

Who started the history of invasive cardiology in Poland?

A commentary to the letter by Prof. Robert Rudowski

To the editor *Kardiologia Polska (Kardiol Pol, Polish Heart Journal)* published a letter by Prof. Robert Rudowski, in which the author questioned the commonly accepted knowledge about the beginnings of cardiac catheterization in Poland.¹ The excuse for this letter is, as the author states in his first words, listening to a lecture on the life and scientific heritage of Prof. Mściwoj Semerau-Siemianowski, presented at the beginning of 2020 by the coauthor of this letter (Prof. Krzysztof J. Filipiak), at the vernissage of the exhibition of the 100th anniversary of internal medicine and cardiology teaching at the Warsaw Medical University, which initiated a series of lectures entitled “The Coryphaei of Warsaw Academic Medicine” designed by the coauthor of the letter (Andrzej Tyszkiewicz). Let us add that the vernissage was honored by the presence of many outstanding cardiologists, including invasive cardiologists such as Prof. Adam Witkowski and Prof. Witold Rużyło.

We fully appreciate the efforts of Prof. Robert Rudowski and his great work to commemorate his grandfather, Prof. Jerzy Rutkowski (1890–1972), one of the fathers of Polish cardiac surgery, who already in 1948 in Łódź, made the first attempts to perform the Blalock-Taussig systemic-to-pulmonary shunt in 2 patients with tetralogy of Fallot, unfortunately without success.² However, the reference sources do not specify: who, how, when, and to what extent performed preoperative catheterization in these patients.

At the beginning of our retort, however, it should be highlighted that the fact of establishing the first Cardiac Catheterization Laboratory in Poland and performing these procedures in 1948 in the center headed by prof. Mściwoj Semerau-Siemianowski was repeated many times in the available historiography, also on the occasion of subsequent anniversaries of

the Polish Cardiac Society (Polskie Towarzystwo Kardiologiczne) and has never been questioned before.³

The reference source of the history of Polish cardiology, the monograph entitled *Dzieje Kardiologii w Polsce na Tle Kardiologii Światowej* states on page 317: “In 1948, a hemodynamic laboratory was established in the Clinic in which the first cardiac catheterization in Poland (I. Ławkowiczowa) was performed.”⁴ Similarly, further, in the chapter on invasive cardiological diagnostics and invasive cardiology, mention is made of “the first right heart catheterization in Poland” performed by Dr. Izabella Krzemińska-Ławkowiczowa (1948).

In order to explain additional issues related to the first catheterizations in Poland, we attained all available reports on the activities of the 2nd Department of Internal Medicine, Faculty of Medicine of the University of Warsaw, later renamed the Medical Academy in Warsaw, which was headed by Prof. Mściwoj Semerau-Siemianowski from September 1, 1948 until his death in 1953.

We have studied these archives ourselves and we have also forwarded a photocopy of them with a request for an opinion to Prof. Witold Rużyło, a pioneer of contemporary invasive cardiology in Poland and doctor honoris causa of our university.

Unfortunately, in the reports from 1948/1949 and 1949/1950 we do not find the exact dates for the establishment and undertaking of activity by the Cardiac Catheterization Laboratory, although as early as in 1949, in the overview of “papers submitted for printing” of the employees of the center, Prof. Mściwoj Semerau-Siemianowski gives a note next to the name of Dr. Izabella Ławkowiczowa: “Cardiac catheterization.” Considering the time needed for: carrying out studies, collecting materials, writing,

and submitting the article to print, especially in the difficult postwar years, it appears logical that catheterizations were performed already in 1948.

The reports focus on the staff composition, development of employees, and the list of scientific papers, not on procedures. Reading them after over 70 years, one gets the impression that contemporaries did not treat cardiac catheterization as a particularly distinctive diagnostic method—more attention is paid, for example, to vectocardiography. Let us also remember that the clinic of Prof. Semerau-Siemianowski, after his death in 1953, did not continue hemodynamic interests, and after a period of leadership by Prof. Dymitr Aleksandrow (1953–1964), became de facto a hypertensiology, and not cardiology, center (Prof. Włodzimierz Januszewicz—head of the department since 1964).

