



Faculty of Medicine Siriraj Hospital, Mahidol University
Siriraj Resident/Fellow Exchange Program

To Eye Clinic, Uniklinikum Giessen and Marburg, Germany
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Introduction

As a 3rd year resident at Ophthalmology Department, I had experienced with various and interesting cases in every subspecialty in Siriraj hospital. I have chance to assist and observe the surgeries a lot and underwent some surgeries by myself such as cataract surgeries and lid correction. Before I graduated, I ask to myself: What is the further professional I would like to me? Are there anything else I want to learn?.

Strabismus and neurology is one of the fields I am interested so far. As the recommendation from my senior and a doctor in Germany, I applied for the observation program at Eye clinic at University clinic of Giessen and Marburg (UKGM), Justus Liebig University, Germany. This clinic is the most famous strabismus and neuro-ophthalmology in Germany. Also there are the most number of strabismus surgeries in Europe.

University Review

Both Giessen and Marburg are known as the university city. Moreover, they are well-known as the universities with international programs in many fields. This University Hospital ,also the eye clinic, consists of 2 parts, one in Giessen and in the other one in Marburg. However, the main part of Ophthalmology and the strabismus and neuro-ophthalmology clinic is in Giessen where Prof. Dr. Med Birgit Lorenz is the director. She and Prof. Dr. Med. Michael Gräf are renowned in strabismus surgery. They underwent more than 1,000 a year, including non-paralyzed and paralyzed strabismus cases, the referred previous non success strabismus surgery from all around the Germany. They have more than 90 peer-review papers in this field. They also have one of the best orthoptic schools. However, Most of knowledge is described in the German textbook. That makes it less well-known than American system.

In addition, Prof. Lorenz was in the team that established the retinopathy of prematurity (ROP) telemedicine in Germany. She brought the wide field RetCam into ROP screening and developed the protocol. Nowadays, the hospital has the stable and well constructed telemedicine for the ROP screening program.

Expectation and Objective

1. Learn the differences of strabismus patient exam, approach and surgery between practice in Siriraj hospital and in Germany
2. Learn the differences in surgical technique, including the equipment in eye surgeries
3. Learn the ROP screening program in UKGM
4. Learn the healthcare system in Germany

Knowledge / Experience gained

For my exchange program, I emphasized on Strabismus-Neuroophthalmology clinic. My main supervisor is Prof.Dr.Med.Michael Gräf.

Clinical experience

1. Strabismus-Neuroophthalmology clinic and surgery

About 70 percents of patients is referred strabismic patients. For neuro-ophthalmology, the cases include the nystagmus, retinal arterial occlusion, Optic disc swelling and Thyroid eye disease, etc. However, a profound difference in Germany is the patients are examined by the orthoptists. The angle will be measure in both prism diopters and degrees in every eye gaze and head position both at far and near, whereas in Thailand, the angle was measured in prism diopter by ophthalmologists and generally in only primary head position. The measurement in Germany always is recorded numerically. After correcting the refraction, the eye movement, saccadic movement, accommodation and stereopsis were performed. They also test the visual field that has the double vision. Then, they will measure the angle by prism diopter at 5 m. The extra equipment is **“Tangententafel ”or “Harmswand”** which patients do the test to get the angle of squint and ocular torsion in degrees. The orthoptists here experienced with a lot of complicated cases such as newborn and strabismus with nystagmus. (The example in Appendix 1)



<https://www.thieme-connect.de/products/ebooks/pdf/10.1055/b-0035-111133.pdf>

For the surgical technique, they undergo “Faltung” (means folding) instead of muscle resection. Because they believed Faltung is less injury than muscle resection and from the study, the result is not significant clinically different. The other interesting things are that there are various and new surgical procedures such as anterior Superior oblique(SO) Faltung in SO palsy which eye extortion dominated than vertical deviation, large dose Anderson procedure in nystagmus patient, Posterior two-third SO tenotomy in SO overaction or the myopexy in unstable esotropia that has the large different at far and near.

The scope in neurology is also different from Siriraj Hospital. Here, the optic neuritis are investigated, diagnosed and treated by Neuromedicine. Whereas the Patient with CRAO was taken the responsibility prescribe rtPA by Ophthalmologists.

2. Surgeries in other fields

I have a good chance to observe in many surgeries besides the strabismic surgery. Here is my first experience in 3D retinal surgery combined with optical coherence tomography (OCT) by Dr.Lyubomyr Lytvynchuk. The OCT was applied not only with the retinal surgery, but also the lens surgery to check IOL position. I also have a chance to learn sclera flap IOL fixation technique. With

Dr. Francesco Luciani, I assisted in the Corneal transplantation and have the chance to see the iStent (one of glaucoma device) application for the first time.

