



# A clinical fellowship experience in Europe: a Japanese perspective

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Received: 14 March 2022; Accepted: 17 June 2022; Published online: 23 June 2022.

doi: 10.21037/asj-22-13

**View this article at:** <https://dx.doi.org/10.21037/asj-22-13>

## Introduction

Clinical or research experience abroad is often encouraged for early-career professionals, in order to enhance future career prospects, especially to enrich medical education and training (1-3). Such opportunities deliver an experience of different types of hands-on training along with multiple changes in the working environment which necessitate one to think and work with a fresh mindset. Taking advantage of fellowship programs to pursue overseas training has recently gained popularity among general thoracic surgeons worldwide, although their purposes or motivation vary widely (4-7).

This article describes a clinical fellowship of thoracic surgery in Europe, focusing on its benefits and challenges from the experience of a Japanese surgeon.

## Meaning and value of overseas clinical surgery experience

In recent times, various surgical learning materials, including intraoperative movies, are easily accessible on- and offline. However, these alone cannot lead to surgical mastery. Direct exposure to surgery where trainees can manipulate organs with their hands and learn skills under hand-to-mouth instruction is essential to inculcate sound surgical techniques and safely perform medical procedures. Therefore, the ability to undertake surgical experiences that are difficult to learn in a home country should provide sufficient motivation for the pursuit of a clinical fellowship overseas. In addition to gaining hands-on training, opportunities for intellectual interactions with colleagues who come from diverse backgrounds but share similar goals are important factors that contribute to professional growth during the fellowship. These motivating factors should be

taken into consideration when a surgeon decides to embark on an overseas fellowship. There may also be many other considerations based on each surgeon's life circumstances.

## Clinical features of thoracic surgery in Japan

In general thoracic surgery, which deals with many organs and diseases under a single medical specialty, there is a need for mastery of both surgical techniques as well as knowledge. The surgical procedures required vary in individual countries owing to various factors including epidemiology, medical systems and resources, ethics, and culture. Readers interested in the clinical features of Japanese thoracic surgery are encouraged to refer to the annual report by the Japanese Association for Thoracic Surgery (8). Surgery for pulmonary tumors including primary lung cancers has been the most common over the last decade, and the number has steadily been increasing. In particular, small-size or early-stage primary lung cancers have been more frequently detected in recent years due to the widespread use of chest computed tomography screening. Consequently, the main interests of Japanese thoracic surgeons have focused on the less invasive lung cancer surgeries, other surgeries with minimally invasive approaches such as video or robot-assisted thoracic surgery, or sublobar resection including various types of anatomical segmentectomy. These minimally invasive surgeries (MIS) have become widespread in hospitals throughout Japan, and their standards for quality and safety have been maintained at a high level. Hence, it is safe to say that thoracic surgeons in Japan are generally well educated and trained for MIS from a young age. On the other hand, lung transplantation is a rare procedure for most Japanese thoracic surgeons. In Japan, which is well known for the extreme rarity of organ

donation, there are only 60–70 brain-dead donors available per year out of a population of over 120 million people. Only 70–80 lung transplantations, even including living donor cases, are performed in a year, and only at 10 certified lung transplant facilities. Consequently, most surgeons in Japan who are not associated with those 10 institutions go through their surgical careers without experiencing lung transplantation (9).

### **Author's European fellowship experience**

#### ***Clinical background before embarking on the clinical fellowship***

The author, Waseda was trained as a thoracic surgeon solely in Japan after graduating from Japanese medical school. After 8 years of training, he had become recognized as a specialist in thoracic surgery. He accumulated experience in clinical practice, then started working as an attending surgeon in a university hospital. During this time, he learned to complete most surgical procedures in general thoracic surgery as the sole surgeon before applying for a clinical fellowship. Throughout this period, he did not have the opportunity to experience any form of lung transplantation.

To further his career and facilitate his development as a thoracic surgeon, the author set his goal to gain mastery in lung transplantation. Therefore, he applied for a clinical fellowship program at the Medical University of Vienna (MUW), motivated by the information he had obtained from a colleague who had previously visited the department of thoracic surgery at MUW as an observer.

