HKSH SYMPOSIUM ON ADVANCES IN CANCER MANAGEMENT 2020

Precision Medicine in Oncology Treatment

Wednesday, 9 December 2020

Programme Book
The Symposium aims to provide a forum where advances and best practices in multi-modality cancer management, spanning from diagnosis to treatment, from clinical research to practical care management, are discussed and shared with clinical health professionals with an ultimate goal to improve the wellbeing of cancer patients in Hong Kong and elsewhere.

HKSH Symposium on Advances in Cancer Management
2014 – Proton Therapy: Redefining the Future of Cancer Treatment
2017 – Confidence in Motion - CyberKnife SBRT
2019 – New Frontiers in MR-Guided Radiotherapy
2020 – Precision Medicine in Oncology Treatment

ABOUT HKSH SYMPOSIUM ON ADVANCES IN CANCER MANAGEMENT

19:00 - 19:05 Welcome Speech
Mr. Wyman LI
Chief Operating Officer, HKSH Medical Group Manager (Administration), Hong Kong Sanatorium & Hospital

19:05 - 19:10 Introduction

19:10 - 19:40 MRI-Guided Radiotherapy – Paradigm Shift in Precision Radiotherapy
Dr. Darren POON
Honorary Consultant in Clinical Oncology, Hong Kong Sanatorium & Hospital

19:40 - 19:50 Q&A

19:50 - 20:20 HowCould Urologists “Salvage” the Rectum for Patients with Pelvic SBRT
Dr. Ka Lun CHUI
Private Specialist in Urology, Honorary Clinical Assistant Professor, Department of Surgery, The Chinese University of Hong Kong

20:20 - 20:30 Q&A

20:30 - 21:00 The Bio-Molecular Basis & Challenges of PET/CT in Radiation Treatment Planning
Dr. Garrett HO
Head, Department of Nuclear Medicine and Positron Emission Tomography, Honorary Consultant in Nuclear Medicine, Hong Kong Sanatorium & Hospital

21:00 - 21:10 Q&A

21:10 - 21:40 Radixact Synchrony: Preliminary Clinical Experience from University of Turin
Prof. Umberto RICARDI, MD
Full Professor of Radiation Oncology, Chairman of the Department of Oncology at Health and Science Academic Hospital, Turin, Italy, Dean of School of Medicine, Deputy Rector, University of Turin, Italy

21:40 - 21:50 Q&A

21:50 - 22:00 Closing Remarks
Dr. Walton LI
Chief Executive Officer, HKSH Medical Group, Medical Superintendent, Hong Kong Sanatorium & Hospital

22:00 End of Symposium

* Content is subject to change without prior notice

Moderators

Dr. Chun Key LAW
President, Hong Kong College of Radiologists, Honorary Consultant in Clinical Oncology, Hong Kong Sanatorium & Hospital

Dr. Wing Hong KWAN
Director, Department of Radiotherapy, Associate Director, Comprehensive Oncology Centre, Honorary Consultant in Clinical Oncology, Hong Kong Sanatorium & Hospital
WELCOME MESSAGE

On behalf of HKSH Medical Group, it is my honour to welcome all of you to the HKSH Symposium on Advances in Cancer Management 2020.

Thanks to our preparation since the SARS epidemic 17 years ago, we have been able to safeguard our patients in the midst of COVID-19 pandemic this year with meticulous precautions and rapid response. Patient services remain uninterrupted for patients in need, especially cancer patients that cannot afford delay in treatment. From diagnosis through treatment to survivorship, we are committed to ensuring total patient experience with a continuum of care and smooth progress throughout the cancer patient’s journey.

Starting with proton therapy in 2014, then Cyberknife SBRT in 2017 and MR-guided therapy last year, the HKSH Symposium on Advances in Cancer Management has long been a major academic platform for medical practitioners in Hong Kong to share the latest advances on multi-modality cancer management. With precision medicine in oncology treatment as the main theme, I hope all of you will enjoy and benefit from all the great insights and fruitful exchanges in this year’s symposium.

Dr. Walton Li
Chief Executive Officer, HKSH Medical Group
Medical Superintendent, Hong Kong Sanatorium & Hospital

It is my pleasure to welcome all of you to the fourth HKSH Symposium on Advances in Cancer Management.

