

**“VICTOR BABEȘ” UNIVERSITY OF
MEDICINE AND PHARMACY TIMIȘOARA
DOCTORAL SCHOOL
MEDICINE DOMAIN**



**ADVANCED INTERDISCIPLINARY APPROACHES IN
SURGERY AND RELATED FIELDS**

ABSTRACT

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**Timișoara
2024**

ABSTRACT

The present thesis entitled “**ADVANCED INTERDISCIPLINARY APPROACHES IN SURGERY AND RELATED FIELDS**” contemplates the scientific research carried out during my career and presents my academic and professional way. The development in the medical field is a complex process, aiming to acquire continuous knowledge that is useful both for the academic and professional fields. The teaching profession requires a lot of dedication, passion, and maintaining and improving the quality of the teaching staff, as well as its development, which can only be achieved through personal development, and constant scientific research, supported by a strong inner motivation to surpass our limits.

The scientific research is oriented in four directions of major importance at present, namely:

- studies in surgical science: a comprehensive exploration of innovations
- cancer pathology - preclinical and retrospective clinical approaches
- biomarkers, methods, and procedures for monitoring therapeutic success in infectious and non-infectious pathologies
- the study of invasive and non-invasive therapeutic approaches in current medical pathologies.

I was involved in over 20 projects, and among 6 of them (shown below) I was the project director:

- Promoting health system resilience and equal access to skin and liver care through RORS screening and treatment solutions” Jems project code RORS00307
- Certificate in the project "Medical Infrastructure for the Development of Surgical Services of Excellence in the Cross-Border Region Romania-Serbia" Director de project Interreg IPA Romania Serbia rots 467
- Endoscopically assisted tissue harvesting and transplantation by video-assisted microsurgical techniques
- Millennium Medicine 3: Video Microsurgery and Tissue Transplantation by Endoscopically Assisted Harvesting Methods
- Laparoscopic harvesting of loose flaps and their autotransplantation
- Laparoscopic harvesting and free flap transplantation.

In addition, I was involved in writing the following specialized books:

- Fluture V., **Blidișel A.**, Tirziu R, Esențialul Chirurgiei Operatorii - Atlas de tehnici chirurgicale convenționale, Editura Victor Babeș, 2010, pag. 231, ISBN 978-606-8054-025.
- Fluture V., **Blidișel A.**, Tirziu R, Esențialul Chirurgiei Operatorii – Chirurgia tractului digestiv, Peretele abdominal, Editura Victor Babeș, 2010, (Vol.1), ISBN 978-606-8054-03-2.
- Fluture V., **Blidișel A.**, Tirziu R, Esențialul Chirurgiei Operatorii – Anexele tractului digestiv și altele, Editura Victor Babeș, 2010,(Vol.2), ISBN 978-606-8054-04-9.
- Fluture V., **Blidișel A.**, Tirziu R, Esențialul Chirurgiei Operatorii – Chirurgul de performanță. Raționamentul intraoperator, Editura Victor Babeș, 2010, (Vol.3), ISBN 978-606-8054-05-6.
- Fluture V., **Blidișel A.**, Tirziu R, Esențialul Chirurgiei Operatorii – Gestul chirurgical și sutura digestivă. Gândirea biologică a actului operator, Editura Victor Babeș, 2010, (Vol.4), ISBN 978-606-8054-06-3.

The research results are reflected in over 20 published articles, and over 100 citations, which reveal an h-index=6 (according to Web of Science).

The present thesis is organized into four chapters. The first one highlights scientific achievements. It is divided into 4 subchapters in which the previously mentioned research directions are addressed separately.

Thus, in the first part, studies in surgical science are analyzed. According to the latest data, gastric cancer is the 5th most common malignancy and the 4th leading cause of cancer-related death globally, despite declining incidence and mortality rates in some countries over recent decades. In Romania, this form of tumor ranks 6th in both incidence and mortality among cancers, with higher rates in men. The management of operating rooms is a highly intricate process, with poor management potentially leading to significant increases in hospital costs and negatively impacting the quality of care provided at various levels. Mismanagement can result in surgical cancellations, staff shortages, or overtime due to planning conflicts, and reduced job satisfaction among healthcare providers. From the patient's perspective, inaccurate scheduling contributes to extended waiting times for surgery and heightened stress and anxiety due to surgery delays or cancellations. The first study aimed to analyze and improve operating room time and staff management by

assessing the preoperative characteristics of gastric cancer patients to establish a predictive model for the duration of surgery.

The next study focused on liver cancer and highlighted that hepatic resection is the treatment of choice for a wide range of liver tumors, both benign and malignant. In cases of malignant liver tumors, whether primary or secondary, hepatic resection is recommended whenever feasible, as it remains the only potentially curative option and offers the best long-term survival outcomes. When about periampullary tumors, cephalic pancreaticoduodenectomy is the only current treatment method that can provide long-term survival in patients. Carrying out a correct procedure is essential in improving the health status of these patients. Thereby modified Whipple–Child cephalic pancreaticoduodenectomy seems to be a therapeutic method that promises a decreased overall morbidity rate and a good quality of life and, at the same time, offers a distant survival rate.

