As of 2024.3

This report should be submitted within 2 weeks after you return to Japan. Please do not change the formatting

(Abroad・Domestic) Internship report form (Student) _____(2024/05/08)

Name	Shangyi Wang
Laboratory	Molecular Medicine
Year (Grade)	D4
Internship institution	Animal Medical Center of Rakuno Gakuen Univeristy
Internship period	Internship period: 04/22/2024 - 04/26/2024 (Departure Date from Sapporo: MM/DD/YYYY, Arrival Date in Sapporo: MM/DD/YYYY)

- **Purpose and the reason why you chose this institute**

An introduction of myself

Throughout my academic career, I have dedicated four years to molecular immunology research, harboring plans to venture into the biopharmaceutical industry upon graduation. However, a serendipitous invitation last year from a respected professor at my alma mater in China dramatically shifted my career trajectory. The professor, who deeply values educational contributions, offered me a position to join her team in the Department of Internal Medicine as a lecturer. Since I am eager to contribute to the field of education and deeply valuing this opportunity, I decided to realign my career towards academia.

Choosing the institution

Given this significant shift in my career goals, I sought to broaden my practical experience in clinical medicine—a field I had not previously explored hands-on. After consulting with my mentor, we identified Rakuno Gakuen University in Japan as an ideal venue for a short-term internship. The wealth of clinical cases presented at the internal medicine department of Rakuno Gakuen University is a significant draw for me. The broad spectrum of conditions they address, including immune-mediated diseases, blood disorders, digestive disorders, urinary system disorders, endocrine disorders, and more, aligns perfectly with my academic interests. Furthermore, the emphasis on advanced technology and collaboration within the institution is noteworthy. The availability of high-resolution ultrasound equipment capable of detecting

abnormalities as small as a few millimeters is a testament to the commitment to excellence in diagnostics. The collaboration with the imaging diagnosis department and anesthesia department (I have been heard this department represents the best level of animal anesthesia in Japan) allows for seamless coordination, ensuring prompt CT scans and endoscopic examinations. Such an integrated approach to patient care resonates with my belief in comprehensive and interdisciplinary medical practices.

- **Result of the activity** **(about 800 words, provide photos, tables and figures that clearly show the activities during the period)**

Familiarizing the department's layout

Rakuno Gakuen University's Animal Referral Center boasts a spacious and well-designed facility. The center is equipped with varieties of examination rooms, each strategically laid out to optimize the workflow and ensure efficient patient care. The spaciousness of the center allows for a comfortable environment for both the animals and the staff, enhancing the overall treatment process. Each examination and treatment room is meticulously arranged, ensuring that all necessary diagnostic and therapeutic equipment is easily accessible, facilitating seamless clinical operations. Although five-day-activity is not enough for me to get into all the places facilities and functional rooms that should be present in a pet medical center, I will list some typical places that I went.

1. Consultation rooms (Fig.1A)

There are multiple rooms where veterinarians can meet with pet owners and conduct initial examinations.

2. Treatment room (Fig.1B, C)

The space for administering treatments and minor procedures: weight measurement, respiratory examination, auscultation, temperature measurement, mucous membrane and capillary refill time (CRT) check, otic examination, skin turgor test, blood sampling, and etc.

Figure 1. Consultation and treatment rooms
A. Consultation rooms
B. Treatment in open space
C. Treatment room

3. Clinical Laboratory (Fig.2)

The lab for conducting blood tests, urinalysis, biopsies, and other diagnostic tests. There are technicians work for the tests.

Figure 2. Clinical lab.

