

IFSSH Educational Sponsorship Grant 2021

International Course on Complex Wrist Reconstruction - Addressing an unmet need for the Romanian Hand Surgeons



Figure 1. Wax fold and bone excision - Carpal reconstruction

Project Title: International Course on Complex Wrist Reconstruction -addressing an unmet need for the Romanian Hand Surgeons

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Implementation Partners for This Project: Oldenburg- Groningen Advanced Training Program in Reconstructive Microsurgery, Romanian Society for Surgery of the Hand (RSSH), Section of Anatomy at the Department of Neuroscience at the University Medical Center Groningen, The Netherlands, Medartis AG ®, Stryker ® and Ziehm Imaging/Orthoscan ®, RSSH Romanian Society for Surgery of the Hand

Project Dates: October 14th-15th , 2021

Date of Report: December 2021

Introduction

Seven hand surgeons from Romania got the opportunity to train in cutting edge microsurgical reconstruction of the wrist. Their participation was thankfully endorsed by an Educational Grant from the IFSSH while the course took place under the auspices of the Oldenburg-Groningen Advanced Training Program in Reconstructive Microsurgery, an internationally established training program organised and lead by Dr. Lucian Jiga and Dr. Zaher Jandali from the Department for Plastic, Aesthetic, Reconstructive and Hand Surgery from the Evangelic Hospital Oldenburg (Germany) and hosted by Prof. Janniko Georgiadis from the Section Anatomy & Medical Physiology of the University Medical Center Groningen (The Netherlands). Dr. Heinz Bürger, the hand surgeon which popularised vascularised bone transfers from the femoral condyles in the world with his colleague Dr. Maria Anoshina, took part as co-directors at the course, bringing their invaluable contribution to the overall scientific level of this event.

This initiative had the full support of our emeritus professor Dr Alexandru Georgescu who found the idea well intended and with bright future for Romania's medical system development and Dr

Zorin Crainiceanu, the Head of The Romanian Society for Surgery of the Hand (RSSH). The RSSH also helped the Romanian participants to be able to take part in this cadaver course by financially supplementing the necessary funds for each trainee.

The unconditional support from Medartis AG (Switzerland), Stryker Co. (Germany) and Ziehm Imaging/Orthoscan (Germany) companies, which provided the surgical tools and X-Ray device, in spite of the difficult pandemic times, was instrumental for the success of the course and greatly appreciated.

Purpose

The main purpose of this course was to support and facilitate the access to valuable information for hand surgeons in Romania with advanced skills in hand surgery to a cutting edge technique and therefore raise the standard for the treatment of wrist advanced chronic pathologies with high debilitating potential in this country.

Venue/Faculty

During 14-15th of October 2021, the Advanced Training Course in Microsurgical Wrist Reconstruction took place in Groningen, The Netherlands. The course was part of the Oldenburg-Groningen Advanced Training Program in Reconstructive Microsurgery and was hosted by the Section of Anatomy at the Department of Neuroscience at the University Medical Center Groningen, The Netherlands. The directors of the course were

- Dr Lucian P. Jiga - well-known plastic surgeon with main interest in hand in reconstructive surgery and the leading director of the course and of the program Oldenburg - Groningen Advanced Training Program in Reconstructive Microsurgery
- Dr Heinz Bürger - the person who popularized these techniques in Europe with a rich background in hand reconstruction with femoral condyle flap
- Dr Maria Anoshina- hand and microsurgeon lecturer and teacher with high knowledge and experience in scaphoid and lunate reconstruction with femoral condyle flap
- Dr Mike Ruettermann, a widely-known plastic surgeon, highly experienced in hand and reconstructive microsurgery.

Together they offered to the participants two days of intense training and unique learning experiences. The course places were supported by the IFSSH, via the Romanian Society for Surgery of the Hand and it also bore the endorsement of the World Society for Reconstructive Microsurgery (WSRM) and the European Federation of Societies for Microsurgery (EFSM).

It was an intensive hands-on course focused on vascularized bone transfers for wrist reconstruction which trained 7 Romanian plastic surgeons from 4 different parts of Romania through the IFSSH Educational Sponsorship Grant.

The training laboratory which is part of the Section of Anatomy at the Department of Neuroscience at the University Medical Center Groningen, The Netherlands, and directed by Janniko Georgiadis was a thoroughly specialized and up-to-date anatomy workroom. It fulfilled all the participants' needs for a proper specialized education.

Course structure/exercises

Principles of training I observed at the course

- intensive hands-on training with over 90% of the time spent at the course concentrated on performing surgery.
- efficient learning through “repetitive” teaching. Each practical model was performed by the same trainee at least two times during the course.
- one-to-one mentoring with close guidance provided during flap harvesting by the faculty, offering valuable “tips and tricks” in the best “how I do it” format.
- flexible program including the possibility to choose to perform other reconstruction options not included in the program at the end of the module for carpal bones reconstruction.
- state-of-the-art infrastructure with fresh-frozen anatomical specimens of pristine quality, enabling accurate learning of relevant anatomy.