3. The retinopathy of prematurity (ROP)

Prof. Lorenz have the high experience with RetCam more than 20 years. Since 2015, the RetCam was the main instrument for ROP screening. Moreover, they have the successful telemedicine with other 2 children center hospitals. Pediatricists were trained to use RetCam and the image will sent to the eye clinic in UKGM while in Thailand, we were trained to use indirect ophthalmoscope to exam. The telemedicine is quite limited only in some part of Thailand. At present, there is no telemedicine of ROP program in Siriraj hospital.

Eye clinic in general and the health care system in Germany

Every ocular imaging is collected in the Heidelberg Engineering Software which they used for review and also in conference in every morning. Except the medical examination part, all the data (referral document, operation, medication etc.) is recorded in one software where as in our hospital using the software from different developers that may be the obstacle for data management. Whereas, our medical system supports studying and surgical skill much more than in German where there are not much academic activities and the residents are not allow much to perform the surgery.

The Polyclinic is main clinic for walk-in and referred patients. All the patients were examined by 1st year Assistenzarzt (resident) first and then were confirmed by Oberarzt (staff). Also, they let me examine many interesting cases by myself during the observation. The healthcare system in Germany based on the health insurance, Basic and private. Generally, patients were examined first by Hausarzt or General Ophthalmologists in clinics before referral.

Benefits

- I learnt the German system, beside of American-based practice, which also based on the Orthoptists. In my opinion, we can apply some technique from German system to approach in some complicated cases because it provides more detail.
- There are many new ocular muscle surgical technique which are less traumatic and may be applied to our patients.
- The another valuable thing I learnt is the discipline in work. German is rarely to use there electronics for personal stuff while working. In their culture, to be on time (pünktlich) is very important. They concentrated in their work and always prioritize them either. They arrange the time for meeting quite short but effectively. Everyone discuss openly and get to the point.

Life in abroad

The public transportation in Germany is well-constructed. So, there is no need for Automobile seeking. There are very useful apps such as DB Navigator and FlixBus those worth to download. To get some card showing your student status (in my case is the “M card” of UKGM) ,even though just to be the guest, save your money a lot. You could get the free monthly bus ticket, the discount in Cafeteria, cheap laundry and discount in every museum. In Germany, the environment is the important issue. Don’t forget to categorize the garbage before dropping. Every packaging and plastic bags from stores are charged.

Future plan

- I intend to apply the fellowship program in the field of Neuroophthalmology after graduated
- Since now, I am going to improve my knowledge and surgical skill. At the same time I would like to improve my German to reach the B1 level at least. Consequently, I could explore more the German textbook and journal.
- I intend to apply both in American and German based knowledge to our practice in Thailand through the research and cooperation.

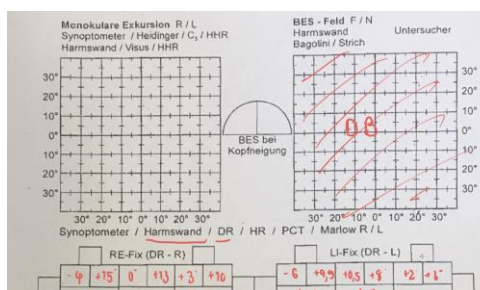
Recommendations

For anyone who interests in this program, to have the clear and specific objective, in my view, is the most important point. We should also prepare data in our practice for discussing with the professors there. So, we will get the valuable opinions and perspectives. In Germany, to know the German language will support the observation a lot. However, professors here can discuss in English well either.

Appendix 1

Case Example (the information and images were allowed for report by Prof.Dr.Med. Birgit Lorenz)
 History: A 17 year old female who was diagnosed brain tumor and was underwent tumor resection 10 years ago. After the surgery, she had the exophoria and she was performed surgery in the other hospital. However, they could not find the superior oblique muscle intraoperatively. After that, she developed the vertical diplopia and nystagmus. So she was referred to hospital for the surgery

Ocular exam:



She got the right eye hypertropia which distinctive in downward gaze

Management:

- MRI : there were superior oblique muscles in both eyes, no recurrent tumor.
- Surgery : superior rectus muscle recession 3 mm RE, inferior rectus recession 4 mm

Follow up

She had less vertical angle diplopia in every eye gaze. And she could see without diplopia in chin down position as counseling before the surgery