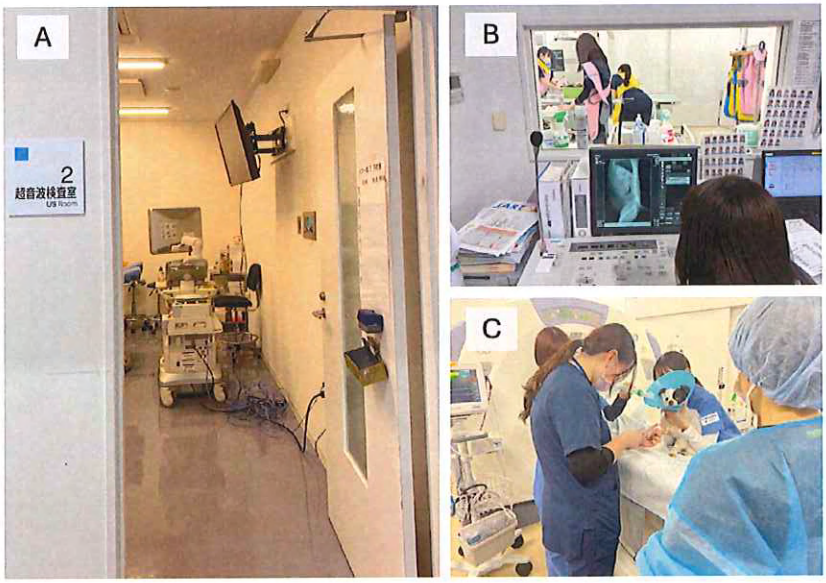

Figure 3. Imaging suite
A. ultrasound room. B. X-ray room. C. CT room

4. Imaging suite (Fig.3)

Includes ultrasound (Fig.3A), X-ray (Fig.3B), CT (Fig.3C), and MRI machines for detailed internal imaging.

5. Surgery Suites (Fig.4A, B, C)

Anesthesia induction room (Fig.4A), preparation& surg.inst. storeroom (Fig. 4B), sterile operating rooms (Fig.4C) equipped with advanced surgical instruments and anesthesia machines.

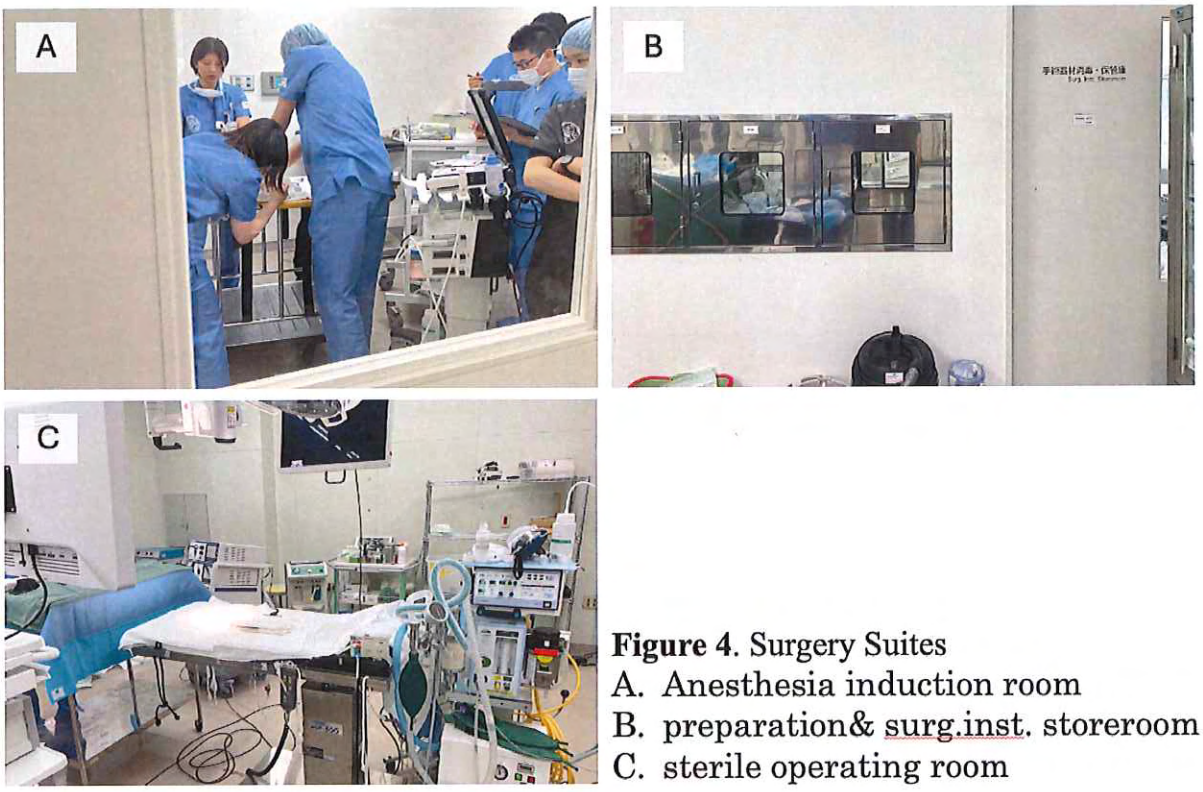

Figure 4. Surgery Suites
A. Anesthesia induction room
B. preparation& surg.inst. storeroom
C. sterile operating room

6. Pharmacy

A well-stocked pharmacy with medications and supplies for immediate dispensing.