Plastic surgery and transplatology are other subjects of interest. The latissimus dorsi muscle has become a "workhorse" of reconstructive surgery, being used as the flap of choice in the microsurgical reconstruction of tissue defects of various etiologies. The identification of the subscapular vascular pedicle and the subsequent skeletonization of the thoraco-dorsal pedicle is followed by the time of dissection and release of the muscle from its anatomical position. This step requires the sectioning of the paravertebral and iliac insertions of the muscle, which involve wide tissue detachments and the sacrifice of an important number of lymphatic and vascular plexuses. The entire dissection operative time takes place in a deep cavity, where hemostasis control is often difficult to achieve. These elements contribute significantly to the occurrence of postoperative hematomas and seromas.

Peripheral arterial obstructive disease remains another significant global health issue, contributing to high morbidity rates. Approximately 28% of patients diagnosed with this disease will progress to critical limb ischemia, resulting in major amputation within three years of diagnosis. Ideally, limb reconstruction for high-risk peripheral arterial obstructive patients should aim for short operative times, minimal donor-site morbidity, and optimal functional outcomes by adhering to the "like with like" principle—replacing lost tissue with similar tissue types.

Cancer pathology is an actual subject in the medical field, the study of cancerous tissues and cells is essential to understanding their origin, progression, and characteristics, and is critical to cancer diagnosis and treatment. The next part of the

thesis integrates preclinical and clinical research to deepen our understanding of tumor biology, improve diagnostic methods, and guide therapeutic strategies. Two primary approaches in cancer pathology are preclinical research and retrospective clinical studies, each contributing uniquely to the fight against cancer.

Worldwide, breast cancer represents a serious health problem, with an increasing incidence and mortality. Breast cancer is the most common type of cancer diagnosed in women and the main cause of cancer-related mortality among women. The causes of this pathology's appearance and development are complex and not fully known. Breast cancer is a disease that includes molecular and intracellular changes and even epigenetic changes. However, hormonal disorders and the level of hormones in the body are the main factors in the development of cancer.

Despite advances in therapy, such as the use of resection combined with adjuvant systemic regimens, and the use of portal vein embolization techniques, the new findings in the molecular aspects of colorectal liver metastasis, the curative ratio is only 20%. It was shown that perioperative systemic therapy in patients with resectable colorectal liver metastasis before and after curative hepatic resection does not improve the 5-year overall survival for these patients compared to those treated with hepatic resection alone (51% vs. 48%). The histological growth pattern has been noticed in the liver metastasis with colorectal origin, but also in those from breast, gastric, and uveal melanoma.

Hepatocellular carcinoma is the most habitual malignancy that arises due to the malignant transformation of hepatocytes, accounting for 90% of all primary liver cancer diagnostics. This type of cancer remains another major health concern worldwide, with an incidence that is expected to rise in the future.

Squamous cell carcinomas (SCCs) and basal cell carcinomas (BCCs) are the most prevalent forms of non-melanoma skin cancers. BCCs represent approximately three-fourths of non-melanoma skin cancers, making them the most common cancer in humans. While BCCs are typically localized, slow-growing, and rarely metastatic, certain histological subtypes exhibit more aggressive local behavior. Although BCCs rarely cause death, delayed diagnosis or improper treatment can lead to significant damage to surrounding anatomical structures, complicating treatment

The last part of the first chapter focuses on biomarkers, methods, and procedures for monitoring therapeutic success in infectious and non-infectious pathologies. Monitoring therapeutic success in both infectious and non-infectious

pathologies is crucial for optimizing patient outcomes. Biomarkers, methods, and procedures used to assess the efficacy of treatment provide insights into disease progression, treatment response, and potential relapses. These tools vary depending on the type of disease, severity, and individual patient factors.

The next chapter focuses on the didactic activity. My academic course began on 23 February 2003, when I started the activity as a general surgery trainer, in the discipline of Surgical Semiology 1 and Thoracic Surgery, General Surgery 1, at the University of Medicine and Pharmacy “Victor Babes” from Timisoara (UMFVBT). In 2007 I completed my doctoral studies, defending the thesis entitled: **Free-tissue harvesting by endoscopic techniques**, coordinated by Professor PhD. Szucsik I. Adalbert. From 2008 I continued my activity in the same discipline, as a Professor Assistant. Thanks to the desire and continuous work, I advanced in the university field, as follows:

- 17 February 2013 – 1 September 2022 - Lecturer, Discipline of Surgical Semiology and Thoracic Surgery, Surgery Clinic 1, UMFVBT
- 1 September 2022 – current – Associate professor, Discipline of Surgical Semiology I and Thoracic Surgery, Surgery Clinic 1, UMFVBT
- 9 March 2020 – current – Head of Discipline Surgical Semiology I from Department IX, surgery I, UMFVBT
- 1 June 2024 – current – residency coordinator, UMFVBT

In order to maintain the didactic quality, I took care to fulfill the following objectives:

- teaching and mentorship: I tried to continuously update the seminars and courses in the discipline, and ensure students met learning objectives. In order to provide students with diversified sources of learning, I was involved in writing chapters from various specialized treatises:
 1. **Blidișel A.**, Fluture V. (Timișoara), Broelsch C.E. (Essen), Frilling Andrea (Essen), Chirurgia laparoscopică și microchirurgia în urgențele chirurgicale, Tratat de Chirurgie de Urgență, Editura de Vest, 2008, pag. 467-491.
 2. L. Sima, V. Fluture, **Blidișel A.**, R. Tirziu, D. Radu, Broelsch C.E. (Essen), Frilling Andrea (Essen), Urgențe chirurgicale ale peretelui abdominal, Tratat de Chirurgie de Urgență, Editura de Vest, 2008, pag. 491-511.

