



June 2016

Specialist in Focus



Dr Choo Bok Ai

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Dr Choo Bok Ai graduated from the University of Aberdeen and underwent residency in medicine in Nottingham and obtained his MRCP in 2002. He entered into specialist training in clinical oncology in Birmingham and was awarded FRCR in 2007. In 2010, he was appointed Consultant in the Division of Radiation Oncology, NCIS and in 2012 appointed as Assistant Professor at the Yong Loo Lin School of Medicine, NUS. His specialist interest is in breast, gynecological, sarcoma and skin cancers.

During the last three years, Dr Choo started translational research in biomarker response in cervical cancer, focusing on prediction of response to radiation therapy treatment. He is trained in Intensity Modulated Radiation Therapy and Image Guided Brachytherapy. In 2015, he chaired and taught in the International Atomic Energy Agency regional course on the use of Image Guided Brachytherapy in cervix cancer.

Dr Choo actively collaborates with the academic staffs from the Biochemistry Department, NUS and the A*STAR-NUS Clinical Imaging Research Centre. He is the Principal Investigator of two grants awarded by the Terry Fox Foundation and the NCIS Seed Funding Programme, as well as the co-principal investigator of another seven prospective trials evaluating various aspects of cancer treatments and supportive care. Dr Choo has published a book chapter on conducting research in the Encyclopedia of Radiation Oncology and in numerous peer-reviewed journals. He is the Vice-Chairman in the Chapter of Radiation Oncology, Academy of Medicine and a member of the Singapore Society of Oncology.

He is the medical adviser of the Nasopharyngeal Cancer Support Group in NCIS and Tan Tock Seng Hospital since 2010 and initiated the start of the first Singapore Sarcoma Cancer Support Group. He has been invited regularly to give corporate talks and has appeared in newspapers, radio and TV shows.

Clinical Highlights

Treatment in Cervical Cancer

The standard of care in locally advanced cervical cancer (FIGO stage 2B-4A) is external beam radiation therapy to the whole pelvis followed by brachytherapy. Brachytherapy involves placing a central intrauterine tube and two additional ovoids to the upper vagina to deliver high dose radiation to the central part of the cervix while minimising radiation dose to the rectum and bladder.

The addition of concurrent platinum chemotherapy to radiation improves the clinical response and overall survival but the mainstay of treatment is radiation.

With improvements in both hardware and software in radiation therapy delivery, we can now escalate the radiation dosing while maintaining a low toxicity. This has enabled a higher chance of local control while minimising the long-term radiation side effects.

CT and MRI guided imaging with brachytherapy applicators in situ enable accurate dosimetric planning and optimisation of the radiation doses. With better visualisation of the cervix as the target, and surrounding organs like rectum, bladder and small bladder, a 3D volume-based calculation can be made.

Newer applicators like the Vienna ring and Utrecht allow additional interstitial needles placement to the existing intracavity tube, to increase the radiation dose to the parametrium and pelvic sidewall in more advanced stages of disease. Compared to the normal Fletcher three channel applicator, this combined interstitial and intracavity approach with MRI guidance has improved the three year local control rate of Stage 2B and 3B from 70% to 90%.

At the NCIS, we have used 3D Image Guided Brachytherapy since 2007 and the newer MRI compatible Vienna and Utrecht applicators since 2010. NCIS is one of the recognised training centers in Asia of this MRI guided intracavity and interstitial technique.

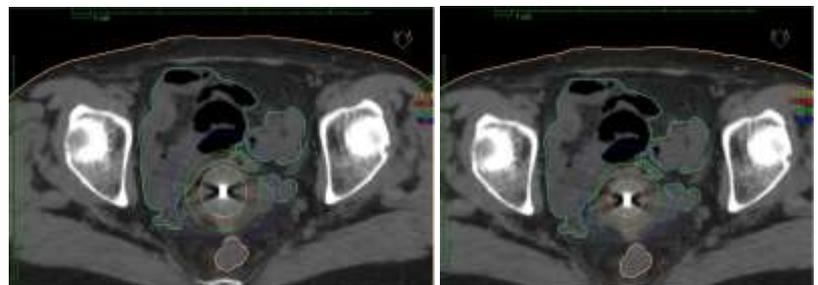


Figure 1: CT Image Guided Brachytherapy
Diagrams above show the same CT image of a patient. Left planning is done without software optimisation and this showed the 100% isodose (red line) is into the small bowel loops (marked with green outline). Right planning is done with manual dose optimisation and enables reduction in small bowel radiation dose to avoid long term complications of fistula and perforation.