7. Intensive Care Unit (ICU)

Specialized area for critically ill or injured pets requiring close monitoring and intensive treatment.

8. Isolation room (Fig.5A, B)

Separate areas to house and treat pets with infectious diseases to prevent cross-contamination.

Figure 5. Isolation room A. view from outside. B. view from inside.

9. Boarding facilities (Fig.6A, B)p

Secure and comfortable accommodations for pets requiring overnight or extended stays.

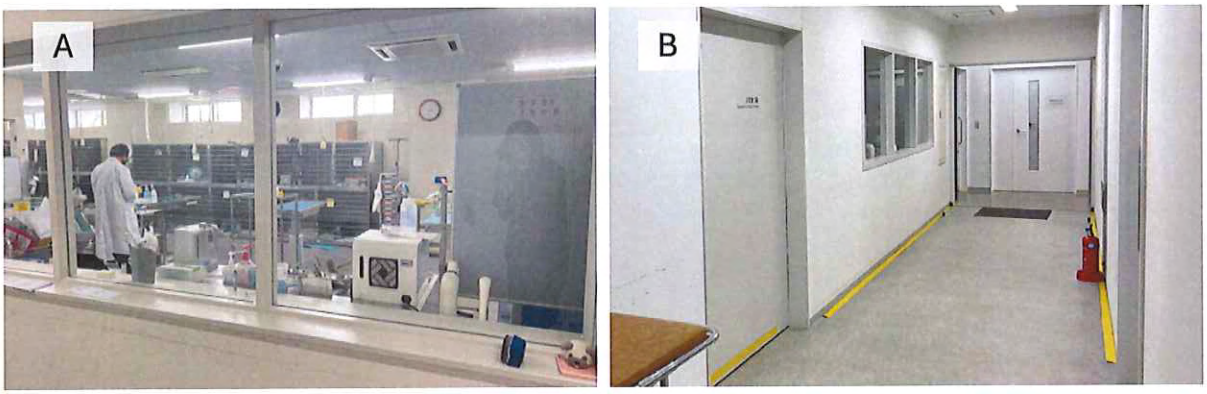

Figure 6. Boarding facilities A. for dogs. B. for cats.

10. Chemotherapy room (Fig.7)

Chemotherapy agents exert cytotoxic effects by impairing DNA. The room is set for minimizing exposure for veterinary staff and pet owners by using safety cabinets to make sure closed-loop processes.

Figure 7. Chemotherapy room

[Take part of daily workflow]

8:00	taking care for the admitted animals
9:00	morning seminar
9:30	face-to-face diagnose through interrogation
10:00	examinations (no need anesthesia)
13:00~15:00	meeting with owners
15:00~18:00	CT, MRI, operations, and consultation of doctors
18:00~19:00	meeting with owners and explain the situation

Practical performance tasks

During my internship at Rakuno Gakuen University's Animal Referral Center, I engaged in various practical tasks that provided valuable hands-on experience and insight into clinical veterinary practices. As an intern, my practices included:

1. Reception and initial assessment

Welcoming pet owners and their animals. And collecting basic information about the pet's health history and current concerns. Recording the initial observations and preparing the pet for examination by the veterinarian.

2. Assisting in physical examinations

Helping to restrain and position the animals during physical examinations to ensure their safety and comfort. Measuring and recording vital signs such as temperature (Fig.8A), respiratory rate, pulse rate etc.

3. Collecting samples

Assisting in the collection of blood samples for laboratory testing. Assisting with the collection of other samples, such as feces, under supervision.

4. Assisting with diagnostic procedures

Preparing animals for ultrasound examinations by positioning and restraining them appropriately. Assisting with the setup and cleanup of examination and treatment areas. Assisting with the collection of ascitic fluid from the abdomen (Fig. 8B), ensuring proper technique and aseptic conditions.

10. Observing and learning

Observing various surgical procedures and advanced diagnostic techniques performed by licensed veterinarians. Gaining knowledge about different veterinary specialties and the overall operation of the animal medical center.

