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INTERVIEW

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INTERNATIONAL STEREOTACTIC RADIOSURGERY SOCIETY

Interview to Prof Michel Schlienger Radiotherapist - Professor Emeritus University of Paris

Excerpts

Why and under which circumstances did you, a radiotherapist, become interested in Radiosurgery?

By working since 1966 at the Institute Gustave Roussy as part of a small team dedicated to primitive and secondary CNS tumors, a team consisting of a neurosurgeon from St. Anne and an internist. We irradiated above all gliomas and metastasis. We started in that period to irradiate recurring meningiomas, showing that it was possible to obtain local control through conventional irradiation.

Over the '60s neurosurgeons at St. Anne performed stereotactic biopsies on glial tumors and intra-tumor temporal implants of isotopes ^{192}Ir under stereotactic conditions of (mostly low grade) gliomas. The periphery of the lesions was the habitual site of the tumor regrowth. As the team's radiation therapist, my role was to deliver (Gustave -Roussy) additional radiation to the lesion through classic RT.

The results were presented at the «Stereotactic cerebral irradiation» Symposium in Paris led by Gabor Szikla, «stereotactic» neurosurgeon. This was the first oecumenical Congress gathering the pioneers of irradiation under stereotactic conditions by interstitial brachytherapy: F. Mundinger (Freiburg and St. Anne), the Swedish neurosurgeons, pioneers of radiosurgery by narrow ^{60}Co gamma-ray beams, L. Steiner, E. Backlund, Lars Leksell (Stockholm), as well as R. Kjellberg from MGH, who had been making use of Protons since 1968.

As a radiation therapist I had the chance to work (at first at Institute G. Roussy, and from 1975 on at Hospital Tenon) in St. Anne's multidisciplinary team led by Prof Talairach. It consisted of neurosurgeons, stereotactic radio-surgeons, neuro-radiologists and neurologists, all passionate about the scientific advances made possible by the stereotactic methodology.

I then had the chance to pursue my activities in a discipline that was flourishing, thus contributing to its expansion. A crucial stage in the history of that discipline was the introduction of fractionation in the early 2000, which allowed treating under stereotactic conditions brain lesions that were too voluminous for single-shot radiosurgery (mainly metastases).

In 2016 I still pursue my activity at Tenon hospital's Radiotherapy Unit, partaking in the dosimetric planning and in the treatment of 5 patients per week.

How do you perceive young radiotherapists' interest in radiosurgery?

There are several reasons for young radiotherapists' interest in Radiotherapy under stereotactic conditions.



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The extension of the irradiation method under stereotactic conditions from its original mono-fraction, high-dose, small-volume form; radiosurgery (as defined by Leksell) through stereotactic fractionated irradiations multiplies the indications for treatment.

Thus young radiotherapists have been presented with a very extensive and important framework for medical investigation, based on an adaptable, flexible, selective, mono- or multi-fractionated method, allowing obtaining millimetric accuracy. The constant medical advances in SRT (Stereotactic Radiotherapy) - enabled by new machines, irradiation methods, imaging, protocols, dosimetric planning, etc. - have obviously represented a major attraction for young radiotherapists.

Likewise, the relentless evolution of the different disciplines concurring to the medical advance have a ripple effect, as they stimulate those involved to evolve with them, to expand their understanding of all the disciplines involved in the project, thus allowing a better understanding between contributors from different fields.

Such scalability represents a further and important motivation for research team members and facilitates their cohesion.

How did you experience the cooperation among different specialists?

As mentioned above it was a heterogeneous team, as it encompassed different disciplines, but it was actually homogeneous, as consisting of enthusiastic contributors who devoted the crucial part of their activity to this research.

I felt good within the team as I had learned a lot during those years of cooperation, and they too learned about Radiotherapy by working closely with me. This facilitated the discussions on our projects to use high-energy beams. In the late '70s Betti, Szikla and myself worked at the development of equipment allowing brain irradiations under stereotactic conditions by means of RX equivalent to Gamma Unit, which was a challenge at the time. At the same time, Colombo in Italy and Hartman in Germany were working on some equipment projects. The final stages of Betti's System were elaborated in Buenos Aires by Betti and engineer Dérechinsky. The prototype was manufactured and tested and Betti was the first Neurosurgeon to treat patients suffering from AVM with narrow beams.

In France our search for technical and financial aids to build a prototype were frustrated. For example, one of the official organisms supposed to assist medical advance helped us by asking us not to bother them with "our little beams".

In the late '70s, our mission as radiotherapists was researching high-energy x-rays, hence micro-beams were broadly researched by Tenon hospital's group of physics I operated with. Congresses were the ideal place to learn from each other and exchange ideas: in 1984 a delegation including a radiation oncologist, a physicist and neuro-radiologist attended the seminar in Charlottesville (USA) led by L. Steiner, who was committed to Gamma Knife radiosurgery. Yearly workshops were organized in Tenon until 1997, thus attesting the gradual expansion of the discipline. In 1985, thanks to a present from Argentine to Prof Talairach, a device similar to the one developed by Betti in Buenos Aires was manufactured and installed at Tenon Hospital, and more precisely in the Radiotherapy Unit where we carried out feasibility studies, dosimetric studies, etc. Between 1983 and 1986, the patients with AVM sent to Ste Anne were irradiated by Betti in Buenos-Aires. A radiotherapist and a physician from our team took the patients to Argentina as the only Gamma Knife



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Unit, based in Stockholm, could not meet all demands. In 1986 our St. Anne-Tenon team took its first steps under Betti's direction. For 2 years, we represented the first and only site in France where it was possible to treat AVM with Radiosurgery. We shared the result of our studies with the scientific community by publishing them in several journals.

30 years on (1986) our collaboration with St. Anne's Neurosurgery and Neuroradiology Units continues to progressively integrate different clinical, technological advances.

Twenty-three years ago the Ste Anne/Tenon team started an official yearly training course on radiosurgery and RT under stereotactic conditions. It still gathers together radiotherapists, neurosurgeons, radio physicists who wish to practice the same discipline. The training is held by neurosurgeons, radiation oncologists, medical physicists from France's major centres performing RT under stereotactic conditions.

In 2016, 30 years on, the original teamwork spirit lives on in our Ste Anne-Tenon crew!

What do you think about Local Radiosurgery societies?

I think it is an excellent way to keep the spirit alive.

Will you attend the next congress in Montreux?

Until 2004 I went to Stanford University on a regular basis (that's where I witnessed the birth of cyberknife). I'd be glad to join you there.