

AROI Newsletter

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FROM THE OFFICE OF AROI

Dear All,
Greetings from AROI !!!

AROI continues to serve the academic needs of oncologists in the country. We had already conducted AROI-ICRO teaching courses through online/offline conferences and the same will continue in future. As per EC decision the AROI annual meeting is will be held in December 2022 at New Delhi. We congratulate each and every member of the association for the support and work during these times to make our association strong and dynamic. We wholeheartedly welcome you all to our annual conference at New Delhi and make it a huge success.

Long Live AROI !!!



Dr. Vijay Anand Reddy
Chair AROI



Dr. Rajesh Vashistha
President AROI



Dr. G.V. Giri
Secretary General AROI



Dr. Manoj Gupta
President Elect AROI

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ARTIFICIAL INTELLIGENCE IN RADIATION ONCOLOGY- WHAT DOES THE FUTURE HOLD?



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The use of artificial intelligence (AI) is as old as the use of first computers. AI involves developing and using complex computer algorithms. The intent is to perform and ease tasks that typically require human intelligence. AI includes but is not limited to decision-making, problem solving, visual perception, and pattern recognition. (1) Broadly, AI refers to an umbrella term for using a computer to perform tasks that typically require human intelligence and thought. A subset of AI that allows the machine to learn from their own experience is called Machine learning (ML). Machine learning typically refers to a set of computational algorithms. These use input data collection and produce the desired output without being explicitly programmed to do so. The sub-field of machine learning that uses representation learning with artificial neural networks to build models on such complex input data is called Deep Learning (DL). AI has made deep inroads in oncology. This includes onco-radiology, medical oncology, surgical oncology, and radiation oncology. Radiation therapy is a crucial cornerstone of cancer treatment and is indicated for 50 -60% of all cancer patients. Over the past few decades, radiation therapy has become increasingly complex. This is primarily due to technological advances, resulting in a near-complete reliance on human-machine interactions, including software and hardware.

The use of AI in oncology has already assumed

multifaceted proportions. It includes cancer screening, early cancer detection and prognostication. It includes screening where AI can analyse the patients' characteristics and categorize the population into low- and high-risk cohorts. This can enable appropriate modality and frequency of screening. Using AI, the interpretation of mammograms has become 30 times faster than humans and with greater accuracy (2). An additional gain with AI is to shorten the oncologist's and the diagnostician's time and effort for a particular task. AI has shown promise in integrating utilization of the traditional parameters like the stage, histopathology characteristics, genetic characteristics of the tumor with newer parameters such as gene scores and help predict appropriate treatment modality and provide a more accurate prognosis (3). AI has immense potential in radiation oncology as well. (Table 1).

Cautionary notes and challenges

The radiation oncology community is still undecided on which aspects of care can be completely, partially, or scantily handed over to AI. (4,5) Predicting outcomes and complication rates is challenging, particularly in radiation oncology. There is wide heterogeneity in tumor characteristics and normal tissue responses to radiation. Further, there are variations in normal anatomy and the relative position and size of the target volume, radio-sensitization with adjuvant therapies, and treatment planning and delivery variability. In addition, there are typically more than a single OAR at risk; each OAR has a variable response to radiation.

Finally, with increasing incorporation of AI in radiation oncology, legal and ethical dilemmas shall come up. Can we leave AI decisions fully unsupervised, relying on the "super intelligence" of AI.



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In this case, who shall take the legal responsibility of the decision. If we indeed need to supervised each step of the AI process, the very purpose of incorporating AI into the treatment workflow would be defeated. Radiation oncology community needs to be geared up about these fast upcoming issues. (5,6)
Summary

AI is making strong inroads into all aspects of life, including in the profession of oncology. Of all the branches of oncology, radiation oncology has the greatest affinity for computational and image-based tasks, and therefore has the greatest potential for

improvement with AI solutions. Several components of our daily work can be automated or simplified by such tools, and several are in the offing. Much of current scientific research in radiation oncology is focused on AI. Commercial applications are finding their way into the clinic. These have the potential to reduce clinician or physics time spent in performing repetitive tasks, and improve the quality of radiation planning and delivery. Robust studies need to be performed for evaluating these tools to determine if the technical benefit translates into clinical benefit.