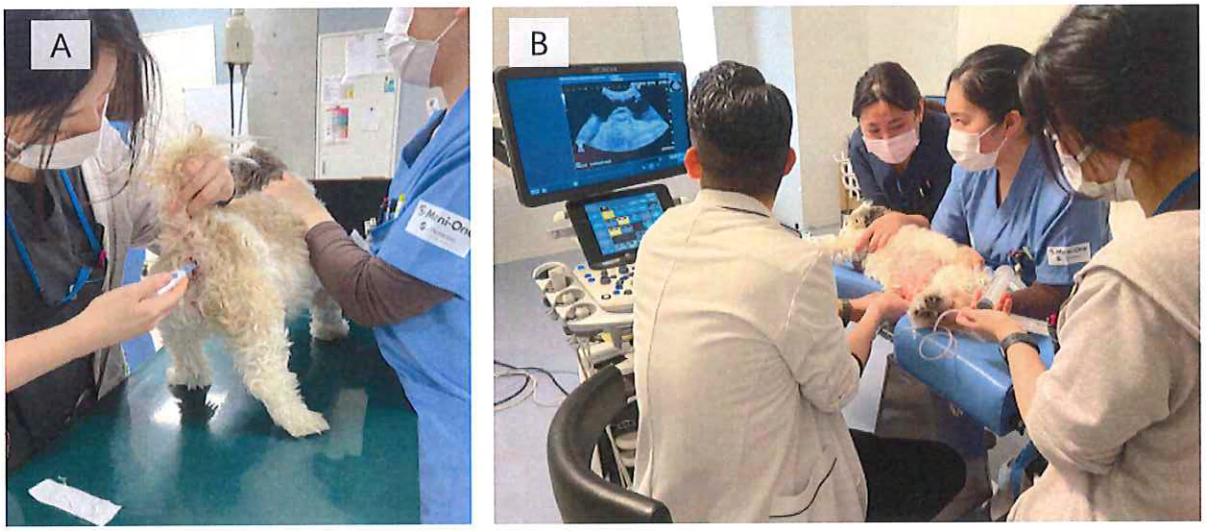

Figure 8. A. physical examination. B. assist with ascites extraction

Mainly cases which I followed

I had the opportunity to observe and assist with a variety of complex and routine cases. These experiences significantly enhanced my understanding of veterinary clinical practices. The main cases I followed include:

1. Laparoscopic liver biopsy surgery for a cat (Fig.9)

By observing the surgical procedure and post-operative care provided to the patients.

2. Digestive tract endoscopic biopsy surgery for a dog (Fig.10)

Observed the biopsy procedure and subsequent analysis of collected tissue samples.

Figure 9. Laparoscopic liver biopsy surgery

Figure 10. digestive tract endoscopic biopsy surgery

3. Diagnosis and treatment of feline infectious peritonitis (FIP)

Supported the diagnostic process for cats suspected of having FIP. Assisted in administering treatments and monitoring the health status of affected cats. Learned the diagnostic methods, critical period judgment, and advanced treatment drugs for FIP.

4. Ultrasound diagnosis and treatment of a dog with cardiac insufficiency (Fig.11)

Assisted with restraining dogs during ultrasound examinations to diagnose cardiac conditions. Observed the treatment plans formulated based on the ultrasound findings.

5. Detailed ultrasound examination of a dog with cystitis/hematuria (Fig.12)

Assisted in conducting thorough ultrasound examinations of dogs presenting with cystitis and hematuria. Observed the interpretation of ultrasound images and the subsequent treatment plans.

6. Acupuncture therapy for an epileptic dog (Fig.13)

Observed the therapeutic process and the effects of acupuncture on seizure management.

Figure 11

Figure 12

Figure 13

7. Comprehensive examination of a dog with jaundice after gallbladder removal surgery

Assisted with detailed diagnostic procedures, including ultrasound and CT scans, to determine the causes of jaundice in dogs. Observed the diagnostic process and the formulation of treatment plans based on the findings.

8. Regular check-ups of previous patients

Assisted in the routine examination and monitoring of various patients. Recorded vital signs and helped in conducting regular health assessments.

Participation in Seminars

I actively participated in various educational activities that enriched my learning experience and provided deeper insights into veterinary medicine.

1. Monthly online study session

It was held in the evenings after work. Veterinarians discussed with imaging specialists and colleagues, focusing on complex cases and diagnostic challenges that they met in the past month. Reviewed and analyzed difficult-to-interpret X-

ray and CT images. This experience enhancing my understanding of radiographic techniques.

