BEYOND BOUNDARIES: THE LEGACY OF DMYTRO ZERBINO

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Abstract
This article delves into the remarkable life and contributions of Academician Dmytro Deonysovych Zerbino, a trailblazer in anatomic and clinical pathology. Beginning his journey at the Chernivtsi Medical Institute and continuing it at the Lviv Medical Institute, Zerbino’s groundbreaking career evolved through research in the field of anatomic and clinical pathology particularly on the pathology of the lymphatic system, environmental pathology, and cardiovascular diseases. His visionary leadership established the influential Zerbino Scientific School, leaving an indelible mark on Ukrainian and global science. With over 690 publications, 13 monographs, and numerous accolades, Zerbino’s enduring legacy exemplifies unwavering dedication and excellence in medical sciences.

Keywords: biography; Zerbino DD; pathology; medicine; science.


Key Messages for Research and Practice

- Academician Dmytro Zerbino’s legacy, spanning publications and leadership of the Zerbino Scientific School, leaves an indelible mark on anatomic and clinical pathology.
- Zerbino’s pioneering work in six research directions, from lymphatic system pathology to ecological concerns, showcases a comprehensive approach to medical science.
- Zerbino’s global recognition in medical circles and his parallel pursuit of painting underscore a life dedicated to excellence in both science and art.
Introduction

The life and career of Academician Dmytro Deonysovych Zerbino (Fig. 1) have left an indelible mark on the landscape of anatomic and clinical pathology. Born on March 10, 1926, in Luhansk, Ukraine, Zerbino’s journey in the realm of medical sciences began at the Chernivtsi Medical Institute, where he graduated in 1950. Little did the world know that this young graduate would evolve into one of the foremost authorities in anatomic and clinical pathology, making groundbreaking contributions to various facets of medical science.

Early Years and Academic Foundation

Zerbino’s foray into research on the pathology of the cardiovascular system commenced early in the academic journey during his student years. The year 1950 witnessed the publication of his first scientific work, «Arteriography as a Diagnostic Method» setting the stage for a prolific career. Simultaneously, he completed his medical studies, laying the foundation for a multifaceted academic odyssey.

In 1956, Zerbino achieved the Candidate of Medical Sciences title at the Kyiv Medical Institute, marking a significant milestone. His academic ascent continued at the Chernivtsi Medical Institute, where he held successive positions, starting as a Senior Laboratory Assistant (1950–1953), ascending to the role of an Assistant (1953–1962), and ultimately achieving the position of an Associate Professor (1962–1965).

The zenith of his early academic journey came in 1965 when he successfully defended his doctoral thesis titled «Pathological Anatomy and Pathogenesis of Lymphatic Insufficiency» in Lviv. This achievement catapulted him into the role of the Head of the Department of Pathological Anatomy at the Lviv Medical Institute.

Transformative Contributions to Anatomic and Clinical Pathology

Dmytro Zerbino’s impact on anatomic and clinical pathology is exemplified by his innovative ideas that reshaped practical activities for pathologists. Under his guidance, professional conferences took on a new form, with weekly biopsy and prosector conferences becoming integral components of the academic landscape. The biopsy conferences, spanning an impressive three decades (1966–1996), became a hallmark of the Department of Pathological Anatomy. During this period, 1,295 biopsy conferences unfolded, scrutinizing diagnoses in 13,758 cases.
In a visionary move, Zerbino spearheaded the establishment of a regional pathology bureau and played a pivotal role in founding the Institute of Clinical Pathology. Assuming the director role, he orchestrated an amalgamation of education, research, and practical applications within the institute. Under his guidance, the team undertook extensive endeavors, conducting annual research on thousands of biopsies and autopsies.

**Six Pillars of Pathological Inquiry**

Dmytro Deonysovych Zerbino’s research legacy spans six pivotal directions, each contributing significantly to understanding pathological phenomena.

1. **Pathology of the lymphatic system**

   In the 1960s, he pioneered the exploration of the pathomorphology of the lymphatic system, shedding light on its crucial role in various pathological processes. His seminal contributions have illuminated the pivotal role of the lymphatic system in various general pathological phenomena, including edema, dystrophy, and sclerosis. Notably, he was the first to provide a comprehensive foundation for the theory of lymphatic insufficiency, grounded in meticulous pathomorphological examinations. Zerbino’s research extended to a detailed exploration of the pathological anatomy associated with chronic lymphedema, such as elephantiasis. He elucidated the resorptive, barrier-eliminating, and transport-eliminating functions of the lymphatic system, unveiling novel insights. Zerbino’s groundbreaking work extended to cancer metastasis, where he formulated fundamentally new concepts regarding the ways and mechanisms of lymphogenic and hematogenous metastasis.

2. **Disseminated intravascular coagulation**

   The second direction delved into the syndrome of disseminated intravascular coagulation (DIC) of blood, resulting in the collaborative monograph «Disseminated Intravascular Coagulation» in 1989 (Fig 2C). The morphological criteria for disseminated intravascular coagulation syndrome were defined.

3. **Vasculitis and angiopathies.**

   Zerbino’s relentless pursuit of knowledge extended to the third direction, the study of vascular lesions of non-atherosclerotic origin, leading to the publication of «Vasculitis and Angiopathies» (Fig 2B) in 1977 [1]. A hypothesis about the role of xenobiotics in the etiology of systemic vasculitis has been put forward.
4. Ecological pathology

Ecological pathology was an important area of Zerbino’s scientific activity. Continuing his exploration of environmental pathology, Zerbino addressed anthropogenic ecological disasters in works that resonate with relevance even today [2]. The comprehensive research cycle resulted in the groundbreaking monograph «Ecological Pathology: The Problem of Preventive Medicine. The Concept of Primary Prevention» in 2016. The theory of ecological pathology in humans as a new direction in medicine and as the basis of preventive medicine, especially in cardiovascular pathology, was put forward.