Opened in 2019, the HKSH Cancer Centre sets out to cater for different needs and conditions with advanced diagnostic and therapeutic equipment, e.g. Unity MR Linac, MR Simulator, Versa HD and SiPM-based PET/CT scanners. Also in our arsenal is Radixact X9, the new generation of helical radiation therapy technology that supports effective and efficient delivery of precise radiation treatments for a full spectrum of cancer patients. With the commissioning of proton therapy in the near future, the HKSH Cancer Centre is set to be a world class medical hub for personalised cancer management.

As an internationally recognised and preferred health care provider, we will continue to be at the forefront of state-of-the-art facilities to provide top services and personalised care. By way of knowledge transfer and academic exchange through this symposium, we look forward to furthering medical excellence with insights from leading clinical health professionals.

I take this opportunity to express my heartfelt gratitude to the sponsors of this year’s symposium and our colleagues for their efforts and support.

Mr. Wyman Li
Chief Operating Officer, HKSH Medical Group
Manager (Administration), Hong Kong Sanatorium & Hospital
MRI-Guided Radiotherapy – Paradigm Shift in Precision Radiotherapy

Dr. Darren POON
Honorary Consultant in Clinical Oncology, Hong Kong Sanatorium & Hospital
Honorary Consultant in Clinical Oncology, Prince of Wales Hospital, Hong Kong
Honorary Clinical Associate Professor, The Chinese University of Hong Kong
Specialist in Clinical Oncology

BIOGRAPHY
Dr. Darren Poon is a clinical oncologist and serves as the honorary consultant at the Hong Kong Sanatorium & Hospital and Prince of Wales Hospital, Hong Kong. He is also the honorary clinical associate professor at the Chinese University of Hong Kong. Dr. Poon graduated from the Chinese University of Hong Kong and had undergone training at the MD Anderson cancer center and Medical College of Wisconsin after obtaining the FRCP.

He specialises in the genitourinary cancer, neuro-oncology, hepato-pancreatic cancer and head and neck cancer. His research interests include image-guided radiotherapy (IGRT) and stereotactic body radiotherapy (SBRT) for prostate, CNS tumour, pancreatic and liver cancer. He is the pioneer in prostate SBRT in Hong Kong and completed the first-in-Asia randomised study for prostate SBRT. He is one of the expert panel members (one of the 4 Asian representatives among 70 world experts) in the Advanced Prostate Cancer Consensus Conference (APCCC) 2019. He is the convener and the current vice-president of Hong Kong Society of Uro-Oncology (HKSOU). Dr. Poon is also the vice-president of the Hong Kong Nasopharyngeal cancer (NPC) study group and the Hong Kong SBRT study group. He is also the co-chair for the joint consensus statement for prostate cancer and rectal cell carcinoma management by Hong Kong Urology Association (HKUA) and HKSUO. And he is the co-author of one of the best-selling book - ‘Fast Fact: Prostate cancer’.

Dr. Poon actively participated in clinical research. In 2010, he was awarded the Best Poster Presentation at the 18th annual scientific meeting of the Hong Kong College of Radiologists. In 2017, he was awarded the Best Abstract Presentation at the 15th Urological Association of Asia (UAA) Congress. He had published actively in various peer-reviewed journals, including two important consensus statements of HKUA and HKSUO for the management of prostate cancer in Hong Kong. He is the current editor-in-chief of the Asia-Pacific Journal of Clinical Oncology Hong Kong Supplement.

He also enthusiastically contributed himself in community charity services and he is now the vice-chairman of Hand in Hand Cancer foundation and the council member of Hong Kong Prostate Foundation.

ABSTRACT
Advances in radiation therapy (RT) technology over the years have significantly improved the radiation oncologists’ abilities to precisely sculpt high-dose radiation to a variety of targets, simultaneously improving local control and toxicity profiles. However, even the most sophisticated methods of CT-based image-guided radiotherapy (IGRT) are hampered by limitations that can compromise target localization and motion management. Additionally, real-time adaptive radiotherapy (ART) programs, wherein radiation plans can be modified to fit the often-malleable anatomy of tumors and organs-at-risk, have not yet been developed.