OPD consultation	Need for Radiotherapy, likely complications during radiotherapy
Pre Simulation	AI to give inputs on likely patient immobilisation position, the need for used of 4 D techniques and other aspects
Simulation	Critical inputs from AI shall influence imaging parameters such as KV,
RT planning	Inputes regarding planning, beam placement, rapid plans
During Treatment	Guidance for need for resimulation in good responders, integrated radiomics
Follow up	Frequency of follow up, investigations needed in follow up
Roles of radiation oncologist, medical physicist and technologist	Radiation Oncologist : More front end roles (discussion with patients), increasing role in trials Medical Physicist: More front end roles , less time spent in planning work. More involved in FMEA (Failure mode and effect analysis) Radiotherapy Technologist: More prompt alerts received by AI system for machine functioning and maintainance.

Table 1 : AI in radiation oncology (likely areas to be impacted).



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PERIOPERATIVE HIGH DOSE RATE BRACHYTHERAPY (PHDRB) IN HEAD AND NECK CANCERS



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Introduction

Brachytherapy is the most conformal type of radiation treatment. Its inherent characteristics make it an attractive treatment option for delivering a very high dose to the tumor bearing area while controlling the radiation dose to the surrounding normal tissues.

Brachytherapy also exemplifies the true interdisciplinary integration of cancer treatment modalities and has been effectively combined with external beam radiotherapy and surgery in the treatment of cancers. The first reported application of using a radioisotope to treat a malignancy intraoperatively is credited to Robert Abbe in the year 1910 [1]. Over the last century the techniques have evolved and brachytherapy is now combined with surgical resection of tumors either intraoperatively or perioperatively. Perioperative high dose rate brachytherapy (PHDRB) is a technique which involves intraoperative insertions of brachytherapy catheters into the tumor bed during the surgical resection



PERIOPERATIVE HIGH DOSE RATE BRACHYTHERAPY (PHDRB) IN HEAD AND NECK CANCERS

followed by a fractionated brachytherapy treatment in the perioperative period [2]. It combines the advantages of a highly conformal radiation dose delivery with a clear visualization and demarcation of the tumor bed at the time of surgical dissection. This coupled with incorporation of CT based treatment planning gives it a high level of treatment delivery precision. PHDRB has been infrequently used in head and neck cancers due to the complex regional anatomy, surrounding vascular and nervous tissues, multitude of organs at risk and the invasive nature of the procedure. Its use has been reported in head and neck cancers either to primarily irradiate the tumor bed to a very high dose of radiation as a single modality or combined with external beam radiotherapy in both the primary treatment and for reirradiation of recurrent cancers[3,4].

Rationale of using PHDRB in Head & Neck Cancers

The 'tumor bed effect' theory has been used to provide a rationale for delivering a high dose of radiation in the perioperative period. It alters the interaction of the microscopic residual disease cells within the tumor bed with the normal host tissues and prevents their reimplantation and subsequent local recurrences. Improved local control in turn lead to decreased local and distant failures and improved overall survival [5]. Reducing the treatment related toxicity is another argument for the practice of perioperative brachytherapy as it confines the radiation dose to a small area with a rapid dose fall off in surrounding structures. Concurrent chemo radiation is considered the standard of care in management of locally advanced head and neck cancers. Significant Grade 3 toxicity ranging from 21-38% has been reported with the use of concurrent chemoradiotherapy protocols in head and neck cancers. Grade 3 toxicity upto 39 % has been reported with reirradiation using external beam

techniques[6]. One of the ways to reduce this treatment associated toxicity is to reduce the volume of irradiation by integrating brachytherapy into the treatment protocols. The isodose distribution of PHDRB implants show the high degree of conformity achieved within the treatment area with minimal dose to surrounding organs at risk. Reirradiation of recurrent cancers may be yet another argument for use of perioperative brachytherapy. Non nasopharyngeal head and neck cancers are a locoregional disease with reported recurrence rates as high as 50% after curative treatment [7]. Reirradiation has been effectively used to manage recurrent head and neck cancers and PHDRB is an excellent modality to be used in this indication. Single plane PHDRB implants can deliver a high targeted dose to positive margins and can also increase the surgical margins by 1-1.5cm there by improving the local control[8]. An added advantage of brachytherapy implants is that they are not affected by organ motion or respiratory movements. PHDRB also allows brachytherapy catheter placement in anatomical regions not easily accessible to conventional interstitial brachytherapy.

