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Mahmut Gazi Yaşargil (1925–2025)

A tribute to an extraordinary neurosurgeon with major influence on epilepsy surgery

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Abstract

Mahmut Gazi Yaşargil passed away just 3 weeks before his 100th birthday. "He has not only been a brilliant surgeon and physician of highest moral standards, but also an exceptional teacher"—This statement was made by Yaşargil in 1984 in appreciation of Hugo Krayenbühl, his former chairman in Zurich [1]. Without any doubt, this also applies to him, but it should be complemented by recognizing his international influence in introducing microneurosurgical methods into neurosurgery. At the Congress of Neurological Surgeons Annual Meeting in 1999 he was honored as "Neurosurgery's Man of the Century 1950–1999" by the editors and advisory board of the journal *Neurosurgery*. In his laudation, John Tew summarizes: "His genius in developing microsurgical techniques for use in cerebrovascular neurosurgery has transformed the outcomes of patients with conditions that were previously inoperable" [2]. A biography published 10 years ago described Yaşargil as the "father of modern neurosurgery" [3]; in an obituary published by the European Association of Neurosurgical Societies, this was specified as "father of modern microneurosurgery" [4].

Keywords
Neurosurgery · Microneurosurgery · Biography · Epileptology · Pioneer

Mahmut Gazi Yaşargil (**Fig. 1**) was born on 6 July 1925 in Lice, a small Kurdish city in Diyarbakır Province in eastern Turkey. His father served as a district governor, and the family moved to Ankara in the same year where he and his four siblings went to school. In 1943, he travelled to Western Europe, first to Vienna, where the Nazis did not allow him to study medicine due to suspected Jewish descent. Instead of returning to Turkey, he continued to pursue his goals and was finally able to enroll at the University of Jena in 1944. After moving to Switzerland, he completed his studies in Basel between 1945 and 1949, graduating in 1950. Until the end of 1952, he held training positions in psychiatry, internal medicine, and general surgery, as well as a research position in neuroanatomy with Josef Klingler (1888–1963) in Basel.

He then moved to the Department of Neurosurgery at the University Hospital and University of Zurich, where he started his residency in neurosurgery in January 1953 and remained for almost four decades. After his time as resident, he became a senior physician in 1957, followed by his habilitation and appointment as a private lecturer in 1960. From 1965 to 1967 he completed a research fellowship in the Department of Neurosurgery at the University of Vermont in Burling-

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Fig. 1 ▲ Mahmut Gazi Yaşargil [17]. (©Dianne Bader-Gibson Yaşargil. All rights reserved)

ton, USA, with Raymond Madiford Peardon Donaghy (1910–1991), with whom he developed microvascular surgery [5].

Returning to Zurich in 1969, he was appointed professor and subsequently increasingly implemented vascular and other microneurosurgical techniques. This included the introduction of the surgical microscope to neurosurgery as well as new surgical instruments designed by him that are now used worldwide. As a result, Zurich became a popular destination for young neurosurgeons from all over the world. In 1973, he succeeded Hugo Krayenbühl as Director of the Department of Neurosurgery of the University Hospital Zurich.

In the field of epileptology, his name will forever be remembered for the introduction of transsylvian selective amygdalohippocampectomy (sAHE) into clinical practice for the treatment of pharmacorefractory temporal lobe epilepsies. In the 1970s, he perfected the technique of selective amygdalohippocampectomy, first with the neurologist Christoph Bernoulli and later with the neurologist and epileptologist Heinz-Gregor Wieser (1943–2018). This procedure is now the international gold standard for surgical treatment of the most common epilepsy syndrome in adults [6–11]. In addition, following meticulous experiments in animals, he pioneered extracranial–intracranial (EC-IC) bypass surgery between the superficial temporal artery and the middle cerebral artery. Although the anticipated stroke-protective effect in patients with occluded internal carotid arteries was not confirmed, this method is still used in clinical practice, for example, in Moyamoya disease, and there are several case reports of improvements in epilepsy patients with cerebrovascular disturbances [12, 13].

Yaşargil was one of the first neurosurgeons in the world to consistently use the surgical microscope for a wide variety of neurosurgical procedures on the brain. This use inevitably led to the need for new instruments suitable for microneurosurgery. With the surgical microscope and the newly developed micro-instruments, he was able to reach practically all regions of the brain, even the deepest ones, in a gentle manner. As a result, brain diseases that were previously considered inoperable could now be operated on with convincing results. Yaşargil finally summarized the corresponding results in the fields of vascular malformations (aneurysms and arteriovenous angiomas) and tumor surgery in his multi-volume *Microneurosurgery* book series [10, 11]. Undoubtedly, his contribution to epilepsy surgery also deserves special mention: He transferred the transsylvian approach from his positive experience with frontotemporal (pterional) trephination in aneurysm surgery to the treatment of temporomesial epilepsies.