3. G. Taranu, **Blidișel A.**, Fluture V. (Timișoara), Broelsch C.E. (Essen), Frilling Andrea (Essen), Urgențele chirurgicale vasculare, Tratat de Chirurgie de Urgență, Editura de Vest, 2008, pag. 1257-1277.
 4. Sima L, Fluture V, **Blidișel A.**, Tirziu R , Dan R., Fluture V (Timișoara) , Frilling Andrea (Essen), Chirurgia de Urgență - Experiența Clinicii de Chirurgie de Urgență, Urgențe chirurgicale ale peretelui abdominal, Editura de Vest, 2006, pag.143-161, ISBN(10) 973-36-0429-1.
 5. Taranu G, Avram I, **Blidișel A.**, Fluture V. (Timișoara), Broelsch C.E. (Essen), Frilling Andrea (Essen), Chirurgia de Urgență - Experiența Clinicii de Chirurgie de Urgență, Urgențe chirurgicale vasculare, Editura de Vest, 2006, pag.473-529, ISBN (10) 973-36-0429-1.
 6. **Blidișel A.**, Sima L., Anatomia ficatului și a căilor biliare, Actualități în tratamentul tumorilor hepatice, Editura Timpolis, 2006, p. 9-25, ISBN 973-85923-8-0.
 7. Szucsik I., Romosan I., Gaspar M., Chiriac S, Munteanu F, Moga C, **Blidișel A.**, Enache O., Szucsik E, Artere, vene, limfatice. Chirurgie. Bazele științifice și clinice ale practicii, Editura Timpolis, 2002, pag. 496-617, Timișoara.
- student mentorship: I tried to guide students academically and professionally, advising on coursework, research projects, career paths, and sometimes personal development. Mentorship extended to the coordination of more than 45 undergraduate theses in General Medicine and General Medical Nursing and more than 10 papers presented by students at various Congresses or Symposia.

Starting from my student years, I demonstrated leadership qualities by being President of the Society of Medical Students from Timișoara, and a member of the Faculty Council and Senate of UMFVBT. I coordinated as director at the national level, but especially internationally (IFMSA) Research Grants Committee. I also demonstrated my management skills as head of department for a short period, but also as a member of the Council Administration at the Military Hospital in Timișoara.

Further in the Center of Pius Branzeu Experimental Surgery, I coordinated numerous research grants and later I ended up coordinating as Director of the Pius Branzeu Training and Experimental Surgery Center of the UMFVB. In addition, my managerial skills are applied as Head of Discipline Surgical Semiology I. Moreover, I

am a Titular Member of the Board of Directors of the Dr. Victor Popescu Military Emergency Clinical Hospital, according to decision No. 268/10.04.2013. In July 2012, I also was the Chief Physician of the General Surgery Clinical Section I of the Municipal Emergency Clinical Hospital from Timisoara.

In chapter 3 the professional activity is related. My professional activity started on September 14, 1993, with the beginning of my studies at UMFVBT. The faculty successfully ended up presenting the bachelor's thesis on the subject of prostate cancer (September 1999). For a year, from 2000 to 2001, I was a trainee doctor in Surgery Clinic 3 (Prof. Dr. Szucsik Iosif), CFR University Hospital, Timisoara. After, I began my residency in general surgery (from 2000 to 2007). In 2007 I obtained the title of General Surgery Specialist. From 2009 to 2014 I followed the second residency, becoming a specialist in plastic surgery - reconstructive microsurgery.

From 2013 to the present I have been a General Practitioner in General Surgery in the Discipline of Surgical Semiology, Surgery Clinic 1, at the Municipal Emergency Clinical Hospital. From 2014 I continue to be a specialist in plastic surgery - reconstructive microsurgery at the Surgery Clinic 1- Department of Polytraumatology.

From the beginning to the present, I have remained with the same continuous enthusiasm for medicine, especially for the surgery part. This was supported by the participation in multiple conferences and congresses (over 50).

The last chapter highlights my main academic and scientific perspectives. The main objectives that I propose to accomplish are:

- to orient teaching activities toward the student, use active participatory strategies, and diversification of evaluation techniques, evaluation of the efficiency of the activity carried out;
- continuous regulate the teaching process
- active involve students in the research process;
- to implement endoscopic techniques in the clinic;
- to support the development of the liver surgery department and improve interdisciplinary collaboration.