

# **PROFESSOR PETROS S. KOKKALIS' (1896-1962)**

## **CONTRIBUTION IN MODERN GREEK**

### **NEUROSURGERY**

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#### **Introduction**

Professor Petros S. Kokkalis (Figure 1) belongs to the a few members family of physicians whose names have been written in gold ink in the volume of the Modern Hellenic Medical History. He was one of the most famous Greek surgeons and respected academic teachers of the first half of the 20<sup>th</sup> century. Well-known for his outstanding surgical skills, broad medical knowledge and pioneering clinical practice, he briefly raised to prominence among his colleagues. Dr. Petros S. Kokkalis greatly expanded his surgical experience by spending eighteen years in distinguished medical centers of abroad; therefore, he acquainted with all medical advancements of his era. Upon his return to Greece, he introduced all these pioneering scientific ideas in his medical practice and practically laid the foundations for the development of several medical specialties in Greece, such as the thoracic surgery, cardiac surgery, vascular surgery,

and neurosurgery. More importantly, however, a great human personality full of virtues and principles existed behind the face of this celebrated physician. His life was inspired by humanism, boldness and courageousness, dedication to ethical and social merits, as well as strong feelings for his family. Overall, present-day healing practitioners can derive valuable lessons by knowing Professor Petros Kokkalis' manifold life and going by his scientific example.

In this historical article, the authors focus to the Petros Kokkalis' contribution in the development of neurosurgery in Greece as a separate surgical and scientific field. Moreover, his academic, writing and surgical activities in the dawn of the modern neurosurgical era are also presented.

### **A Biographic Sketch**

Petros Kokkalis was born in Levadia (September 18, 1896), a small town approximately one hundred kilometers north of Athens. Son of a gymnasium teacher, he studied medicine in the universities of Athens (1911), Berlin (1913), Zurich (1915) and Berne (1916) [1]. During his long-lasting stay abroad, he was fortunate enough to be trained under the surveillance of distinguished surgeons of that era, such as Fritz de Quervain, Theodore Kocher, and particularly Ernst Ferdinand Sauerbruch. The latter, a strict and masterful person but a brilliant and pioneering surgeon, took special care for the promising young Greek physician and influenced his scientific career in a catalytic way. During his last year in Germany (1927), Petros Kokkalis was appointed as Associate Director of the Department of Surgery at the Solingen Bethesda Hospital, being acknowledged for his diligence, surgical skills, research activities and writing talent.

Upon his return in Athens (1928), Dr. Petros Kokkalis was appointed as Associate Professor of Surgery (1929) in the University of Athens. Over the next few years, his scientific authority was recognized since he was appointed successively as the Director of the Surgical Units of the "Elpis" Hospital (1929), the 'Dispensary of Athens' (1930), the 3<sup>rd</sup> Department of Surgery of 'Evangelismos' Hospital (1935), and finally of the University Department of Surgery in 'Aretaieion' Hospital (1939). In 1939, the University community of Athens acknowledged Petros Kokkalis's excellent research and clinical practice by appointing him as Professor of Topographic and Surgical Anatomy and Professor of Surgery.

Petros Kokkalis first introduced a series of pioneering surgical procedures in Greece, such as thoracoplasty, excision of phrenic nerve for tuberculosis treatment, pneumonectomy for lung empyema drainage, as well as pericardiectomy for the treatment of congestive pericarditis [1]. Apart from his surgical talent, he also made his name as an excellent academic teacher, restless scientific mind, and productive writer. Among his works, the two-volume textbook of "Surgery" (Figure 2), co-authored by his collaborator Zannis Kairis, proved to be a cornerstone of surgical bibliography and teaching of his time. Professor Petros Kokkalis showed also eminent administrative capabilities, multifaceted social activities and leading skills. Therefore, he was elected as the President of the Hellenic Surgical Society

(1940) and the Medical Society of Athens (1943). After the end of World War II, the Greek Civil War (1946-1949) interrupted the pioneering and productive academic career of Professor Petros Kokkalis in Greece. Following the way of refugees, he and his family established in East Germany, where he continued to practice medicine. The epilogue of his outstanding scientific career coincided with his appointment as Director of the Experimental Institute of Cardiovascular Surgery of East Berlin (1955-1962), Professor of the Humbolt University and Member of the German Academy of Science.