The femoral condyle module was part of the Small Bones Reconstruction program and the training specimens used were high quality fresh frozen human tissues. The course was structured in two parts, first covering the theoretical sessions which offered valuable personal ideas and evidence based medical informations and the second one representing the cadaver dissection sessions conducted on prime preserved fresh frozen specimens during 2 days of intense training and learning.

On each table of dissection worked 2 participants. The human models were distributed as it follows: 1 lower limb per day and 1 upper limb per course for each table. The lab was fully equipped. The instruments used by each pair of participants were adequate for vascularized bone flap harvest and osteosynthesis: electrical saws on each table, K-wire pins, macro and microinstruments for dissection and harvest, proper screws for bone fixation, gloves and usable at discretion.

On day 1, the main focus was on scaphoid reconstruction after scaphoid fracture and non-union with medial and lateral femoral condyle flap.

On the second day, the focus was on lunate reconstruction after Kienbock Disease with medial and lateral femoral condyle flap. The presented harvesting techniques and indications of usage were diverse on both days of training.

The full access on real time to X-rays (C-arm) for checking the osteosynthesis of the vascularized bone flap into the reconstructed carpal bones facilitated the training session and each participant could receive on spot tips and tricks from the directors to improve the surgical technique.



Advanced Training Course on Wrist Reconstruction
October 14-15, 2021

Day 1 - October 14, 2021

8:30 - 16:30 Theoretical Session I
Welcome, Introduction to the course, faculty and regulations
Anatomical Features & Nomenclature: Where are we? (L. Agel)
WRI for scaphoid non-union: A brief history (L. Agel)
Femoral condyles as VIC source for scaphoid non-union (M. Amadio)
Surgical approaches to the scaphoid (H. Burger)

10:30 - 10:45 Coffee break

10:45 - 11:00 Practical Session I - Scaphoid Reconstruction
Interpositional corticocancellous FC flap
Resected pole replacement with corticocancellous FC flap
(both models - either UFC of MFC)

13:45 - 14:10 Lunch break

14:15 - 17:15 Practical Session II - Scaphoid Reconstruction
Interpositional corticocancellous FC flap
Resected pole replacement with corticocancellous FC flap
(both models - either UFC of MFC)

17:15 - 19:00 Theoretical Session II
UFC flap for scaphoid reconstruction
The Glavberg approach (L. Agel)
UFC flap for scaphoid reconstruction
The “Nerve in a pipe” approach (H. Burger)
Osteo FC flaps carrying bone, fascia, skin and muscle
Distal wrist (M. Amadio)
The chimeric FC flap carrying opposing vascularized cartilage
The “Shooflap” concept (H. Burger)



Day 2 - October 15, 2021

8:30 - 16:30 Theoretical Session III
Anatomy and importance of the lunate bone in the wrist anatomy (M. Amadio)
The avascular necrosis of the lunate (Morcha Kienbock)
Diagnosis, classification & current treatment (L. Agel)
Surgical approaches to the lunate (H. Burger)
Harvesting techniques (medial and lateral condyle - tips/tricks for lunate reconstruction) (L. Agel)

10:30 - 10:45 Coffee break

10:45 - 13:40 Practical Session III - Lunate Reconstruction
Lunate reconstruction - “fill-in” corticocancellous FC flap
Lunate reconstruction - proximal pole replacement with corticocancellous FC flap
(both models - either UFC of MFC)

13:40 - 14:15 Lunch break

14:15 - 17:15 Practical Session IV - Lunate Reconstruction
Lunate reconstruction - “fill-in” corticocancellous FC flap
Lunate reconstruction - proximal pole replacement with corticocancellous FC flap
(both models - either UFC of MFC)

17:15 - 18:15 Theoretical Session IV
The “fill-up” and “fill-in” UFC flaps for lunate reconstruction (L. Agel)
Cartilage allograft FC flaps for lunate reconstruction (M. Amadio & H. Burger)
Closure remarks, handling of the diploma

Figure 2 . Complete program of the course

Theoretical sessions

There were two theoretical sessions each day combined and interposed properly each with the practical session corresponding to each new technique for the best results. The subject of treatment were scaphoid reconstruction in the first day and lunate reconstruction on the second day, both treated with corticocancellous vascularized bone graft from femoral medial and lateral condyle.

Each theoretical part started with general considerations about the pathology treated (scaphoid and lunate), the harvest techniques (medial and lateral corticocancellous femoral condyle flap) described and tips and tricks from all the lecturers' personal vast experience. At the end of the course, the participants had the possibility to choose another surgical technique to practice on the human models under direct supervision and with the help of the lecturers both as theoretical and practical. The vascularized fibula flap was the harvesting technique that most of the participants wanted to practise after the hand reconstruction part ended.