Academician Dmytro Deonysovych Zerbino’s research delves into the intricate interplay between human health and the pervasive influence of xenobiotics, a class of foreign substances that individuals encounter daily, spanning from birth to death, in various environments such as homes, workplaces, and urban landscapes. Zerbino underscores the potential hazards of heavy metals, notably lead, which saturates the air of modern cities, contributing to diseases [3].

His analysis extends beyond immediate concerns, contemplating the broader implications of environmental pollution, including the intricate relationship between CO2 emissions, climate change, and global disasters. Zerbino, amidst the myriad stimuli, xenobiotics emerge as pervasive contributors to health challenges, especially for urban dwellers exposed consistently, albeit in small doses, over extended periods.

Thallium disease («Chernivtsi Chemical Disease», CCD) was described for the first time as a nosological form in 1995 by Zerbino. It was proven that the etiology of CCD is related to thallium compounds.

His research sheds light on the dangers posed by environmental pollutants and underscores the imperative for early detection of pathological changes and the development of targeted preventive measures, presenting a holistic perspective with potential implications for anti-aging science and overall human well-being.
Academician Dmytro Zerbino’s affiliation with Lviv Medical Institute, which evolved into Danylo Halytsky Lviv National Medical University, spanned 55 years.

His tenure, from 1966 to 2000, as the Head of the Department of Pathological Anatomy, coupled with his directorship of the Institute of Clinical Pathology (2000-2013) and as the Director of the Museum of Human Diseases (a national treasure) since 2013, solidified his enduring impact on medical education and research.

Beyond national borders, Zerbino’s eminence extended to international recognition. His membership in the International Academy of Pathology (USA) since 1992 underscores the global significance of his contributions.

As a highly esteemed academician of the National Academy of Medical Sciences of Ukraine and a corresponding member of the National Academy of Sciences of Ukraine since 1991, Zerbino’s influence resonates across diverse spheres of medical science.

**5. Ischemic heart disease in young adults**

For over four decades (1972–2016), Zerbino focused on the fifth direction, unraveling the etiology and morphogenesis of arteriosclerosis, atherosclerosis, ischemic heart disease at a young age, and the pathology of the aorta and large vessels. His research provided invaluable insights into cardiovascular diseases, emphasizing the need for primary prevention [4]. A hypothesis on the genesis of myocardial infarction in young people (the role of xenobiotics) has been put forward. The etiological role of lead in vascular damage has been proposed.

**6. Science School as a Phenomenon**

In the final direction, spanning from 1994 to 2016, Zerbino delved into the meta-realm of science itself. His monographs, including «Science School as a Phenomenon,» «Science School: Leader and Students,» and «School of Science,» dissect the intricate dynamics of scientific creativity, schools, and their leaders.

**The Zerbino Scientific School**

Dmytro Zerbino’s influence extended beyond individual achievements, as he fostered a community of scholars and clinicians. His leadership resulted in the formation of the D. Zerbino Scientific School, an association that continues to contribute substantially to Ukrainian and global science. His academic prowess is further exemplified by the mentorship of 79 Candidates and Doctors of Science, a testament to his dedication to cultivating the next generation of scholars. The scientific legacy of the Zerbino School endures, leaving an indomitable imprint on the landscape of cardiovascular pathology.

Dmytro Deonisovyich Zerbino’s eminence is underscored by his extensive work, comprising over 690 scientific and educational publications. Among these are 13 monographs, two atlases, 19 patents, and copyright certificates.

Awards and accolades bestowed upon Zerbino reflect his stature as a luminary in the field. As a highly qualified specialist, he earned the distinction of being a Doctor of Medical Sciences (1965), a Professor (1966), and a laureate of the State Prize of Ukraine in the field of science and technology (2002). His contributions led to his appointment as the Vice-President of the Association of Pathologists of Ukraine in 1994.

Academician Dmytro Deonisovyich Zerbino’s life story is an inspiring narrative of unwavering dedication to pursuing knowledge. His pioneering research, visionary leadership, and establishment of a scientific school have left an enduring legacy in pathological anatomy. As a revered figure in Ukrainian and global medical circles, Zerbino’s contributions continue to shape the trajectory of scientific inquiry and education, exemplifying the timeless adage that the pursuit of excellence knows no bounds.

**Medicine and visual art**

Dmytro Deonisovyich was a creative and versatile individual. Despite his multifaceted scientific, pedagogical, and organizational activities, he found time for his passion for painting. His oil and pastel paintings depict landscapes, animals, including fantastical ones, and abstract sceneries. In 2001, in Kyiv, at the Museum of Modern Ukrainian Art, the Association of Preventive and Anti-Aging Medicine organized an exhibition of Dmytro Zerbino’s paintings. He generously gifts his paintings to friends and colleagues. In 2016, for Dmytro Deonisovyich’s jubilee, with the initiative of his wife Alla Oleksiivna (Fig.5), an album of D. D. Zerbino’s drawings was published (Fig.4).
Figure 4. Album of drawings. Thoughts in pictures. Zerbin’s artwork depicts youthfulness and aging, as well as happiness and peace (1916)

Figure 5. Dmytro Deonysovych Zerbino with his wife Alla Oleksiivna

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REFERENCES