2. Lectures

On Friday morning, participated in in-house interdisciplinary lectures, which provided a platform for learning about various specialties within veterinary medicine. It was a specific lecture on surgical management of fractures, which was particularly insightful for understanding orthopedic procedures and post-surgical care.

3. Graduate students' research progress report

Engaged in discussions and provided feedback on their methodologies and findings, fostering a collaborative learning environment.

These educational activities were integral to my internship experience, allowing me to gain a broader perspective on veterinary practices and to stay updated with the latest developments in the field.

- **What do you think the positive impact of the activity will have on your further career path?**

This experience has provided me with valuable practical skills, enhanced my clinical knowledge, and offered numerous opportunities for interdisciplinary learning and professional networking.

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1. Enhanced practical skills

By actively participating in hands-on tasks such as assisting with physical examinations, monitoring vital signs, and supporting diagnostic and therapeutic procedures, I have significantly improved my practical skills. This hands-on experience is invaluable, given my previous focus on molecular immunology research.

2. Insight into advanced diagnostic techniques

Observing and assisting with advanced diagnostic procedures, such as ultrasound and CT, has deepened my understanding of veterinary diagnostic

techniques. This knowledge is crucial for bridging the gap between my research background and clinical practice.

3. Interdisciplinary learning

The monthly online study sessions and in-house interdisciplinary lectures provided a platform for learning about various specialties within veterinary medicine. These sessions facilitated discussions on complex cases and diagnostic challenges, broadening my perspective and enhancing my problem-solving skills.

4. Exposure to cutting-edge veterinary practices

The internship exposed me to advanced facilities and practices at Rakuno Gakuen University. This exposure has highlighted the importance of modern diagnostic tools and efficient hospital layouts in providing high-quality veterinary care.

While pet hospitals in my country are rapidly developing, there are several areas where improvements can be made, particularly in terms of layout design and facility completeness:

1. Layout design

Many pet hospitals in China suffer from inefficient layouts that can hinder workflow and patient care. During my internship, I observed the importance of well-designed spaces that facilitate smooth transitions between examination, treatment, and recovery areas.

2. Facility completeness

There is often a lack of advanced diagnostic equipment, such as CT scanners, in Chinese pet hospitals. The comprehensive facilities at Rakuno Gakuen University highlighted the benefits of having such equipment readily available.

3. Interdisciplinary collaboration

The interdisciplinary approach observed during my internship, including regular study sessions and lectures, is often missing in Chinese pet hospitals. Encouraging collaboration between different specialties can lead to better diagnostic accuracy and treatment outcomes.

- **Report how your activity could link to One Health Approach (If applicable)**

If you also conducted OH onsite training (Ally Module4), please describe some of the examples of One Health approach you implemented in your activity. Or explain the possibility(ies) how you could link this activity to One Health approach for your future.

By linking veterinary practice with broader public health and environmental considerations, my activities during this internship support the One Health approach. Ensuring the health and well-being of animals not only benefits the animals themselves but also protects human health and contributes to a healthier environment. This holistic perspective is crucial for addressing complex health challenges in an interconnected world. For example, the FIP diagnosis and treatment. Working on cases involving FIP, a viral disease in cats, highlights the importance of controlling zoonotic viruses. Understanding and managing such diseases in animals helps prevent potential cross-species transmission and protects human health. And we do public health education. By communicating effectively with pet owners about their animals' health and treatment plans promotes awareness and education. Educated pet owners are better equipped to prevent and manage diseases in their pets, reducing the risk of zoonotic disease transmission.

- **Advice for your junior fellows**

My internship was a bit out of the ordinary. I changed my career direction last minute and I was in a unique environment. And I put off the internship after my publishment was done. But this last-minute plan could be tricky, especially if you want to grab a chance by yourself. Thankfully, the WISE Office was really supportive with the schedule and reminded me about all the important steps. My supervisor and our associate professor were very kind, they generous helped me connecting with hospitals and medical colleges.

Here's a tip: don't stress about linking your current research to your future career. Think of it as an adventure. You might discover surprising things that can change your perspective. Maybe this kind of experience can help you see things differently and handle challenges better. Just go with the flow!

As of 2024.3

Approval of supervisor	Institution・Official title・Name Laboratory of Molecular Medicine Faculty of Veterinary Medicine Professor Mutsumi Inaba

※1 A certification form from the host should also be submitted.
※2 The Career Path Committee will first confirm the content of this report and report will be forwarded to the Educational Affairs Committee for credits evaluation.

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