#### ***Hands-on experiences in Vienna***

He started his clinical fellowship at MUW in 2014, which marked his 14<sup>th</sup> year as a thoracic surgeon, and it lasted for 18 months. He was fully involved in all clinical activities at MUW as a clinical fellow. His daily routine was as following: morning ward rounds including intensive care units, planned surgeries in theater, bronchoscopic interventions, and other investigative procedures. In addition, he participated in all aspects of lung transplantation activities from surgery for implantation and explantation, evaluation of donors and recipients, to perioperative management including extracorporeal support. Although lung transplantation is generally performed as an emergency measure, the author made every possible effort

to participate in lung transplantation since learning those skills and techniques was his top priority in the fellowship. As a result, he was able to experience more than 150 cases of lung transplantation in 18 months. Of those, he was allowed to perform implantation, explantation, and procedures for extracorporeal support as both an assistant and as a surgeon under the supervision of attending surgeons.

In addition to lung transplantation, he was able to gain a variety of other clinical experiences that are usually unfamiliar to Japanese thoracic surgeons. In particular, he got exposed to the comprehensive management for laryngotracheal problems, theory and practice regarding extracorporeal life support (ECLS), and highly skilled bronchoplasty and angioplasty in extended surgeries for advanced tumors.

Furthermore, he had the opportunity to participate in research activities using a clinical database at MUW concerning pediatric lung transplantation and aggressive surgical treatment of Pancoast tumors, both of which are uncommon in Japan. The author's involvement in research and engagement in intellectual dialog with professors and colleagues allowed him to attain a deeper understanding of treatment strategies and further improved his clinical skills. Consequently, he had the opportunity to present findings at international scientific conferences and in international publications (10,11).

#### ***After the fellowship: changes in the professional career***

In addition to enhancing surgical skills and knowledge regarding lung transplantation, this invaluable experience at MUW greatly heightened the author's interest in lung transplantation. His aspiration to remain involved in the clinical practice of lung transplantations even after returning to Japan motivated him to seek employment in one of the certified lung transplant facilities in Japan. Since then, he has played a prominent role in the lung transplant team of the institution and has been involved in more than 30 lung transplants in the past five years, including a complex case requiring a pretransplant ECLS bridging. Such case is extremely rare in Japan.

Furthermore, the benefit of his fellowship at MUW was not limited to lung transplantation. He brought to Fukuoka University his experience of surgery for laryngotracheal diseases, another specialty at MUW, tracheobronchoplasty for severe tracheobronchomalacia (12), cricotracheal resection, and reconstruction for subglottic stenosis.

## How to achieve a successful clinical fellowship in Europe

International clinical fellowships have become relatively common in the field of thoracic surgery in recent years, and European countries are popular destinations (4–6). Since there is a technical aspect to surgery, hands-on participation in surgical training is essential in addition to learning from textbooks and videos. Therefore, it makes sense to use fellowships abroad to learn surgical techniques in the field that are difficult to master in one's home country. However, for Japanese thoracic surgeons, international clinical fellowships are not yet as established as research fellowships, and there are various associated difficulties. Perhaps, one of the most notable obstacles impeding effective learning and training might be difficulties associated with language and culture. There is a striking difference between Asian and Western languages in terms of structure and pronunciation. Thus, this can be a bigger obstacle for Japanese individuals or people of Asian origin than for those from European or other Western countries. Likewise, cultural backgrounds with features such as social system, religion, lifestyle, ethnicity, and ethics, differ greatly. Clinical work generally requires the ability to dynamically respond to interpersonal situations and a wide variety of other matters; therefore, such differences can impose excess pressure in some situations. For example, if unexpected and serious problems arise during surgery, everyone must understand their role as a member of the multidisciplinary team and act accordingly. It is also necessary to share opportunities for valuable clinical work with other fellows or departmental residents. Conversely, it may be important to occasionally volunteer for tasks no one wants. Being fully prepared by spending time learning language and culture can assist in overcoming these obstacles. Nevertheless, acquiring sufficient surgical skills that enable one to learn what one wants to learn, cannot be neglected. The latter may be more important to those Japanese surgeons who have concerns about language skills and understanding of culture. Since the author was already a specialist at the time of the fellowship with a large range of surgical skills and experiences, it allowed him to achieve excellent surgical experiences in MUW despite the language and cultural barriers.