For these reasons, MRI-guided RT is considered the next frontier of radiation oncology. MRI-guided RT has the potential to improve target localization, optimise motion management, and facilitate ART, all by virtue of improved soft-tissue resolution. MRI-guided RT can potentially transform radiation oncology by improving tumour control and quality of life after radiation therapy and increasing convenience of treatment by shortening treatment courses for patients. Hong Kong Sanatorium & Hospital had implemented the Asia’s first MR Linear Accelerator (MR Linac) since 2019. In this lecture, the principle, logistics, and our clinical experience in using MR Linac will be presented. The advantages and shortcomings of MR Linac will also be discussed.

How Could Urologists “Salvage” the Rectum for Patients with Pelvic SBRT

Dr. Ka Lun CHUI
Private Specialist in Urology
Honorary Clinical Assistant Professor, Department of Surgery, The Chinese University of Hong Kong

BIOGRAPHY
Dr. Chui graduated from The University of Hong Kong and became a fellow urologist in 2008. He is chosen to be the Honorary Associate Professor of The Chinese University of Hong Kong, Department of Surgery and in the meantime working in private practice.

One of his signatures is the introduction of Holmium Laser Enucleation of Prostate (HoLEP) and he was appointed as the trainer in Hong Kong & South East Asia providing trainings in different countries. He was also the Chairman of the 1st Hong Kong Laser Workshop organised by The Chinese University of Hong Kong in 2018.

Dr. Chui is also interested in transperineal prostate procedure under local anesthesia i.e. biopsy and prostate cancer focal ablation treatment. He has proposed the replacement of transrectal by transperineal approach in view of the increment of drug resistant bacterial sepsis related to transrectal biopsy since 2017.

With his expertise in transperineal prostate procedure, he introduced the concept of rectal spacer into Hong Kong radiotherapy field in 2020. Together with the effort from Dr. Darren Poon of Hong Kong Sanatorium & Hospital, Dr. Chui has performed rectal spacing with non-animal stabilised hyaluronic acid (NASDAQ) for a number of SBRT prostate cancer patients.

ABSTRACT
Since the growing evidence of hypofractionated external beam radiotherapy has been proven with equal disease free survival in prostate cancer, more questions are on the treatment related complications. Until now, urologists are keen to operate on prostate cancer patients, from low risk to high risk groups, by radical prostatectomy. From the time of open surgery to now minimal invasive surgery e.g. Robot Assisted Laparoscopic Prostatectomy (RALP), urologists used great effort to reduce the associated complications especially on post-operative stress urinary incontinence and erectile dysfunction. Encouraging results have been published since the application of new surgical techniques e.g. nerve sparing, Rezus space sparing etc.

But...after the introduction of MRI Linac in Asia by Hong Kong Sanatorium & Hospital, Goliath meets David.

Transperineal ultrasound guided prostate diagnostic procedure has been developed rapidly since 2017 in Hong Kong. From handfree systematic prostate biopsy to MRI image guided fusion biopsy. Local data published by Lo et al has proven the safety profile of TURP biopsy is more acceptable than the conventional TRUS biopsy with 0% sepsis rate vs 4-5%. After the success of this novel technique of biopsy proven safe and flat learning curve, Lo et al has transformed the fiducial gold marker insertion for prostate cancer patients going to receive IMRT from transrectal approach to transperineal and has proven it a much safer technique. The sepsis rate has dropped from 10% to 0% in the local series.

Prostate cancer patients in Hong Kong now are lucky to have MRI Linac hypofractionated radiotherapy in 5 sessions, which is more compact and patient friendly approach of cancer patients in the COVID-era, we have introduced the concept of rectal spacing to facilitate this treatment approach as well. Rectum is the just separated from prostate by a thin fascia i.e. Denonvilliers’ fascia. Though MRI guided Stereotactic Body Radiotherapy (SBRT) is already a precise treatment, urologist can help inject rectal spacer transperineally to separate the rectal from prostate for 1cm or more to reduce rectal toxicity. Hong Kong Sanatorium & Hospital experience on hyaluronic acid rectal spacer is encouraging and the team will continue to explore the use of rectal spacer in other pelvic organ cancer e.g. cervix.
The Bio-Molecular Basis & Challenges of PET/CT in Radiation Treatment Planning

**Dr. Garrett HO**
Head, Department of Nuclear Medicine and Positron Emission Tomography, Hong Kong Sanatorium & Hospital
Honorary Consultant in Nuclear Medicine, Hong Kong Sanatorium & Hospital
Specialist in Nuclear Medicine