Treatment Procedure

Evaluation of patients in a combined specialty tumor clinic comprising surgeons & radiation oncologists is mandatory for careful selection of patients suitable for such procedures. Patient selection for PHDRB can be aided by dividing patients requiring brachytherapy for reirradiation or those with anticipated inadequate surgical margins at difficult resection sites or those with adequate surgical margins as a means of dose escalation. To help patient selection the University of Navarre predictive model can also be used which divides patients into low risk, intermediate, high and very high risk categories[9].



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Preplanning with the surgical team is useful and should also review the reconstruction procedure and type of surgical flaps to be used. Tumor location may be the limiting factor for selecting patients in head and neck cancers .

A vast majority of implants in head and neck will be single plane with an aim to irradiate only the tumor bed as a target area. The procedure is demonstrated in Figure 1. Interstitial brachytherapy catheters are inserted 1-1.5cm apart into the tumor bed .Surgical reconstruction is done using a Deltopectoral and Pectoralis Musculocutaneous flap or a suitable flap as indicated. The patient is usually taken up for a treatment planning CT scan on the 3rd postoperative day with a CT slice thickness of 2.5mm and treatments delivered twice a day at 6 hourly intervals . Brachytherapy catheters are removed on the last day of the treatment . The GEC-ESTRO guidelines recommend restricting the individual dose fraction between 3-4 Gy per fraction for primary brachytherapy treatment [8]. Table 1 gives the dose schedules of PHDRB which are reported in head and neck cancers.

Results of PHDR Brachytherapy in Head & Neck Cancers

Martinez et al reported the 4-year local control rate and overall survival were 85.6% and 46.4%, respectively in head and neck cancers treated with reirradiation using PHDRB[11,12]. Gaztanaga et al have shown perioperative high dose rate brachytherapy to have equivalent treatment outcomes when compared to wide field radiotherapy with 5 year locoregional control rates from 60.9% to 79.4%. Perioperative high dose rate brachytherapy alone after R0 resection has been associated with long term survival rate of 47.9% [4]. Treatment related acute side effects include bleeding, fistula,

graft failure, delayed wound healing. Late morbidity can occur in the form of fibrosis, soft tissue necrosis and osteoradionecrosis. Overall high grade toxicity has been reported to be between 15 - 69% in single modality procedures and 2.8 - 30.5% in combined modality procedures[13].

Conclusion

PHDRB is a versatile treatment which can be used for increasing the surgical margins or for dose escalation in primary and recurrent head and neck cancers. Judicious patient selection is however required for carrying out these procedures.

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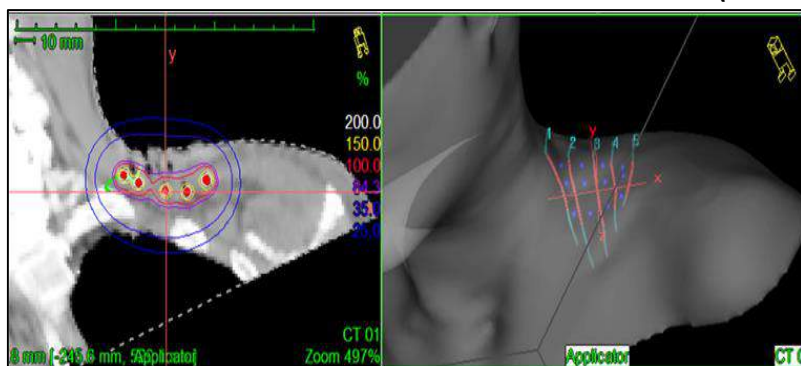
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Dose distribution of PHDRB in reirradiation for recurrent Head Neck cancer (PGIMER, Chandigarh)





PERIOPERATIVE HIGH DOSE RATE BRACHYTHERAPY (PHDRB) IN HEAD AND NECK CANCERS

Table 1 . Dose schedules reported in literature in Head Neck perioperative high dose rate brachytherapy

