

Radiation Oncology – A Merging of Biology and Physics

Text and photos by Dr Shaun Ho

What is radiation oncology?

Radiation oncology has traditionally been one of the best kept secrets in medicine. Even though this specialty is becoming increasingly popular overseas, it is still relatively unknown locally due to limited exposure to it in medical school, despite the important role it plays in the treatment of cancer. It is estimated that more than half of all patients diagnosed with cancer will undergo radiotherapy during the course of their illness, whether it is in the curative, palliative, neoadjuvant or adjuvant setting.

Friends and family, even those in healthcare, have little idea what radiation oncology is about. It is often confused with diagnostic imaging,

interventional radiology, nuclear medicine or medical oncology. In radiation oncology, we use ionising radiation in the form of photons, electrons and even protons to treat patients with cancer or other benign conditions such as thyroid eye disease, keloids, acoustic neuromas, arteriovenous malformations and trigeminal neuralgia.

Radiotherapy has come a long way since its therapeutic potential was discovered more than a hundred years ago. It has developed rapidly, especially over the last 20 years, from simple 2D techniques to 3D conformal radiation therapy (RT), to intensity-modulated RT and stereotactic radiosurgery. As technology continues to advance, so does our ability to deliver radiation to a target with greater accuracy and higher dosage while sparing as much normal tissue as possible.

Why I chose to specialise in radiation oncology

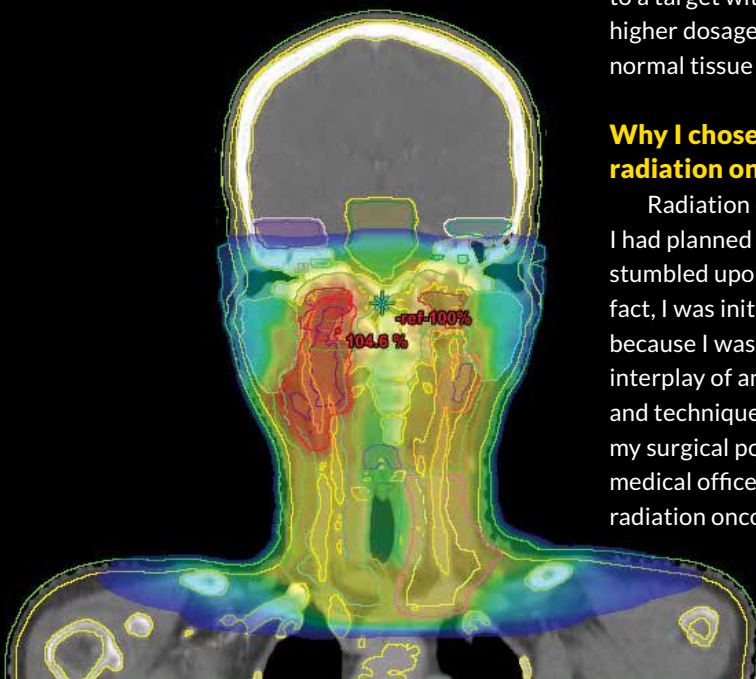
Radiation oncology was not what I had planned on specialising in – I stumbled upon it unexpectedly. In fact, I was initially drawn to surgery because I was fascinated with its interplay of anatomy, pathology and technique. However, during my surgical posting, I met a fellow medical officer (MO) who was a radiation oncology trainee rotating

through general surgery. That was when I first learnt about this field and the intriguing nature of its work, which seemed to share similarities with surgery minus the invasiveness. Later, I did a posting in radiation oncology and decided to stay put.

Radiation oncology appeals to me in several ways. The first is our patients – as every oncology patient we meet in the clinic faces a serious disease, it is a privilege to be part of the treatment process to cure or palliate our patients and it is also very rewarding. Furthermore, many consultants are able to build close relationships with the patients and their families because patients who receive RT are often on long-term follow-up after the completion of treatment.

Another factor that draws me to radiation oncology is the colleagues in the department – fellow doctors, radiation therapists, nurses, physicists and dosimetrists – who work closely together. From healthcare staff who go the extra mile for patients, to fellow trainees who help and support each other, to senior doctors who are always ready to provide help and advice, everyone is passionate about their work and caring towards the patients.

Several incidents left a lasting impression on me. One was a consultant who had travelled to a



patient's house to pass him some medication when he found out that the patient had significant side effects from RT. Another colleague recently fetched a deaf patient who was uncontactable by phone to the hospital because the patient's CT scan was suggestive of a retropharyngeal abscess. Such colleagues who genuinely care and go the extra mile for their patients remind me daily why I chose to practise medicine.

Unfortunately, radiation oncologists are often subjected to button-pushing witticisms due to the perceived one dimensional nature of our work, but nothing can be further from the truth. Another aspect of radiation oncology that appeals to me is the broad knowledge base and skill sets required in this field. Not only do radiation oncologists need to be familiar with reading CT scans, MRIs and nuclear imaging, we must also have a good understanding of surgical procedures and anatomy, as it helps guide target volume contouring. Due to the many patients with terminal disease that we manage, we also need to have a basic understanding of chemotherapy and the systemic treatment options available, and be familiar with palliative care.

A day in the clinic could involve performing a nasendoscopy for one patient, a vaginal examination and Pap smear for another patient, followed by a depot injection of goserelin for a patient with metastatic prostate cancer while titrating his pain medications and having a discussion about future care plans, and finally, interpreting the radiological films of another patient. While the initial learning curve can be steep, the multifaceted aspect of our work helps to keep things interesting.

Radiation oncologists have fairly predictable schedules, which is uncommon in medicine. While weekdays can get quite packed, we

do not have night calls and most weekends are free. This allows for good work-life harmony, giving us sufficient time for our families and hobbies.

Radiation oncology training

Radiation oncology is one of the remaining training programmes not yet under the residency system. It consists of five years of seamless training, of which one year is spent in relevant non-radiation postings of our choice. We work towards attaining the UK FRCR (Clinical Oncology) or the FRANZCR (Radiation Oncology), the Australian/New Zealand equivalent. The former qualifies physicians in the UK to be clinical oncologists who can prescribe both chemotherapy and radiotherapy, but it can be quite challenging to clear the exams as we do not prescribe chemotherapy in Singapore. Besides clinical oncology, the exams also cover subjects such as physics, statistics, pharmacology, cancer biology and radiobiology. As some of these topics are not covered in medical school, it takes some effort to learn them from scratch.

To help us in our training, we have weekly combined tutorials across institutions. In-training assessments are conducted through regular mini-Clinical Evaluation Exercises, case-based discussions and Direct Observation of Radiotherapy Planning Skills (DORPS). We also

have six monthly end-of-posting assessments, comprising multiple choice questions and vivas. During our training, MOs and registrars rotate through various firms in the department to gain exposure to the different oncology subsites such as neuro-oncology, head and neck, thoracic, breast, gastrointestinal, urology, gynaecology, lymphoma, paediatrics and sarcomas. The department is also generally supportive of trainees who wish to broaden their knowledge beyond radiation oncology.

Overall, radiation oncology is a very interesting field, incorporating technology and imaging with patient care and contact. I am fortunate to have stumbled into this field and am thankful to be training in a specialty that I enjoy. ■



Shaun is a radiation oncology registrar at National Cancer Centre Singapore. A lover of the outdoors, he can be found jogging through park connectors across Singapore on weekends. He enjoys discovering new places and learning new things. Spending time with his friends and family brings him lots of joy and laughter.