Also, the pioneer of cardiac catheterization, Dr. Izabella Ławkowiczowa, did not continue her career in cardiology. Together with her husband, Prof. Włodzimierz Ławkowicz, she devoted herself to building Polish hematology and is remembered today mainly as a coauthor of the first postwar hematological atlas.⁵

All these facts, after many years, seem to explain the inadequate commemoration and consideration as well as a surprising lack of a detailed description of the first catheterization procedures in the created laboratory, in which, we believe, 72 years ago, in the structures of the University of Warsaw (the Medical Academy in Warsaw was established on the basis of the Faculty of Medicine of the University of Warsaw only on January 1, 1950), pioneering research in Poland was conducted. This supports the thesis that invasive cardiology in Poland, however, has roots at the University of Warsaw, and the first procedures were performed by Dr. Ławkowiczowa in 1948, and not by the surgeon, Prof. Jerzy Rutkowski in Łódź. This highlights the importance of the school of Prof. Mściwoj Semerau-Siemianowski, a visionary, creator of the idea of establishing the Polish Cardiac Society, precursor of the 4 great Polish cardiology schools of: Prof. Aleksandrow, Prof. Askanas, Prof. Jakubowski, and Prof. Żera. In our opinion, no new facts allow this view to be revised.

However, we will listen to the opinion of Prof. Witold Rużyłło, whom we asked to address this issue.

SUPPLEMENTARY MATERIAL

The Polish version of the article is available at www.mp.pl/kardiologiapolska.

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To the editor In the March 2020 issue of *Kardiologia Polska (Kardiologia Pol., Polish Heart Journal)*, a letter by Prof. Robert Rudowski¹ was published in which the author begins the discussion on the first cardiac catheterization in Poland. He has referred to a publication in which Prof. Rutkowski wrote that he performed the first cardiac catheterization on October 19, 1948 (Prof. Rutkowski does not claim that it was the first catheterization in Poland).² In the same article, it is stated that in July 1948 (that is, 3 months earlier) Clarence Crafoord, assisted by Leon Manteuffel-Szoego and Jerzy Rutkowski, performed Blalock operation in a 12-year-old patient with tetralogy of Fallot. The patient was diagnosed in the department headed by Prof. Anastazy Landau at the Wolski Hospital. The operation was preceded by a “catheterization.” There is no information on who and where did the catheterization.

The first cardiac catheterization laboratory was established in Poland in Warsaw between 1949 and 1950 at the 2nd Department of Internal Medicine of the Medical Academy in Warsaw (until December 1949, the University of Warsaw). Prof. Mściwoj Semerau-Siemianowski became the head of this department in August 1948. At the inaugural lecture on October 18, 1948 in the auditorium of the 2nd Department of Internal Medicine of the University of Warsaw, he spoke about the relevance of cardiac catheterization in the diagnostics of heart diseases.³ He stated that “he had the opportunity to witness himself several times at the Berglund’s clinic in Stockholm” that cardiac catheterization was a safe procedure. However, there is no mention of a hemodynamics laboratory in the report on the work of the department from

the academic year 1948/1949. Such data can be found in the report of the year 1949/1950 in part III entitled Clinical Activity, where Prof. Semerau-Siemianowski wrote about the cardiac catheterization laboratory: "A cardiac catheterization and electrokymography laboratory, with its own X-ray machine, investigates cases of congenital cardiac defects and other heart diseases from the clinic as well as cooperates with medical centers distant from Warsaw, through a team work of an internist, surgeon, radiologist, and biochemist."

On April 2, 1950, at the meeting of the Cardiac Section of the Polish Society of Internal Medicine, Prof. Semerau-Siemianowski presented the results of a catheterization performed in a woman with patent ductus arteriosus, operated on by Dr. Manteuffel. This case was described by Himmel and Juszczyński in 1950 in *Polski Tygodnik Lekarski*, No. 42 (the paper was submitted in June 1950).⁴ In this article, the authors thanked Prof. Semerau-Siemianowski and Dr. Izabela Krzemińska-Ławkowiczowa "for the results of cardiac catheterization."

M. Semerau-Siemianowski wrote in *Polski Tygodnik Lekarski*, No. 13 (M. Semerau-Siemianowski, I. Krzemińska-Ławkowiczowa, L. Zgliczyński et al. Diagnostic value of cardiac catheterization, March 1952, commissioned for printing on July 13, 1951) that it took over a year to prepare for catheterization procedures. "Only after this period of time and many preliminary attempts, regular cardiac catheterizations were started at the 2nd Department of Internal Medicine of the Medical Academy in Warsaw, with the participation of doctors specialized in surgery, cardiology, pediatrics, radiology, physiology, and a chemical engineer." Since the commencement of the program, 10 cardiac catheterizations were performed within 3 months at the 2nd Department of Internal Medicine of the Medical Academy in Warsaw.

