

ABSTRACT OF THE HABILITATION THESIS

CANDIDATE: *ADRIAN VASILE MUREȘAN*

THESIS TITLE: *Chirurgia Vasculară: Abordări Multidisciplinare, Cercetări Avansate și Perspective Clinice*

This habilitation thesis reflects my academic, scientific, and professional development after obtaining the title of Doctor of medicine with the thesis "*Multivisceral resections in advanced gastric neoplasm. New methods of diagnosis and treatment (chemoembolization)*", under the coordination of Mrs. Prof. Univ. Dr. Anca Sin, title confirmed by the Order of the Ministry of Education, Research, Youth and Sport No. 5743 of 12.09.2012.

The first part of the habilitation thesis is structured into 6 chapters, of which 4 chapters present the academic, scientific, professional, and management activity carried out until now, regarding the research activity I chose to present it in 2 chapters separated from the point from a chronological point of view, respectively the results obtained so far in the completed projects and the research directions and objectives they are currently carrying out.

Professional activity: after completing the faculty, I started my current surgical career following a one-year internship (in 1991) at the Surgery Clinic II, Târgu Mureș County Clinical Hospital. In evolution, I became a primary doctor of general surgery in 1999 and a primary physician of Vascular Surgery in 2011. Simultaneously with the passing of the municipal exam in the specialty of Vascular Surgery, the Department of Vascular Surgery integrated into the Clinic of General Surgery No. I, led by Prof. Univ. Dr. Constantin Copotoiu. Starting in 2019, we managed to establish the Vascular Surgery Clinic, as a result of the effort put in and the clinical benefit brought to patients diagnosed with vascular pathology. I was constantly concerned with the implementation and development of new surgical techniques, which is why in 2022 the first arterio-venous fistula was performed for dialysis in the lower limb, a case that was published in a specialized journal indexed by ISI with a factor of impact 3,251. Also, in the same year, the first reno-femoral bypass published in the literature (in an international ISI journal, with an impact factor of 2.568) was performed in an oncology patient with a right kidney tumor, incipient abdominal aortic aneurysm and axis occlusion right ilio-femoral, where, at the same time, operatively, nephrectomy was performed and the right renal artery was preserved, which we used as a source for revascularization of the lower limb. Additionally, the recognition of the results materialized through my proposal and voting as President of the Romanian Society of Vascular Surgery in the period 2020-2022, respectively by occupying the position of European Councilor within the European Society of Vascular Surgery in the period 2020-2023.

Scientific activity: materialized through the publication, since the defense of the doctoral thesis, of a number of 37 ISI articles with an impact factor, of which I have the position of main author on 16 articles (6 articles as first author), 5 ISI articles no impact factor and 16 BDI articles, which have so far generated a **Hirsch index of 11** (according to Web of Science) and a Cumulative Impact Factor as Lead Author (**FCiAP**) of **50.611**. So far, my research activity has been divided into 5 study topics:

1. Vascular access for dialysis (arterio-venous fistulas);

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2. The role of systemic inflammation în the remodeling of atherosclerotic plaques and the evolution of patients after surgical revascularization;

3. Determination of the biomechanical characteristics of the vascular tissue and the development of new therapeutic strategies to stabilize adventitial collagen through biochemical photocrosslinking following exposure to UVA radiation;

4. Scientific works resulting from collaboration with other specialties (radiology, nephrology, cardiology, legal medicine, pathological anatomy, orthopedics);

5. Exceptional cases în Vascular Surgery.

Regarding research projects, I managed to win the funding of three research grants as a project director (two grants - external funding and one grant won în the internal competition of UMFST "George Emil Palade" Târgu Mureș), a collective grant în of which I am a member and 2 grants where I am a collaborator. Moreover, together with Prof. Bioengineer. Traian V. Chirilă (Queensland Eye Institute, Australia), we developed a research project between Australia and Romania with the aim of developing a new therapeutic strategy based on UVA ultraviolet radiation.

In the 2nd part of the habilitation thesis, the directions for the development of the scientific, academic, and professional career are presented. On the academic level, I follow the advancement în the academic hierarchy and the promotion of the young generations of PhD Students, University Assistants, and Lecturers. I also want the formation of research groups centered around students to facilitate their access to animal model studies, translational studies, biomechanical studies, respectively clinical studies. The development of the scientific career will mainly focus on the submission of grant applications în national or European competitions, as well as supporting students and residents în the development of new individual projects, bachelor theses, dissertations, or doctorates. în terms of professional development, I wish that în the clinic I lead we develop lymph-venous surgery, hybrid surgical and endovascular vascular interventions, and implement the technique of arterialization of the deep venous system în the case of diabetic patients without an infragenicular arterial bed patent. Additionally, I want the formation of multidisciplinary teams for the better management of complex surgical cases.

The last part of the thesis contains the bibliographic references.

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