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Hand Surgery in Switzerland

In Switzerland, a country of 9 million habitants, hand surgery is an independent speciality.

History

> *In fact, whatever manual, intellectual, cultural or spiritual activity each of us has devoted his life to, at the time of death, the individual is nothing; what he has achieved, however is everything (Claude E. Verdan).*

This is one of the last sayings of Claude E. Verdan, a genius pioneer in hand surgery, who influenced not only the national but also international scene in hand surgery. Together with 50 general surgeons, this most remarkable surgeon founded the Swiss Society of Surgery of the Hand (SGH) on 12th November 1966 in Lausanne (Figures 1 and 2).

During the following years, this society grew to 283 members including 29 junior members. The Swiss Society of Hand Therapy (350 members) is connected with hand surgeons, educational institutions and the industry, and maintains close contact with national professional organizations and international societies and associations.

The SGH became a member of the Federation of European Societies for Surgery of the Hand (FESSH) in 1990, with Daniel V. Egloff from Lausanne as the first national delegate to it, and a member of International Federation of Societies for Surgery of the Hand (IFSSH) in 1983, with Henry Nigst from Basel as the first delegate. The SGH is closely associated with the FESSH and the IFSSH. Maurizio Calcagni from Zürich is currently the Secretary General of FESSH (2017–2020).

Important contributors

Fritz de Quervain (1868–1940), a surgeon from Bern, influenced surgery in the 20th century. Many diseases were named after him (first dorsal compartment tenosynovitis, granulomatous thyroiditis, and a greater arch fracture-dislocation of the wrist). He was honoured as the first Giant in Hand Surgery in Switzerland by the IFSSH in 20th century.

In 1950, Claude E. Verdan (1919–2006) shook the surgical world by proposing the primary repair of flexor tendons in the digital sheath. For surgeons, this was heresy; this area had been a no-man's land ever since one could remember and the repair was classically undertaken as a secondary operation with a graft. He was honoured in 1986 by the IFSSH as a Pioneer in Hand Surgery.

The personal contact to Sir Herbert Seddon and J. I. P. James influenced the understanding of

Figure 1. Logo of the Swiss Society of Hand Surgery.

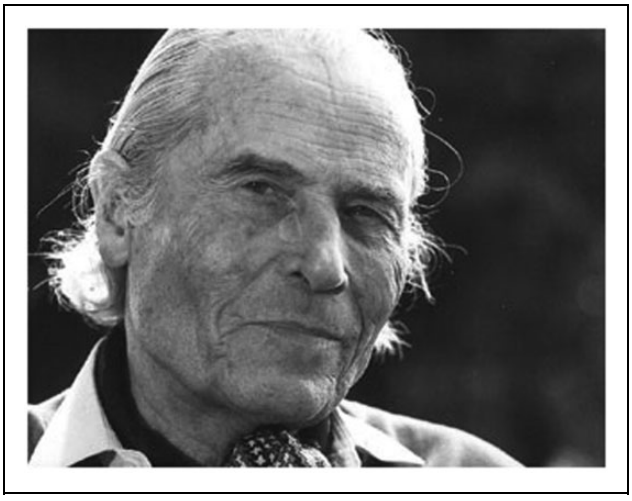

Figure 2. Claude E. Verdan, founder of the Museum of the Hand, Lausanne, 1981.