Yaşargil mentored three generations of neurosurgeons. His profound commitment to education was reflected in numerous courses, which enabled him to share and disseminate his knowledge and skills with others. During his time in Zurich, he trained approximately 3000 colleagues from across the globe. His participation in numerous national and international neurosurgical congresses, symposia, and courses as an invited guest further illustrates his esteemed position in the neurosurgical community [14].

After his retirement in Zurich, he held a professorship in neurosurgery at the Department of Neurosurgery at the University of Arkansas in Little Rock, USA, for many years. During this time, he continued to operate and gave lectures, published, established a microneurosurgery laboratory, and prepared microneurosurgery courses. From 2013, he was affiliated with the Department of Neurosurgery of Yeditepe University in Istanbul. On the occasion of a meeting with medical students, he told them, "Don't be afraid of yourself, try to be creative. There is still a lot to do."

For his outstanding achievements, Mahmut Gazi Yaşargil was honored not only with the previously mentioned accolade of "Neurosurgery's Man of the Half-Century 1950–1999" but also with many other awards and prizes, among them the Robert Bing Prize of the Swiss Academy of Medical Sciences in 1968, the Gold Medal of the World Federation of Neurosurgical Societies in 1997, the Fedor Krause Medal of the German Neurosurgical Society in 2000, the Tissot Medal of the Swiss Epilepsy League in 2015 [15], and the Distinguished Service Award of the American Association of Neurological Surgeons in 2025. In addition, he received honorary doctorates and honorary professorships from numerous universities as well as honorary memberships of various professional societies and honorary citizenships. Despite this international acclaim, he always remained humble and dedicated to patient care throughout his career. "He represented the ideal of the complete neurosurgeon—surgeon, doctor, innovator, educator, and researcher" [4].

From 1983, he was married to the nurse Dianne Bader-Gibson Yaşargil, his wife and partner, who had assisted him in operations since 1973 and was an active contributor to many of his publications [16, 17]. She developed a method of organizing neurosurgical instruments for different types of interventions and founded the European Association of Neurosciences Nurses in 1979. He leaves behind two daughters and a son from his first marriage.

Mahmut Gazi Yaşargil died on 10 June 2025 at his home in Stäfa on the shores of Lake Zurich. He will be remembered for a long time, not only by epileptologists and neurosurgeons. He saved the lives of countless patients worldwide, and many of them owe him a significantly improved quality of life. Finally, we highly recommend a short YouTube video recorded at his home at the end of April 2025, in which Yasargil—unfortunately prema-

turely—celebrated his 100th birthday and very humorously talked about his private and professional life [17].

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Declarations

Conflict of interest. G. Krämer, N. Krayenbühl, L. Regli, M. Weller and L. Imbach declare that they have no competing interests.

For this article no studies with human participants or animals were performed by any of the authors. All studies mentioned were in accordance with the ethical standards indicated in each case.

Zusammenfassung

Mahmut Gazi Yaşargil (1925–2025). Eine Hommage an einen außergewöhnlichen Neurochirurgen mit wesentlichem Einfluss auf die Epilepsiechirurgie

Mahmut Gazi Yaşargil ist nur 3 Wochen vor seinem 100. Geburtstag verstorben. „Er war nicht nur ein brillanter Chirurg und Arzt mit höchsten moralischen Ansprüchen, sondern auch ein außergewöhnlicher Lehrer". Dies schrieb Yaşargil 1984 als Würdigung für Hugo Krayenbühl, seinem ehemaligen Klinikdirektor in Zürich [1]. Dies gilt zweifellos auch für ihn selbst, muss aber ergänzt werden durch seinen internationalen Einfluss bei der Einführung mikroneurochirurgischer Methoden in die Neurochirurgie. 1999 wurde er auf der Jahrestagung des Congress of Neurological Surgeons von den Herausgebern und dem Beirat der Zeitschrift *Neurosurgery* als „Neurosurgery's Man of the Century 1950–1999" geehrt. John Tew fasste in seiner Laudatio zusammen: „Sein Genie bei der Entwicklung mikrochirurgischer Techniken für den Einsatz in der zerebrovaskulären Neurochirurgie hat die Behandlungsergebnisse von Patienten mit Erkrankungen, die zuvor inoperabel waren, verändert" [2]. Eine vor 10 Jahren veröffentlichte Biographie bezeichnete ihn als „Vater der modernen Neurochirurgie" [3], in einem von der European Association of Neurosurgical Societies veröffentlichten Nachruf wird dies als „Vater der modernen Mikroneurochirurgie" präzisiert [4].

Schlüsselwörter
Neurochirurgie · Mikroneurochirurgie · Biographie · Epileptologie · Pionier

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