Having passed the last years of his adventurous life as an emigrant but full of medical wisdom, scientific and academic distinctions, and social respectfulness, Professor Petros Kokkalis died in East Berlin at the age of sixty-six. Following his last wish, his body was buried in Greece (January 28, 1962).

### **Petros Kokkalis: an excellent general surgeon, a pioneer neurosurgeon**

Neurosurgery has been one of the most recently developed medical fields in Greece. During the first decades of the 20<sup>th</sup> century, neurosurgical practice in Greece was fragmentary and practically non-existent. There were only few brave general surgeons (M. Makkas, M. Kotsonopoulos) who performed few basic procedures for head and spinal trauma, brain abscess, and hydrocephalus with poor, however, results [2, 3, 4]. The history of modern Hellenic neurosurgery is closely associated with the 'Evangelismos' Hospital, which has been the biggest hospital of Greece, located in the center of Athens (Figure 3). More specifically, the beginning of neurosurgery as a separate surgical field was marked by two events: the establishment of the Department of Neurology in 'Evangelismos' Hospital (1933) under Dr. John Patrikios' direction and the return of Dr. Petros S. Kokkalis in Greece [2, 5]. Dr. John Patrikios, an outstanding neurologist and later Professor of Neurology in the University of Athens, had received his clinical training in France. Following the tradition of French Medicine, he usually scrubbed in the operating room and guided the general surgeons of 'Evangelismos' hospital to perform surgical procedures on central nervous system. The advent of Professor Petros Kokkalis and his appointment as the Chief of the 3<sup>rd</sup> Department of Surgery in 'Evangelismos' Hospital in 1935 practically signaled the beginning of a new neurosurgical era [1, 2, 5]. His long-lasting education in distinguished surgical centers of abroad permitted to him, with Professor John Patrikios' valuable support, to perform complex neurosurgical procedures for the management of both brain and spinal disorders.

Consulting the Annals of 'Evangelismos' Hospital, and the Bulletins of Hellenic Surgical Society and Medical Society of Athens, present-day readers realize that Professor Petros S. Kokkalis was the first to perform independent, complex neurosurgical operations in Greece. Few of his pioneering neurosurgical publications are quoted below [1, 2]:

1. Kokkalis P, Patrikios J. Successful removal of a Cerebellar Glioma (Bulletin of Medical Society of Athens, 1930)

2. Kokkalis P, Patrikios J. Successful partial removal of a glioma of the vermis (Bulletin of Medical Society of Athens, 1934). The patient presented with a six-month history of visual attenuation, ataxia, speech impairment and signs of intracranial hypertension. Through a suboccipital craniectomy, a glioma of the vermis was partially removed. The patient fully recovered from the operation and returned to normal life.

3. Kokkalis P, G. Vlavianos. Removal of a subdural thoracic psammoma (Medical Society of Athens, 1936). A 48 year-old woman was admitted with paraparesis, signs of Brown-Sequard syndrome at the level of the 7<sup>th</sup> thoracic myelotome, and orthocystic disturbances. The suboccipital myelogram after infusion of Lipiodol disclosed a complete block at the level of the 7<sup>th</sup> thoracic vertebra. Intraoperatively, Professor Petros Kokkalis performed a laminectomy from the 5<sup>th</sup> to the 7<sup>th</sup> thoracic vertebra under local anesthesia and then, opened the dura and completely removed a tumor clearly compressing the spinal cord. The patient made a fully recovery. The pathological examination demonstrated the presence of a 'hazel-nut like psammoma'.

4. Kokkalis P. Hydatid cyst across the spinous process of the 7<sup>th</sup> thoracic vertebra (Bulletin of Hellenic Surgical Society, 9, 12, 1936).

5. Kokkalis P, Patrikios J. Tumor of the posterior fossa (astrocytoma of the right cerebellar lobe). Clinical improvement after surgical removal and radiotherapy (Bulletin of Hellenic Surgical Society, 10, 214, 1937).

6. Kokkalis P. Clivus space occupying lesion protruding to the epipharynx (Bulletin of the Hellenic Surgical Society, 11, 144, 1938).