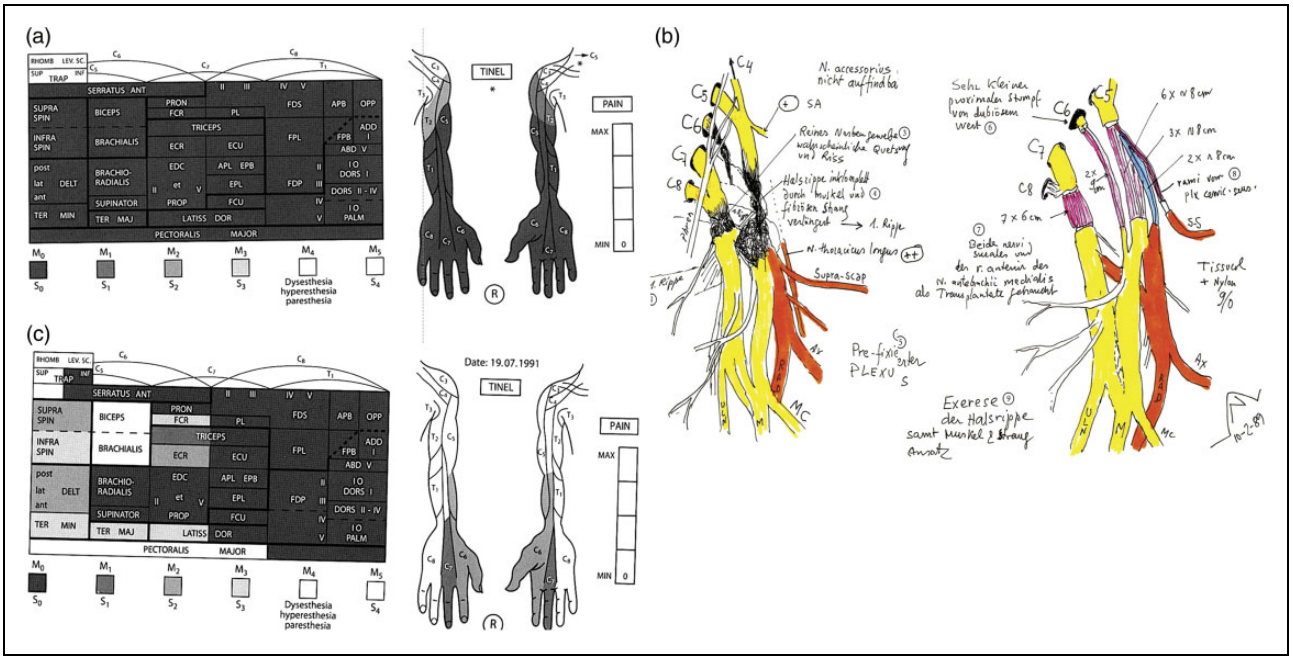

Figure 3. Charts of brachial plexus injury made by Algimantas Otonas Narakas. (a) Preoperative assessment. (b) Intraoperative findings and reconstruction, and (c) postoperative assessment.

Henry Nigst (1919–2008) in peripheral nerve surgery and the rehabilitation potential in injured and paralysed patients. After a visit in Paris with Marc Iselin, Nigst returned to Basel and founded the first hand therapy centre in 1954. He became founder and chief of the first Swiss paraplegic centre in 1967, and later he left this post to become the chief of the first division of hand surgery and surgery of peripheral nerves in Basel. He published many articles and books in the field of hand surgery, trauma surgery and surgery of the peripheral nerves, and influenced the development of hand surgery in Middle Europe.

Algimantas Otonas Narakas (1927–1993) was not only a skilled surgeon and a gifted teacher, but also an artist. He gained international reputation for his expertise in nerve repair, especially of the brachial plexus. All his surgeries were documented with precision and accompanied by appropriated drawings. Perioperative discoveries were compared with preoperative status. Due to his meticulous charts (Figure 3), he established rules for classification of the lesions: the roots, trunks, divisions, cords, nerves, as well as primary and secondary repairs and salvage treatments. He shared his knowledge in many organized symposia.

Viktor E. Meyer (1937–) returned to Switzerland from visiting John Marquis Converse and Robert Beasley in New York, Robert A. Chase in Palo Alto, Harold Kleinert in Louisville, and Hanno Millesi in Vienna, performed the first successful replantation of a severed hand at the metacarpal level in 1974. He then built a microsurgical training laboratory at the University of Zürich to train younger colleagues in microsurgical skills. In 1975, he performed the first free successful groin flap in a child and shortly after a second toe transplantation to the index finger position. Meyer was honoured as a Giant in Hand Surgery by IFSSH in 2010, as was André Chamay, who has published 45 articles and had described the dorsal approach to the proximal interphalangeal finger joint.

Ueli Büchler (1944–) trained with John Boswick in Denver, Harry Buncke in San Francisco, Lee Milford in Memphis, and Harold Kleinert in Louisville. On return to Switzerland, he fathered the concepts of simultaneous double free tissue transfer, free contralateral index pollicization, condylar blade plating, phalangeal osteotomies, the dorsal middle phalangeal flap, and others. Büchler investigated the functional interactions during the healing of combined injuries of the hand and was honoured as a Giant in Hand Surgery at the IFSSH Congress in 2016. Another quite recently retired and well-known hand surgeon from Switzerland is Diego Fernandez. Originally from South America, he worked several decades in Bern. He gained international reputation as a father of distal radius fracture treatment and osteotomies. He was honoured as a Giant in Hand Surgery by the IFSSH in 2019.

Swiss Society of Hand Surgery

A council of nine members, including an administration office (www.swisshandsurgery.ch), is in charge

of caring for the daily business of the Society, as well as to take positions in the political processes concerning medical care in Switzerland. An annual congress is organized by the actual president, who changes every 2 years. This congress is a joint venture with the hand therapists. In 2018, we celebrated the 10th anniversary of this joint venture with the theme '*Together Ahead*'.