The choice of the facility is also extremely important, with factors such as the facility's field of expertise, the staff skills and personalities, living environment, and the presence of other fellows. In these respects, the MUW best suited the author's aims. A huge caseload of highly specialized

surgical activities including lung transplantation, benign airway surgery, and extended oncological surgery that are unusual in Japan, as well as the opportunity of working with surgeons with complementary skill sets and collaborative spirit perfectly aligned with the author's expectations of the fellowship. Vienna, a safe cosmopolitan with various arts and cultures was a comfortable environment for an Asian surgeon, and it offered a perfect work-life balance. MUW is one of the leading institutions in Europe, so there were always many young fellows visiting from other European countries. Both on-the-job and off-the-job communication with such fellows were helpful in understanding the European mindset and culture; the author learned a great deal about the medical system and lifestyle of each country from casual interaction with these fellows. The author had the advantage of receiving mentoring from a Japanese colleague who had previously participated in the fellowship at MUW; this enabled him to imagine and anticipate responses to various situations and apply his skills and knowledge to clinical practice.

So far, as important factors for a successful international fellowship, learning “what”, “where”, and “when” have been discussed. After all, having an open-minded and positive attitude toward all people and things in any situation is of great importance. This is key to overcoming the many difficulties associated with a clinical fellowship abroad and achieving the best possible results. Fellowship achievements beyond the challenges of surgical experiences include the development of self-confidence, new friendships, and an understanding of other cultures that all enrich later life. For the author, the experience of a clinical fellowship in Vienna, in Europe was definitely an experience to be treasured for the rest of his life.

Finally, Japan-specific issues related to clinical fellowships abroad should be discussed. Compared to other countries, international clinical fellowship programs, especially with support from the government or public organizations, are not well developed in Japan. A couple of academic societies for thoracic surgery in Japan encourage international fellowships. However, their support is quite limited and is only short term. Although the difficulty of obtaining funding for fellowships seems to be universal, it is extremely difficult to source sufficient funds for a long-term clinical fellowship. Many Japanese grants are available for research fellowships abroad but are not available for clinical fellowships. Even if available, they are very small in monetary value. Because of these many issues, Japanese

surgeons rarely study clinical practice abroad. Given the benefits of international clinical fellowships, it is hoped that support programs or funding in Japan will improve in the near future.

## Conclusions

A Japanese thoracic surgeon's clinical fellowship experience in Europe was presented in detail. It was somewhat challenging but extremely rewarding, and life-changing in both professional and personal contexts. It is hoped that this article will be helpful and stimulating to all who are considering a clinical fellowship in Europe.

## Acknowledgments

I would like to thank Prof. Klepetko and all my colleagues at MUW for their unwavering cooperation with my goals during my fellowship. I would also like to express my deep appreciation to Prof. Takemura and colleagues at Kanazawa University for their gracious support.

*Funding:* None.

## Footnote

*Provenance and Peer Review:* This article was commissioned by the Guest Editors (Francesco Guerrera and Anna Elisabeth Frick) for the series "Training and Education in Thoracic Surgery: the European Perspective" published in *AME Surgical Journal*. The article has undergone external peer review.

*Conflicts of Interest:* The author has completed the ICMJE uniform disclosure form (available at <https://asj.amegroups.com/article/view/10.21037/asj-22-13/coif>). The series "Training and Education in Thoracic Surgery: the European Perspective" was commissioned by the editorial office without any funding or sponsorship. The author has no other conflicts of interest to declare.

*Ethical Statement:* The author is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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doi: 10.21037/asj-22-13

**Cite this article as:** Waseda R. A clinical fellowship experience in Europe: a Japanese perspective. *AME Surg J* 2023;3:31.