INDICATION	BRACHYTHERAPY DOSE (2 # per day 6 hours apart)	DOSE EBRT (4- 5 weeks after Surgery)
REIRRADIATION ^{4,13} PHDRB R0 resection R1 resection	2.5 Gy x 12# = 30 Gy 4Gy x 8 # = 32 Gy 4 Gy x 10# = 40 Gy	NIL NIL NIL
NON REIRRADIATION ² >10mm negative margin < 10 mm or positive margin R0 resection [†] R1 resection	4Gy x 8# = 32 Gy 4 Gy x 10# = 40 Gy 4 Gy x 4# = 16 Gy 4 Gy x 6# = 24 Gy	45 Gy / 25# / 5weeks 45Gy/25#/ 5 weeks 45 Gy/25#/ 5 weeks 45Gy/25#/ 5 weeks

PHDRB procedure in carcinoma of the Right Retromolar Trigone at PGIMER, Chandigarh





TWO CASES AND TWO LESSONS IN ONCOLOGY CARE DURING THE COVID TIMES



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It was a busy Wednesday morning clinic in the now new normal, the COVID times. N95 masks on, head caps in place, shoe covers mounted on the shoes while remembering to maintain social distance with my patients. My next patient, a 60-year-old lady, seemed a routine head and neck cancer patient. I quickly went through the records, followed by a clinical examination. The patient had locally advanced disease with a large mass in the tongue, going across midline with fixity to adjacent structures. The family seemed reasonably well off and well aware, so my next question was the reason for the delay in presentation. There was a tiny ulcer in tongue in December last year, her elder son stated, immediately after which she developed a heart attack and remained hospitalized for a month. Just after this, when they were advised a biopsy, the nation was put under lockdown and they could not manage to get the biopsy done for the next 2 months. And here they were, with inoperable tongue lesion and extremely limited options for treatment. It seemed a clear case of progression of stage 1 cancer to stage 3, and the only reason was delay in getting the biopsy done.

The next day, a hot Delhi Thursday afternoon saw a 70-year-old patient walking in my clinic, flanked by his wife and his middle-aged son. A case of carcinoma prostate operated 2 years ago, recently diagnosed and operated for carcinoma rectum. The patient was

sent to me for opinion regarding local pelvic radiotherapy. As is the routine, I started telling them about the expected benefits and the possible side effects of radiotherapy. The next few moments were enough to make me realize that they had come to my OPD with a preconceived bit of alarm. Being aware of their patient's age, they had an overwhelming concern regarding the risks of acquiring COVID infection during the daily visits for 5 weeks of radiotherapy. Before I could even realize, they were pleading before me for sparing them the much-needed radiotherapy process.

These cases illustrate the challenges faced by oncologists in patient care(1). During the past two years, newsprint, television, social media, government thrust and health expenditure has been overflowing with thrust on risk of COVID and everything else (including the dreaded cancer) took a backseat. Many patients were so fearful (and some still are) of COVID that it overtook and overran even the fear of cancer progression or disease recurrence. Oncologists need to reemphasize and refocus on creating awareness and reinforcing the need for early care in cancer. In a similar vein, patients need to be told about the perils of delaying cancer treatment (2,3).

While COVID may be on the decline now in our country, the threat of new viruses and pandemics still remains. We may have spent decades in researching about screening, molecular profiling, gene analysis, higher tesla MRI, robotic surgery devices and modern linear accelerators, but present day world situation posed new concerns. Countering this challenge requires reinforcement of basic oncology principles to all our patients. Two key messages need to be given in no uncertain terms. One, everyone needs to get evaluated for potential symptoms of cancer early.



TWO CASES AND TWO LESSONS IN ONCOLOGY CARE DURING THE COVID TIMES

And second, those with established disease should avoid deferring critical therapeutic components of cancer care. These simple measures would go a long way in saving many lives all around the world.

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Conferences



AROI- ICRO CLINICAL RADIOBIOLOGY TEACHING COURSE OF EAST ZONE

PARAS HMRI HOSPITAL, PATNA ON 8TH MAY 2022 – DR. SHEKHAR KESHRI

AROI- ICRO clinical radiobiology teaching course of East Zone has been successfully held in Paras HMRI Hospital, Patna on 8th May 2022 under the banner of AROI Bihar Chapter. Dr. Shekhar Kumar Keshri, Senior consultant & Chief Radiation oncologist at Paras Hospital, Patna was the regional organizing secretary of this program.

Dr. (Prof.) Manoj Kumar Gupta from AIIMS, Rishikesh (President Elect, National AROI) was the chief coordinator of this program. His wonderful teaching ability and tireless efforts made this event very very

successful.