In 1988, Hand Surgery was acknowledged as subspecialty by the Swiss Medical Association (FMH). A recognition as a speciality on its own was given by the Federal Council in 2007. Another 8 years of certification process and political struggle passed until hand surgery received accreditation as a fully acknowledged speciality by the FMH in 2015.

Training of hand surgeons

Trainees who complete the structured and verified postgraduate training may carry the title 'Handchirurgie FMH' – a title that is recognized in most European countries. The council, in accordance with the FMH, has the responsibility to support all training centres to adapt to the new training programme and its regulations. The official training starts with a common core of 2 years of general surgery. After passing an examination of surgical basics, the trainee can enter the specialized training in hand surgery and peripheral nerve surgery. This training takes 4 years in at least two different institutions. There are different training centres in three categories (*five university hospitals*: Basel, Bern, Lausanne, Geneva, Zürich; *three centre hospitals*: Aarau, St. Gallen, Luzern; *nine smaller hospitals or Clinics:* Geneva Ch8, Sierre, Chur, Bruderholz, Liestal, Münsterlingen/Frauenfeld, Solothurn/Olten, Schulthess Klinik Zürich, Balgrist Clinic Zürich, Winterthur; *five private practices*: Biel, Fribourg, Geneva-Meyrin, Nyon, Lugano). The training finishes with an oral and written examination. Since 2016, the new programme includes a written and oral examination by the European Board of Hand Surgery with the FESSH, obtaining the European FESSH Diploma as the 'Swiss Hand Diploma'. By passing this examination and fulfilling a defined logbook, the trainee receives the Swiss Hand Diploma (FMH certificate) at the end of 6 years training.

With the increasing size of our Society, education of our young members remains a topic of growing importance. Changes in medical education to competency-based approaches rely on continuous, comprehensive and elaborate assessment and feedback systems. Teaching and learning, as well as assessments, should be performed in the operative room and clinic. Basic surgical skills are taught by use of a stimulating feedback system. This feedback system is specific, measurable, attainable, relevant and time-based (SMART), and leads to structured teaching with a positive impact on the learner's abilities. Learning will be, and has to be, more structured and efficient in a period when training as well as work hours become shorter. It is one of the important duties of our council to implement such strategies for everybody who teaches young surgeons. While introducing these new concepts, we realize that leading experts have an important role model in this ongoing process, because it is difficult to implement teaching in daily practice with the financial pressure to be more efficient. We stay tuned.

Clinical practice

There are five FESSH-acknowledged hand trauma centres in Switzerland (Bellinzona, Bern, Chur, Lausanne, St. Gallen). All university and A centre hospitals, as well as most of the smaller B hospitals, include a 24-hour trauma service. Treatment that requires expert-level hand surgery skills are performed in university and all other above-mentioned hospitals with trained hand surgeons. Such treatment includes secondary tendon reconstructions, tendon transfers, major nerve surgery, surgery for rheumatoid conditions, including arthroplasties, recurrent Dupuytren disease, carpal ligament and bony lesions, and distal radioulnar joint problems. Highly specialized treatment for congenital deformities, tetraplegia, and spasticity are delegated to university hospitals or specialized paraplegic centres who have accredited hand surgeons. Distal radius and forearm fractures are considered in many centres as orthopaedic trauma, but more complex cases and especially reoperations are often treated in hand surgery units. Most centres perform acute as well as reconstructive surgery, but a few do only elective procedures. Major traumas, including replantations, are usually performed in university and A centres. General practitioners, as well as peripheral hospitals with smaller hand units, refer complex cases and traumas to the A centre and university hospitals.

Apart from the trauma surgery units with hand surgeons, two-thirds of hand surgeons work in private practice. They perform trauma care during the day and perform many elective hand surgery procedures, such as ganglion excision, nerve decompression, arthrodesis and arthroplasties.

Research activities

Some of the units offer specialized services based on their research, such as the computer-assisted

research and development osteotomy (Ladislav Nagy, Andreas Schweizer, University of Balgrist, Zürich) or the development of new small joint implants (CapFlex) (Stephan Schindele, Daniel Herren, Schulthess Klinik, Zürich). Sonography of the hand and the peripheral nerves has a long tradition in Switzerland (Esther Vögelin, Inselspital, Bern) and is included in the educational programme of the trainees. Research is performed on peripheral nerve regeneration at the University of Basel (Daniel Kalbermatten) and stem cell tissue engineering is used for various conditions experimentally and clinically (adipose derived stem cells) at the University Hospital in Zürich (Maurizio Calcagni).

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