



## Rhoton and His Influence on Turkish Neurosurgery

**Erdener Timurkaynak\***

Thirty-seven years ago, as a young Turkish neurosurgeon, I was very enthusiastic about learning the anatomy of the brain. Through a detailed research, I traced the publications of Dr. Albert L. Rhoton and found out that he was keen on neuroanatomical studies, especially on the microsurgical anatomy of the ventricles. Therefore, without any doubt, I applied to the research program that was held at the Department of Neurosurgery, University of Florida. Propitiously, my application was accepted. With the scholarship that I had won from Turkey, I had the chance to travel from Ankara to Gainesville and complete my exhausting-yet-breathtaking microsurgical training at Theodore Gildred Microsurgical Education Center under the supervision of Prof. Albert L. Rhoton.

I was the first Turkish neurosurgeon who studied micro-neuroanatomy and microvascular anastomosis as a research fellow in this innovative center between the years of 1980 and 1981. When I arrived at the University of Florida, Dr. Toshio Matsushima and Dr. Michio Ono already were there, and soon after Dr. Evandro de Oliveira joined us. The discipline in the center was remarkable. My fellow colleagues and I had the chance to work together with the best medical illustrators from all over the world: David Peace, Carla Linkey, and Margaret Barry. None of us had any idea that the passion inside us would be the bricks and the friendship we embraced would be the mortar to build up a strong wall that would never break (Figure 1).

Dr. Rhoton inspired every single person at the center with his meticulous studies. My first studies were about foramen of Monro and the microsurgical anatomy and operative approaches to the lateral ventricles, which were published in 1985 and 1986.

Dr. Rhoton and his wife warmly welcomed us regularly every month at their cozy home for dinner and gave a start for the following training period for the newcomers. Every reception started up with a dinner prayer that was encouraged by Dr. Rhoton to be made in our own language and led mostly by my wife, Türay, and ended up just before quarter to 10 PM so as to prepare us for the next working day. "This is a small world of our own" were his words that made us feel home, although we were thousands of miles away from our homes (Figure 2).

After I came back to Turkey from Gainesville, my way of thinking and surgical skills had changed entirely. I was filled with knowledge about the most nontraumatic procedures and eager to apply them in my practice in the most effective way. Therefore, I began practicing microsurgery in the Department of Neurosurgery at Gülhane Military Medical Academy and tried to establish a microsurgical laboratory to provide formal instruction in the skills needed for microsurgical dissections, microvascular anastomosis, and neurorrhaphies. The laboratory was brought into life in 1985.

At that time, it was equipped with 5 Zeiss research microscopes and many microsurgical instruments. Later on, the equipment of the experimental lab was well suited for both educational and research activities, such as 5 experimental Zeiss OpMi-1 and OpMi-6 surgical microscopes and other instruments required for microsurgical interventions (Figure 3).



**Figure 1.** Dr. Erdener Timurkaynak, Dr. Evandro de Oliveira, Dr. Toshio Matsushima, George Papadi and Roland J. Rodriguez at the University of Florida.

### Key words

- Albert L. Rhoton
- Education
- Microsurgery laboratory
- Microsurgical anatomy
- Turkey

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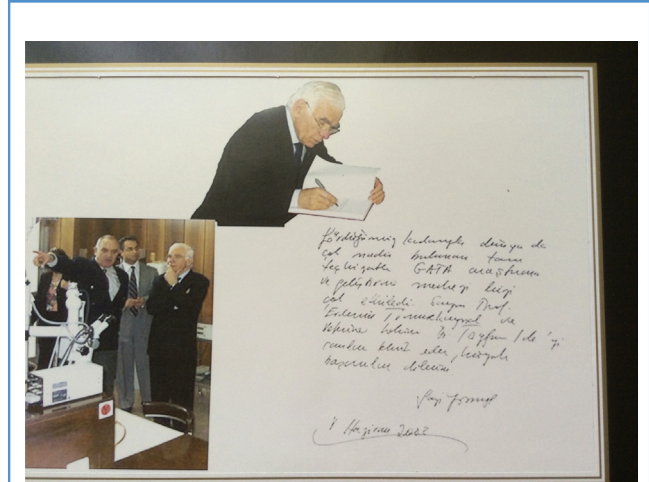
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**Figure 2.** One of the dinner receptions at Dr. Rhoton's house. Mrs. Joyce Rhoton, Dr. Albert L. Rhoton, Mrs. Türay Timurkaynak, Dr. Erdener Timurkaynak, and Dr. Keiji Sano.



**Figure 4.** The visit of Dr. Gazi Yaşargil at Gülhane Military Medical Academy microsurgical laboratory.

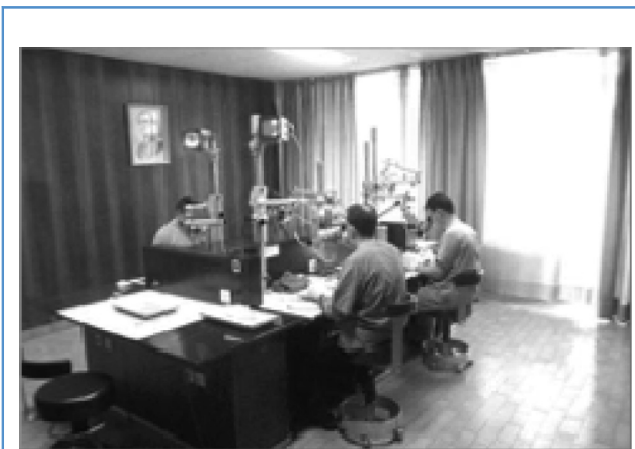
A total of 1082 physicians, some of whom were both Turkish and foreign, were trained during a 25-year period under my guidance within 255 courses. Courses focused on vascular anastomoses, the microsurgery of the peripheral nerve, the effects of cerebral ischemia, and tissue revascularization. The anatomical researches focused on the cranial nerves, orbit, ventricles, and other cerebral regions.<sup>1</sup>

Prof. Gazi Yaşargil visited this laboratory twice—in 1992 and in 2004—and he was fascinated by the design of the training room and the instruments that were used in the laboratory (Figure 4).