The cardiac catheterization laboratory was created by Professor (then Doctor of Science, DSc) Izabela Krzemińska-Ławkowiczowa. In the opinion in the promotion proceedings regarding the title of professor, Prof. Edmund Żera wrote: "She was on a WHO scholarship in the United States in clinics in New York, Boston, and Baltimore. After return to Poland, she organized the Congenital Heart Disease Research Center at the 2nd Department of Internal Medicine of the Medical Academy in Warsaw, headed by Prof. Semerau-Siemianowski, and conducted activities in the field of cardiology using cardiac catheterization procedures. These methods were introduced by Krzemińska-Ławkowiczowa, DSc, to cardiological examinations in Poland and her numerous studies in this area, especially in the field of congenital heart defects, constitute an original and

pioneering author's work. Particularly noteworthy among the articles by Dr. Krzemińska-Ławkowiczowa is a collection of papers covering the whole spectrum of contemporary issues related to congenital heart diseases, developed from both practical-clinical and strictly theoretical points of view. The presentation of the development of hemodynamic disturbances and diagnostic modalities in the field of cardiovascular diseases using cardiac catheterization is the author's original and pioneering contribution to cardiology in our country." Prof. Bolesław Górnicki, rector of the Medical Academy in Warsaw, wrote in the same proceedings: "She introduced the method of cardiac catheterization into diagnostic examinations of the Congenital Heart Disease Research Center at the 2nd Department of Internal Medicine, which she organized and conducted for several years." In turn, Prof. Andrzej Biernacki stated: "At the 2nd Department of Internal Medicine, she organized a Congenital Heart Disease Research Center, which, apart from performing specialized diagnostic examinations in this area (cardiac catheterization, angiocardiography), conducted registration works and treatment as part of open treatment."

In numerous historical publications, Prof. Izabela Krzemińska-Ławkowiczowa is regarded as a pioneer of this method in Poland. Prof. Ryszard W. Gryglewski wrote: "It is not surprising, then, that in such a modern center, the first cardiac catheterization in Poland was performed in a laboratory organized jointly with Izabela Krzemińska-Ławkowiczowa."⁵ Prof. K. Filipiak and Prof. Z. Kalarus, citing the papers of R.W. Gryglewski, stated: "According to Dr. Ryszard Gryglewski from the Department of the History of Medicine of Jagiellonian University Medical College, after World War II, she was the first in Poland to perform right heart catheterization in 1948 at the 2nd Department of Internal Medicine of the University of Warsaw, opening the history of invasive cardiology in our country."⁶

Undoubtedly, therefore, the founders of the first Polish cardiac catheterization laboratory were Prof. Mściwoj Semerau-Siemianowski and Prof. Izabela Krzemińska-Ławkowiczowa, the first person who performed these procedures routinely. This is what Prof. Krzemińska-Ławkowiczowa herself wrote in the chapter entitled "Cardiac catheterization (indications and contraindications for the procedure)" in a monograph on the advances in cardiology, published on the occasion of the 40th anniversary of the medical, scientific, and didactic work of Prof. Mściwoj Semerau-Siemianowski: "... an introductory article, which discusses the technique, indications and contraindications for cardiac catheterization, as well as the complications that may occur after this procedure. The article also takes into account comprehensive data

from blood gas analysis and hemodynamics obtained via catheterization, which are the basis for modern differential diagnosis of congenital heart diseases. The clinical significance of cardiac catheterization has been emphasized regarding the development of cardiac surgery, for which it provides relevant data for the strict surgical selection of congenital heart defects.” From this chapter, one could also learn who worked in the cardiac catheterization laboratory team. Apart from Krzemińska-Ławkowiczowa, the team included M. Juszczyński, E. Oziwalski, L. Zgliczyński, B. Więclawek, and T. Osiński.

Not all facts and dates can be reproduced due to incomplete archival records. However, the achievements of the Congenital Heart Disease Research Center, established by Izabela Krzemińska-Ławkowiczowa in the department headed by Mściwoj Semenau-Siemianowski, rank them among the most eminent pioneers of cardiology in Poland and the real authors of the innovative method, which was then cardiac catheterization. The dynamically developing diagnostic modality was quickly used for electrophysiological examinations, and over the years, it has become the basis for therapeutic procedures in interventional cardiology.

SUPPLEMENTARY MATERIAL

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Author's reply I would like to thank Prof. Filipiak, Dr. Tyszkiewicz, and Prof. Rużyłło for their interest in my letter. I accept their opinion. Further research is needed to elucidate the issue of great historic importance regarding the first Polish clinicians who performed cardiac catheterization.

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