



Transilvania University of Braşov

HABILITATION THESIS

**Title: FROM INOVATIVE CONTRIBUTIONS
TO PERSONALIZED APPROACHES
IN PLASTIC AND RECONSTRUCTIVE SURGERY**

Domain: MEDICINE

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ABSTRACT

The habilitation thesis „From innovative contributions to personalized approaches in plastic and reconstructive surgery” includes my scientific, professional and academic achievements, and, also, my personal evolution and development plans.

Section II of this thesis includes the main results of my scientific, professional, and academic activities, in close correlation with the level of knowledge in the fields of research, being mentioned the most important research articles, original ideas, and personal contributions regarding some of the modern challenges facing plastic and reconstructive surgery. Along with these original approaches, the stages of the development of my professional career are presented chronologically.

Chapter 1 presents most of the results of my scientific research systematized on five main areas of interest: a) personalized hand trauma management; b) personalized management of the infections in burns and soft tissues trauma; c) personalized surgical approaches in reconstructive surgery d) personalized management of the burnout syndrome developed by the medical staff ; e) other specific areas of research;

The first aria of research is represented by the personalized hand trauma management. Its' involvement in the hand trauma pathology is one of the research topics which caught my attention and aroused my interest since of the beginning of my professional and scientific career. This field inspired me in the research included in the PhD thesis entitled: „*The modern reconstruction of the thumb – Personal contributions in updating the concept and the therapeutic possibilities*”. A large part of my research activity and scientific papers, addressed to the hand trauma management as topic of great scientific interest, were communicated at national and international level, and published in journals with real scientific impact. Over time, I approached in this area of interest a set of original, innovative research topics, which proved to be extremely useful in the practical application, as connection to the personalized medicine concept in the plastic and reconstructive surgery field. Original, innovative research topics such as: „*The quantification of the thumb reconstruction necessity by the <<TROS>> original scale*”, „*The osteosynthesis of the hand bones' fractures with Kirschner wires in secant arch*”, „*Technical variants of arterial and venous anastomosis in digital replantation with soft tissue defects*”, „*The versatility of the k-wire osteosynthesis in the metacarpal and phalanx fractures*”, „*The osteosynthesis by "partial (transosseous) cerclage" in unstable*

hand's bones fractures treatment”, have been communicated at national and international level, either as articles published in scientific journals with impact factor, or as presentations in plastic and reconstructive surgery conferences or congresses.

The second domain of research is the personalized management of infections in burns and soft tissues trauma. Since 2010, when I initiated, as part of an international research team, the study *„Molecular Characterization and Antibiotic Susceptibility of Staphylococcus aureus from a Multidisciplinary Hospital in Romania*”, related to the nosocomial infections in the Emergency Clinical County Hospital (starting with the patients admitted in the plastic, reconstruction surgery and burns department), I was constantly interested in following the evolution of this important issue for the national and international health system. Thus, articles such as: *„A retrospective study (2014-2015) regarding the incidence of nosocomial infections in the Plastic Surgery Department of County Emergency Hospital of Braşov*”, *„Contribution to the Personalized Management of the Nosocomial Infections: a new paradigm regarding the influence of the community microbial environment on the incidence of the healthcare-associated infections (HAI) in emergency hospital surgical departments*”, *„Assessment of the antibiotic therapy control program (ACP) functioning*” must be considered as an innovative contribution regarding the modern approach of this issue.

Moreover, in order to ensure an optimal management of the surgical treatment of infected soft tissue wounds, I have designed an innovative surgical technique, represented by the delayed primary suture with „waiting thread” (*„An original alternative to the delayed primary suture*”), representing an effective and also innovative contribution to the fight against soft tissue infections and nosocomial infections in complex situations. This new surgical technique will be presented in the third research area.

The third field of research is represented by some innovative surgical approaches in reconstructive surgery. These researches were materialized in several articles as the following: *„An original alternative of delayed primary suture*”, *„The mono-digital superposed cross-finger plasty*”, *„One time new surgical correction for severe upper eyelid acquired ptosis*”, *„Fat transfer for cicatricial ectropion in lamellar ichthyosis*”. The topics were analyzed in such a way that they led to surgical innovative technique variants.

The fourth field of research approaches the targeted management of the burnout syndrome affecting the medical staff, starting with the plastic and reconstructive surgery departments employees and continuing with the emergency hospitals.

Articles such as: *„Psychosocial factors generating burnout in the public health system*”, *„The role of the personality traits and work characteristics in the prediction of the*

burnout syndrome among nurses – a new approach within predictive, preventive and personalized medicine concept”, „*Original targeted therapy for the management of the burnout syndrome in nurses: an innovative approach and a new opportunity in the context of predictive, preventive and personalized medicine*”, „*Predictive factors of the of the burnout syndrome occurrence in healthcare workers during the COVID-19 pandemic*”, „*Assessing professional burnout among hospital nurses using the Copenhagen Burnout Inventory*”, „*Assessment methods of the somatization process related to the nurses with risk of developing the burnout syndrome*” proved my specific interest and personal contribution in the analysis of factors determining the well-being of hospital nurses, in the context of the increasing negative influence of the effects of burnout syndrome on employees in the health system, especially on those involved in the treatment of emergencies represented by critical patients, which include especially those in the specialty of plastic, reconstructive and burn surgery.