7. Kokkalis P, Griponissiotis V. Glossopharyngeal neuralgia (Bulletin of Hellenic Surgical Society, 19/12/1939).

8. Kokkalis P. Report of two cases of spinal cord tumors (Bulletin of Hellenic Surgical Society, 12, 46, 1939).

9. Kokkalis P, Anastassopoulos G, Griponissiotis V. Drainage of a cyst of the cerebral peduncle through the third ventricle (Published in 'Hippocrates', 25, 765, 1940).

10. Kokkalis P, Griponissiotis V. Cystic meningitis of the posterior fossa (Bulletin of the Hellenic Surgical Society, 12/4/1940).

11. Kokkalis P, Griponissiotis V. Brain abscess secondary to septic frostbite (Bulletin of the Hellenic Surgical Society, 2/11/1941).

12. Kokkalis P, Griponissiotis V. Cystic ependymoma of the left parieto-occipital lobe –Report of a case. A 7 year-old girl presented with hemiparesis and signs of intracranial hypertension. Ventriculography revealed a left parieto-occipital tumor ('cystic ependymoma') which was removed through a craniotomy under local anesthesia (Medical Society of Athens, 8/5/1943).

In the multi-authored, epoch-making textbook of ‘Surgery’ (Athens, 1934), Professor Petros Kokkalis wrote two chapters dealing with neurosurgical pathology: a) Surgical diseases of the spine, and b) surgical diseases of the spinal cord and peripheral nerves [1]. Looking back to his writings, present-day reader hard fail to remark that Professor Petros S. Kokkalis was a pioneer surgeon for his era; he introduced demanding procedures for the management of complex pathologies of the central nervous system, thus expanding the spectrum of hitherto neurosurgical practice in Greece. Undoubtedly, his work and scientific publications opened up new horizons for the development of neurosurgery in Greece as a separate medical branch.

### **Neurosurgery: the establishment of a new medical specialty in Greece**

The contribution of Professor Petros S. Kokkalis in the establishment of neurosurgery in Greece as an independent, evolving medical specialty was multidimensional. He was a brilliant surgeon, a productive writer, a pioneering researcher, but above all, he recognized and inspired the surgery of the central nervous system as a separate surgical field.

Following the practice of distinguished surgical centers of abroad and inciting by the promising results of his ‘neurosurgical’ practice, Professor Petros Kokkalis urged and supported Vassilios Griponissiotis to become the first officially trained neurosurgeon of Greece. Dr. Vassilios Griponissiotis was appointed in the 3<sup>rd</sup> Department of Surgery in ‘Evangelismos’ as chief resident in 1935 [1, 2]. He spent three years under the guidance of Petros Kokkalis, and in 1937, he decided to follow his mentor’s advice and to be specified in neurosurgery. For this purpose, after finishing his initial internship in ‘Evangelismos’ Hospital, he received neurosurgical training from Tonnis in Berlin, Olivercrona in Stockholm and Busch in Copenhagen (1937-1939); few years later (1947-1949), he finished his neurosurgical education under Dandy in Baltimore and Bailey in Chicago (1947-1949) [6].

Upon his return in Greece, Dr. Vassilios Griponissiotis established the first Department of Neurosurgery in Greece, in ‘Evangelismos’ Hospital (May, 1950). After sixteen years of advanced neurosurgical practice and hundreds of successful neurosurgical procedures, he left Athens in order to become the first Professor of Neurosurgery in the Aristotelian University of Thessaloniki (April, 1966) [2, 6].

### **Epilogue**

Professor Petros S. Kokkalis has been included in the pantheon of Greek scientists, not only as an outstanding physician and talented surgeon, but also, as the founder of several medical specialties in Greece. ‘He was way above all others as a physician and scientist’, Professor Vassilios Griponissiotis wrote for his teacher [6]. Looking back to Petros Kokkalis’ surgical repertoire, present-day healing practitioners realize that he was the first to perform complex neurosurgical procedures in Greece and the

man who inspired the surgery of the central nervous system as a separate medical field. Based on these facts, he could actually be regarded as the founder of Modern Greek neurosurgery.

In 2001, Petros Kokkalis' contribution in the establishment of Greek neurosurgery was recognized with the foundation of the Hellenic Center of Neurosurgical Research "Professor Petros S. Kokkalis" in Athens. This aims not only to keep his memory alive but also to inspire new scientists to take steps forward in the demanding fields of neurosurgery and neuroscience in general.

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