**ABSTRACT**
Positron emission tomography (PET) imaging has gained increasing clinical significance in radiation oncology because PET allows the visualization and quantification of tumors on a molecular level beyond the morphological information shown by conventional imaging. The two most important molecular features intrinsic to PET are tumor metabolism and receptor expression. These metabolic features are now synergistically further magnified by a variety of new PET tracers undergoing advanced research and clinical applications in parallel with the emergence of high-end, high-sensitivity and fast PET/CT scanners. The constellation of these molecular and technical advances in PET imaging has led to greater efficiency in localization and higher precision in delineation of tumor extent, assessment of tumor response to treatment, prediction of patterns of success or failure, particularly in foci of hypoxia, and in definition of the metabolic volume in need of dose-escalation. This discussion will focus on (1) a brief summary of the tumors in concurrent practice of radiation therapy (e.g., lung, brain, head & neck, liver and prostate cancers), and (2) the challenges and potential solutions associated with application or implementation of PET parameters for these entities during radiotherapy planning.

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Radixact Synchrony: Preliminary Clinical Experience from University of Turin

**Prof. Umberto RICARDI, MD**
Full Professor of Radiation Oncology, Chairman of Department of Oncology at Health and Science Academic Hospital, Turin, Italy
Dean of School of Medicine, Deputy Rector, University of Turin, Italy

**BIOGRAPHY**
Prof. Umberto Ricardi, MD, obtained his MD in Medicine from the University of Turin in 1985, and his specializations in Radiation Oncology and Medical Physics in 1989. He is the Dean of the School of Medicine at the University of Turin, Italy, and is Past President of the European Society for Radiotherapy and Oncology (ESTRO). His main areas of clinical and scientific interest include lymphoma, lung cancer, CNS tumors, and melanoma. He is also an expert in the development of cutting edge technologies in Radiation Oncology. Ricardi has authored more than 300 full research papers, and participated as invited speaker in a number of national and international conferences. He is active in many educational activities, both at national and international level.

**ABSTRACT**
Health and Science Hospital in Turin is a very large teaching hospital, with more than 2,000 beds and 10,000 employees, being one of the largest hospitals in the whole country and hosting all different medical and surgical specialties.

Radiation Oncology Department facilities consist of 6 modern linear accelerators, 1 HDR brachytherapy and 1 Radixact® Platform installed in 2019. Roughly 3200 new patients are treated per year, of whom 400 represented by SRS or SBRT procedures. Radixact® technology contains the motion Synchrony system, developed in order to find out an adequate solution to intrafraction target motion, allowing continuous and synchronized delivery of radiation treatment to moving targets. For respiratory motion, the system models the motion of the target, being able to reshape and synchronize the treatment beam with this motion using the jaws and multi-leaf collimators (MLCs). The addition of Synchrony to our Radixact system was really important for us as we wanted to offer our patients the possibility to have access to one of the world’s most advanced radiation therapy systems and to further advance cancer care in our region.

In July 2020 we selected our first two patients for treatment on Radixact with Synchrony; an 84-year-old male, affected with stage I NSCLC in the right upper lobe, and a 71-year-old female with oligoprogressive disease in terms of pulmonary metastases. The prescription dose was 50 Gy in 5 fractions and the GTV to PTV margin was 3 mm for both. Tumor motion of the treated lesions was around 5 to 7 mm. Nonetheless, Synchrony PTVs were slightly smaller than ITV – PTVs, with lower MLD in comparison to our standard plans. In our experience, during treatment, the model was built in less than one minute for both patients. Total "in-room" time was around 25 minutes for both. About four months after the end of the treatment, no significant acute/subacute toxicity has been recorded. We have observed a good partial response at follow up CT for both patients.

Currently, after treating a total of 5 patients, we can certainly say that Synchrony is a tracking system easy to use and very useful in hypo/fractionated radiotherapy regimens, like SBRT, potentially reducing exposure to high radiation doses of healthy tissues and improving safety of curative treatment also in more clinically fragile patients (elderly, comorbidity).
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3.2 mm LSO crystals1
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100% sensor coverage1

Impressive clarity and remarkable delineation are hallmarks of Biograph Vision scans. Data courtesy of University Medical Center Groningen, Groningen, The Netherlands

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