed, as a recognition of the experience in this field.

In the second subchapter, Contributions to the evaluation of dermatological conditions through new ultrasonographic techniques, we focused on the contribution to the evaluation of some complex pathologies with a high impact on the patient and the health systems, more specifically cutaneous melanoma and psoriasis. In this subchapter we have included 3 studies on modern ultrasound and elastography techniques in the evaluation of patients with cutaneous melanoma and 1 study on high-resolution ultrasound combined with elastography in the evaluation of patients with psoriasis.

In the third sub-chapter, entitled Contributions to the evaluation of other superficial soft structures by means of new imaging techniques, choosing two modern techniques, of great relevance in radiology. One of the included studies performed by the

team in our clinic aimed to evaluate the latest ultrasonographic technique, viscoelasticity, in the study of thyroid gland, trying to establish reference values. The second study included in this subchapter also looked at a modern, advanced technique, namely magnetic resonance radiomics in differentiating of parotid tumors.

In the following two chapters of the first part, the thesis presents the professional and academic achievements, closely related to each other. Throughout my professional career, I followed several training courses, in the national or international, which helped me to improve myself and bring new information to the clinical part, which would improve the medical practice and develop the research part.

My academic career is related to the University of Medicine and Pharmacy "Iuliu Hațieganu" Cluj-Napoca, I started my teaching career during the residency period, becoming an official teaching staff (assistant professor) in 2006. I have been a lecturer since 2018, and since 2023 I am the Director of Radiology and Imaging Program for technicians, of UMFH Cluj-Napoca. Throughout these years I have been actively involved in the training of students, residents and doctors attending the postgraduate courses of our university.

The last part of the thesis is reserved for bibliographical references.