As I moved up the ladder in the field of neurosurgery, I organized several international scientific meetings in Turkey. Three of these were the Second, Third, and Fifth International Symposiums

of Microsurgical Anatomy, which were held in 2006, 2008, and 2010, respectively, and several others. Dr. Rhoton never refused an invitation to a scientific meeting (Figure 5). In this way, he kept on inspiring hundreds of Turkish neurosurgeons who did not have the chance to work with him by emphasizing the importance of microsurgical anatomy knowledge and research in the field of neurosurgery. Because of health reasons, the only event he couldn't take part in was the Sixth International Symposium of Microsurgical Anatomy, which was organized by the Dean of Bahçesehir University, Prof. Dr. Türker Kılıç, in Istanbul in 2015.

Dr. Necmettin Tanrıöver was the next neurosurgeon from Istanbul to follow in Dr. Rhoton's footsteps with the same inspiration that we all held. He spent 3 years at the University of



**Figure 3.** A training session at the microsurgical laboratory in Gülhane Military Medical Academy.




**Figure 5.** Mrs. Joyce Rhoton, Dr. Erdener Timurkaynak, Dr. H. Ziya Gökalp, and Dr. Albert L. Rhoton.



**Figure 6.** Dr. Hüseyin Biçeroğlu, Dr. Albert L. Rhoton, Dr. Aşkın Şeker, Dr. Evandro de Oliveira, Dr. Erdener Timurkaynak, Laura Dickinson, Dr. Barış Küçükyürük, and Dr. Akın Akakın at the University of Florida, celebrating the art and science of teaching neurosurgery, recognizing Dr. Albert Rhoton's 40 years in 2012.

Florida. Together with Dr. Akın Akakın, they were the other 2 mentees of Prof. Rhoton to bring new research laboratories into life after mine (Microneurosurgical Anatomy Laboratory at Cerrahpaşa Medical Faculty in İstanbul University and Prof. Rhoton Microsurgical Laboratory at Bahçeşehir University School of Medicine).

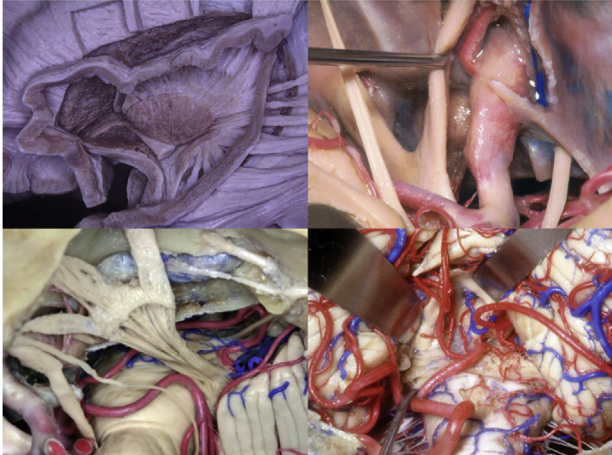
Dr. Şeker, Dr. Biçeroğlu, Dr. Küçükyürük, Dr. Yağmurlu, Dr. Baydın, Dr. Güngör, Dr. Baran, and Dr. Aydın are the other 8 fellows who are perfectly trained at the hands of Dr. Rhoton. These 11 total fellows have contributed in more than 30 publications from Rhoton's lab and have published 18 brilliant scientific papers as the first author with the guidance and support of Prof. Rhoton. Among the Turkish fellows, one is currently working as a Professor in an Academic University Hospital, 1 as an Associate Professor, and 5 are attending neurosurgeons in Turkey. Two neurosurgeons are conducting research on microsurgical anatomy in 2 separate institutions in United States, one research fellow is a fourth-year resident in



**TÜRK NÖROŞİRÜRJİ DERNEĞİ,  
30. BİLİMSEL KONGRESİ,  
CERRAHİ NÖROANATOMİ KURSU**

Prof. Dr. Albert L. Rhoton anısına

**BEYİN, VENTRİKÜL ve KAFA TABANI'NIN  
3-D MİKROCERRAHİ ANATOMİSİ ve CERRAHİ YAKLAŞIMLAR**



**8 Nisan 2016,  
Kaya Palazzo Kongre Merkezi, Belek, Antalya**

**Figure 7.** Announcement of the 30th Turkish Neurosurgical Society Annual Meeting that took place in Antalya, Turkey, on April 8, 2016.

Istanbul and, finally I retired from The University of Ufuk in July 2015 and I still live in Ankara (Figure 6).

Last but not least, I am also proud to announce that this year Turkish Neurosurgical Society has dedicated a premeeting course on microsurgical anatomy in memory of Albert Rhoton Jr, M.D., which will be held during the 30th Turkish Neurosurgical Society Annual Meeting in Antalya, Turkey on April 8th, 2016 (Figure 7).

To conclude, what has left behind from this whole-hearted hero is a whole new passionate young generation well motivated to light up the world.

## REFERENCE

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