The fifth field of research is represented by other specific topics in which I tried to contribute in an original manner. Articles as: „*The influence of diabetes mellitus on survival of abdominal perforator flaps: an experimental study in rats with slowly induced diabetes mellitus*”, „*The benefits of the plastination techniques for the anatomo clinical studies of ankle joint ligaments injuries*”, „*Effect of the sterilization procedures of different surgical meshes for abdominal surgery*”, „*Management of “de novo” carpal tunnel syndrome pregnancy: a narrative review*”, „*Physiotherapy efficiency in post-stroke upper extremity spasticity: tens vs. ultrasound vs. paraffin*”, „*Functional electrostimulation in patients affected by the most frequent central motor neuron disorders - a scoping review*”, „*The concept of one health for allergic diseases and asthma*”, provided a new perspective on the approached research topics.

Chapter 2 of this section include my professional and academic achievements, starting with the graduation of the Faculty of Medicine, „Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca. As a result of the exams, I obtained the confirmations as MD and, later, senior MD in Plastic and Reconstructive specialty under the coordination of Prof. Dr. Florin ISAC, a prominent figure in the Plastic and Reconstructive Surgery field. I have also the position of head of the Clinical Plastic and Reconstructive Surgery & Burns Department of the Brasov County Emergency Clinical Hospital.

My academic career began in 1987 as Assistant Professor in the Anatomy Department (Faculty of Medicine, „Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca) under the supervision of Prof. Dr. Ioan ALBU (1987-1990). Between 1990-1992 I continued the activity in the anatomy field as Assistant Professor at the Faculty of Medicine, Ecological University Bucharest (in direct cooperation with Prof. Dr. Ioan ALBU).

From 1993-1097 I organized, developed and coordinated the Anatomy Department of the new Faculty of Medicine, Transilvania University of Brasov under the supervision of Prof. Dr. Radu GEORGIA.

I went through the stages of the academic development, becoming Lecturer in Surgical Semiology starting September 2001. During the years 2007-2012 I was nominated to teach in other three disciplines, represented by Plastic and Reconstructive Surgery, Rehabilitation in Surgery and Medical Law. Finally, I became Associate Professor in 2023, as recognition of my academic activity.

The coordination capacity of the research and professional teams is also argued by the leader position in which I was designated in my career: Head of Clinical Department of Plastic and Reconstruction & Burns Department, Medical Director and General Manager of County Emergency Clinical Hospital Braşov.

During a certain period of my scientific development, I demonstrated certain skills in working in research teams, collaborating with high-level research colleagues, participating in four projects/grants.

1. Methods and technologies based on molecular and cellular medicine applied in the surgery and treatment of bone cancer and osteoarticular lesions – grant PN2 program Parteneriate în domenii prioritare, coordonator U.M.F. Cluj Napoca, cod 41-050/2007; 2007-2010; (member).
2. Onco-plastic surgery/modern surgical approach in the complex treatment of breast cancer – grant PN2 program Parteneriate În Domenii Prioritare, coordonator Spitalul Clinic Judeţean de Urgenţă Timișoara, cod 41-058/2007; 2007-2010; (member)
3. Experimental model for the detection of cutaneous perforating vessels and establishment of an algorithm for clinical applicability in skin flap surgery - Proiect tip PC 2441 – Centrul Naţional de Management Programe CNMP Program 4. Parteneriate În Domenii Prioritare. Coordonator UMF “Iuliu Hațieganu” Cluj-Napoca; 2007-2010; (member)
4. Molecular transcriptomic profiling in predicting clinical status in anthracycline-resistant breast cancers. Defining metastatic disease in relation to the primary tumor – grant PN2 program Parteneriate în domenii prioritare , coordonator U.M.F. Cluj Napoca, cod 41-029/2007; 2007- 2010; (member)

Membership in international and national scientific societies also contributed to international recognition: Federation of European Society of Surgery of the Hand (FESSH), Balkan Association of Plastic Reconstructive and Aesthetic Surgery (BAPRAS), International

Federation of Societies for Surgery of the Hand (IFSSH), International Federation of Societies for Hand Therapy (IFSHT) World Society of Reconstructive Microsurgery (WSRM), Romanian Society of Aesthetic Surgery (SRCE), Romanian Society of Hand Surgery (SRCM), Romanian Association of Plastic Surgeons (ACPR).

Section III of the habilitation thesis is dedicated to future scientific research and academic career development. My own plans for professional development and evolution are based on the history of academic and professional activity so far. Obtaining the certificate to coordinate doctoral theses is the key to success in future academic and scientific activity, under the leadership of great personalities of the academic community of the Doctoral School of the Transilvania University of Brasov. Habilitation in the domain of medicine will allow me a personal development, and in addition, it will give me the opportunity to coordinate young doctors towards a successful academic career to be part of the academic elite of the Transilvania University of Brasov.

The fields of research in which I have excelled so far will be the basis of my development and a priority for the future.

The academic and scientific development plan has as estimated results the development and application into the clinical practice of my innovative ideas, in the direct benefit of the future patients. Furthermore, as main interest, I will organize research teams of students, resident doctors and PhD students, dedicated to specific research directions. By organizing and participating in conferences, by involvement in national or international research teams, an increased scientific visibility of the obtained results will be ensured.

Another main outcome of the future research activity will be the national and international spreading of the new achieved knowledge gained, achieved through the publication of research results in ISI-listed high impact factor journals.

The development of my future academic activity will be based on the continuous process of improving the teaching methodology of the disciplines, on helping, coordinating, supporting and permanently involving students in the process of deepening medical knowledge and research activity, to ensure and provide updated information in accordance with national and international diagnostic and treatment guidelines.