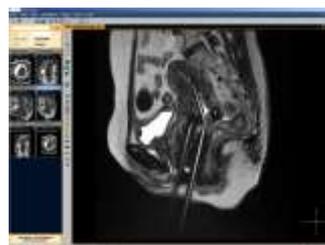


Figure 2: MRI with Vienna ring applicator in situ. The cervix, uterus, bladder, rectum and small bowel can be visualised clearly to allow for accurate dosimetric planning and radiation dose optimisation.

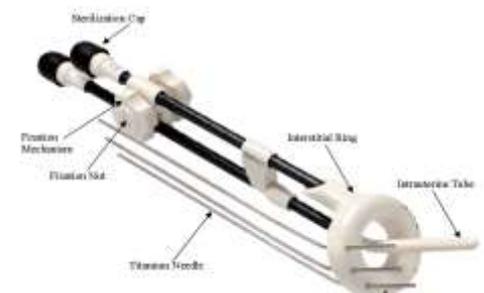


Figure 3: Vienna Ring applicator with central intrauterine tube and side interstitial titanium needles



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Specialist in Focus



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Dr Mark Puhaindran graduated from the National University of Singapore in 1998. He completed his specialist training in hand surgery at the National University Hospital in 2007. Following this, he was awarded the Health Manpower Development (HMDP) award and did a fellowship in musculoskeletal oncology at Memorial Sloan-Kettering Cancer Centre in New York, USA. His clinical interests include general hand and wrist surgery and musculoskeletal oncology.

He has a particular interest in tumours that affect the upper extremity and has written several papers and book chapters on tumours of the musculoskeletal system. Dr Puhaindran is also actively involved in undergraduate and postgraduate teaching, and has been an invited speaker at both local and regional conferences.

Clinical Updates

Sarcoma

What is Sarcoma?

Sarcoma is a rare type of cancer that arises in the bone and soft tissue, which includes fat, muscles, blood vessels, nerves and fibrous tissue. Sarcomas can develop in any part of the body, though they are most commonly seen in the arms and legs.

Who is at risk?

There are very few known risk factors for sarcomas. These include:

- Previous radiotherapy treatment
- Family cancer syndromes
- A damaged lymphatic system

Some chemicals are also thought to be associated with sarcoma, though this has not been proven. Smoking, diet and exercise are not linked to developing sarcomas.

What are the signs and symptoms?

The signs of sarcoma depend on the site where they arise. Patients with bone sarcoma present with the following symptoms.

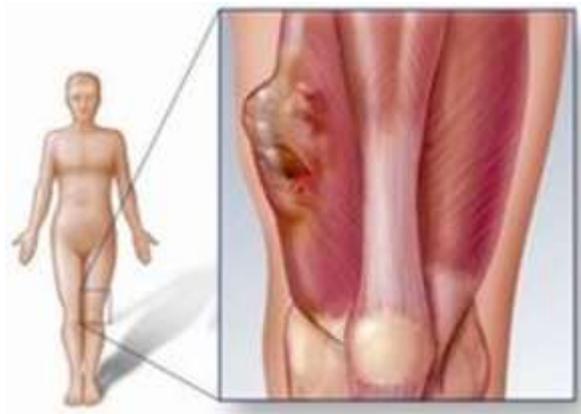
- Bone swelling and pain which tends to worsen at night
- Develop fractures after minor trauma as the bone is weakened by the tumour
- A new lump that may not necessarily be painful located anywhere in the body that increases in size, and may grow to a large size over time (patients experiencing soft tissue sarcomas)

What can you do to prevent sarcoma?

Given the limited risk factors, it is difficult to prevent sarcomas. There are no screening tests, and the best approach is for patients with new lumps, or lumps that are increasing in size, to seek medical attention early. This is especially so for patients who have a strong family history of cancer, or patients with previous radiation therapy treatment.

How is surgery used to treat sarcoma?

Our surgical oncology team has expertise in both prosthetic and micro-surgical reconstruction following limb salvage surgery for sarcomas, for both children and adults. The most appropriate surgical treatment will be used for each patient, following discussion with specialist team.



Soft bone sarcoma occurring in the leg



Shaping Medicine for the Future

CME Registration: <https://nuhcme.com.sg/>

News Updates

NUH "scores a first" in Asia with heart op

Minimally invasive procedure removed heart tumour and carried bypass in one go

When doctors were preparing Mr Seow Kim Hock for surgery to remove a heart tumour, they found another problem.