Overall feedback from participants

Dr Nicolae Ghetu: *The course on knee perforator was the most recent hands-on course I did participate in many years. It was new and exciting as I moved from the attending and lecturer position (which is what I do routinely in my assistant position in University) in a trainee position and I fully merged into the process. With outstanding lecturers, Dr. Jiga, H Burger and M. Anoshina, the theoretical part was laid out in very precise details and the full armamentarium of clinical use was presented. Discussion and question sessions completed the picture and made the process simple and obvious even before moving to practical session. The amazingly organized, fully-accessorized and perfect infrastructure supplied with high quality specimens made the practical sessions a delight and I fully went through all basic techniques and all variations I could think of with, I would say, rather acceptable results for a first-timer. The teams' approached and attending-trainee ratio was in our favor to make the passing of the knowledge and expertise straightforward. Fresh specimens were readily replaced as the smallest anatomical details that would hinder the operation was discovered. The only suggestion I may add to the whole process is to probably try it on latex or vascular-specific otherwise prepared specimen, to increase the likelihood of identification of the specific pedicle. I grade the whole course the maximum possible and I am looking forward to attend more courses of the kind in the same location. My special thanks go to dr. Romanescu who applied for the grant and therefore made it so much financially acceptable and to the International Federation of Society for Surgery of the Hand who supported the grant.*

Dr Vlad Bloanca: *During 14-15th of October 2021 I participated at the Advanced Training Course in Microsurgical Wrist Reconstruction in Groningen, The Netherlands. The course is a part of the Oldenburg-Groningen Advanced Training Program in Reconstructive Microsurgery. The directors of the course were Lucian P. Jiga, Heinz Burger and Maria Anoshina. The course was endorsed by the IFSSH, via the Romanian Society for Surgery of the Hand. It was an intensive hands-on course focused on vascularised bone transfers for wrist reconstruction. The main goal was to obtain experience regarding the harvesting and reconstruction options with the medial and lateral femoral condyle for the semilunate and scaphoid bone. The course was structured in two parts, first covering the theoretical points of view of the instructors with valuable personal ideas and the second one – the cadaver dissection. The anatomy department at the Groningen University proved to be a great host with very good dissection conditions and well preserved cadavers. The data presented was clearly highlighted by the course instructors and very well demonstrated on the cadavers. This was of major importance from my personal point due to the lack of knowledge in this field in our department. In*

the future, wrist reconstruction will be a domain of interest for us. All round I am grateful for the opportunity to participate in such a high class course.

Dr. Laura Raducu: *The course Advanced Training Program in Reconstructive Microsurgery held in Groningen was a great opportunity to learn innovative techniques on small bones of the hand. This involved microsurgical reconstruction of the scaphoid and lunate bones. It was perfectly organized and I am looking forward to take part in such an amazing training program lead by Dr. Lucian Jiga*

Dr Veronica Romanescu: *The course was a tremendous opportunity for me to learn a new surgical technique, to improve my microsurgical and dissection skills, to meet the people I admire for their work and to create new opportunities for my future career.*

This was the first time I attended a human fresh frozen training module and I was overwhelmed by the way we got trained by the senior doctors, the perfect preserved specimens and the fully equipped training laboratory. The high quality theoretical sessions together with the practical parts relied on the trainers' rich experience and evidenced based medicine. The new informations gained were explicit and the lecturers were extremely available for questions of any kind, always supervising and correcting the mistakes we made practicing. My many thanks to Dr L. Jiga, H. Burger, M. Anoshina and M. Ruettermann for their work during two hardcore days of intense hands-on training, efficient learning and one-to one mentoring.

Dr Andrei Coseriu: *I really enjoyed the course. I found it very useful and I consider it to have been very exciting for the both a novice and the more experienced surgeon. Although it lasted for only two days, I appreciated the emphasis on the practical and technical aspects. The techniques were thoroughly explained and exemplified which permitted us to learn and complete the procedures. I had the chance to discover and to practice a new and different approach for this challenging pathology that is rarely handled in our country.*

How the information attained at the course will help hand surgeons in Romania to promote further and develop carpal reconstruction in my country

The strategy of promoting further and developing the carpal bones reconstruction in Romania through this course was a successful one. The participants were chosen as members of the biggest hand surgery centers in the country, from 4 different parts of Romania and therefore the information will be spread through the whole state over the coming years. Through the new surgical technique learned at this course, the surgeons who attended the training module will be able to reconstruct and rehabilitate carpal bones and joint surfaces. The pathologies able to be treated with vascularized lateral and medial femoral condyle free flap are diverse. The experience gained at the course will help our plastic surgeons expand the possibilities of bone reconstruction throughout the body.

Conclusions

In conclusion, the course was a success, the participants were enchanted by the quality of the fresh frozen specimens and the exclusive practical experience and theoretical informations gathered at the Course of Wrist Reconstruction. The learning curve was so efficient structured that, in my opinion, each of the participants received the proper knowledge to safely apply and further share the new surgical technique at home as soon as possible.



Figure 3. The TEAM - faculty and participants of the Wrist Reconstruction Course in Groningen - The Netherlands- Educational Sponsorship IFSSH 2021

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