One of his arteries was blocked, and he needed a bypass that would traditionally involve cutting open his chest - including the ribs - to access the heart underneath.

But Associate Professor Theodoros Kofidis, of the National University Hospital (NUH), suggested a minimally invasive procedure to remove the tumour and carry out the bypass in one go instead.

The operation at NUH in February is believed to be the first of its kind in the whole of Asia.

Instead of a 20cm cut down the middle of his chest, all that the 63-year-old Mr Seow has to show for his surgery is a 6cm scar just under his armpit.

Unlike traditional open surgery, minimally invasive techniques mean less blood loss for the patient, a lower risk of infection, and overall faster recovery times.

Mr Seow underwent surgery on Feb 11, and was discharged six days later.

"When the patient comes in with two or three different problems (like Mr Seow), it's very hard to do minimally invasive surgery," Prof Kofidis said.

In Mr Seow's case, however, doing so was important because parts of the jellylike heart tumour had found their way into his bloodstream and up to his brain, triggering strokes on two occasions.

"If you can give patients like that a less invasive procedure, they can benefit for their post-stroke rehabilitation - they can recover a bit faster," Prof Kofidis said.

Mrs Seow, who declined to give her full name, recalled how her husband, a security guard, had suffered the first stroke at work.

"One of his colleagues noticed that he wasn't around, and they found that he had fainted in one of the toilets," recalled the 58-year-old finance manager.

Doctors wanted to wait until Mr Seow's condition had stabilised before sending him for surgery to remove the tumour, but then the second stroke occurred.

"The cut was very small, and we appreciated that because it saved us the hassle of taking care of two problems," Mrs Seow said.

Now, Mr Seow is focusing on physiotherapy and trying to regain his memory, which was affected by the stroke.

Prof Kofidis said that while Mr Seow's specific circumstances are rare, many patients have more than one problem with their hearts.

Many are also leery of surgery. "If they can postpone it, they will, to the point where they may endanger their lives," he said. "And that's why the less invasive platform is a must."

Source: *The Straits Times* (Published on 13 May 2016)

NUH to carry out \$20m study on Diabetes

For some people, it takes years for their high blood sugar levels to result in full-blown diabetes. For others, all it takes is a matter of months. To find out why, a team of doctors from the National University Hospital (NUH) is embarking on a study that will chart the course to Type 2 diabetes in 2,300 people without the condition. They will track these volunteers for three years to see if any of them develop diabetes, and study the factors that might have caused it.

The study will comprise 800 people with normal blood sugar levels, and 1,500 pre-diabetics – those with blood sugar levels approaching the diabetic range. "To our knowledge, this is one of the largest studies that go to this level of depth and breadth... to better understand the risk factors," said Dr Sue-Anne Toh, a senior consultant with NUH's endocrinology division who is heading the study. She added that the study plans to identify lifestyle factors and other biomarkers – such as certain proteins, for example – that make someone more likely to develop the chronic condition.

The \$20 million study is jointly funded by the Ministry of Health and Janssen Pharmaceuticals. Type 2 diabetes occurs when the body cannot produce enough insulin or use it properly.

Earlier this month, Health Minister Gan Kim Yong announced that his ministry is "declaring war" on diabetes in Singapore. There are more than 400,000 diabetics in Singapore today, a third of whom do not even know they have the disease.

If untreated, it can lead to complications such as blindness, amputations and heart attacks. Professor Chia Kee Seng, who is the dean of the NUS Saw Swee Hock School of Public Health, recalled an incident when a diabetic man with a swollen foot went to see him.

The man was completely unaware that a rusty nail was embedded in the sole of his foot, because his nerves had been damaged by diabetes. "Diabetes is a very silent disease," said Prof Chia, who is an adviser for the new study. "I might be having diabetes right now and I wouldn't even know it... there are no symptoms. It's the complications of diabetes that are the problem."

Source: *The Straits Times* (Published on 26 April 2016)

Upcoming GP CME Events

Date	Topic
18 June	The future landscape of ophthalmology practice & the role of family physician in the eye care management
9 July	NUH Gastroenterology & Hepatology Symposium 2016
23 July	Updates in Neurosurgery for the General Practitioner

Registration & Lunch will start at 1.00 pm

Event Venue:
NUHS Tower Block Auditorium
1E Kent Ridge Road, Singapore 119228

Please call us @ 6772 2535 / 5079 for registration & enquiries please visit our CME Portal @ <https://nuhcme.com.sg/>.