There were 45 active participants (35 postgraduate students and 10 faculty members) from different states of East Zone including West Bengal, Bihar and Jharkhand were registered and have received direct benefit of this vast teaching course. Apart from these registered participants, Senior faculty members of AROI Bihar chapter were also present who inaugurated the program and blessed this event. All Participants have received the certificate and momentos at the end of teaching course.



Conferences



26TH ANNUAL CONFERENCE NZ-AROICON

JAMMU, 16TH - 17TH APRIL 2022 – DR. VIKAS ROSHAN

Organized by Association of Radiation Oncologists of India, North Zone Chapter (NZ-AROI) in collaboration with American Oncology Institute (AOI), the two-day National Scientific Program “NZ-AROICON” under theme ‘Personalized to Precision Oncology – Data Driven Approach’ concluded here today.

The program was organized in hybrid mode as the 26th annual conference of North Zone Association of Radiation Oncologists of India and the organizing secretary of the program was leading oncologist Dr Vikas Roshan from American Oncology Institute, Jammu. Dr Neeraj Bishnoi, Regional Director – North for American Oncology Institute said that AOI has been at the forefront of providing precision cancer care to the cancer patients and its Jammu unit has brought world class cancer care to Jammu region.

Dr Mayank Puri, Unit Head of AOI Jammu informed that they have been treating hundreds of cancer patients every month and now one of the most advanced Radiotherapy LINAC Accelerator, HALCYON E is being installed at AOI Jammu in next 1 month and this will be the first ever HALCYON E machine in entire J&K. The NZ-AROICON started yesterday with a photo exhibition session that was inaugurated by Dr Raj Kumar Sharma (noted Diabetologist, painter and sculptor). The welcome message was presented by Dr Vikas Roshan, video message by Dr Jagprag Singh Gujral (Group CEO for CTSI South Asia), presidential addresses by Dr Rajesh Vashistha (president AROI), Dr Manoj Gupta (president elect AROI) and Dr Rakesh Kapoor (president NZ-AROI), followed by secretarial addresses by Dr Deepak Abrol (general secretary, NZ-AROI). Chief guest of the program was Capt Bana Singh (Param Veer Chakra) and guest of honor was Dr Neeraj Bishnoi (Regional Director North, AOI).

The first session of the program was about Breast Cancer and the expert speakers for this session include Dr Vineeta Goel (Delhi), Dr Suman Malik (Delhi), Dr Kanika Sood Sharma (Delhi), Dr Swarupa

Mitra (Delhi), Dr Supriya Mallick (Delhi) and Dr Viraj Suvarna (Bengaluru). Dr Ashutosh Gupta (Organising Chairman) from Department of Radiation Oncology, GMC Jammu was the leading chairperson for this session. The second session of the program was about Lung Cancer and the expert speakers were Dr Abhishek Shankar (Patna), Dr Aruna Turaka (USA), Dr Tarun Durga (UK), Dr Anusheel Munshi (Delhi), Dr Sumant Gupta (Delhi) and Dr Sushmita Pathy (Delhi). It was followed by a brief session on Dr B D Gupta Oration and that was presented by Dr Rajesh Vashishtha (Bathinda). The speakers for the third session include Dr Susovan Banerjee (Gurugram), Dr Major Mizra Baig (Kanpur), Dr S Hukku (Delhi), Dr (Lt Col) Ashok K (Delhi) and Dr Pritanjali Singh (Patna) while as in the fourth session, Dr Rakesh Jalali (Chennai), Dr G K Rath (Delhi), Dr Anil D’Cruz (Mumbai), Dr B K Mohanti (Gurgaon) and Dr Rakesh Kapoor (Chandigarh) delivered their speeches and presentations. The fifth session of the program was about Head & Neck Cancer. The speakers were Dr Pankaj Kumar Arora (Mohali), Dr Sushmita Ghoshal (Chandigarh), Dr Aman Sharma (Delhi), Dr Pamela Jayeraj (Ludhiana) and Dr Ankur Bahl (Delhi) while as the 6th session was about Prostate Cancer and the expert speakers for the session include Dr Surender Dabas (Delhi), Dr Gagan Saini (Delhi), Dr Devinder Paul (Mumbai), Dr Nadeem Shoukat (Jammu), Dr Indu Bansal (Delhi) and Dr Satyankar Gupta (Jammu). The 7th session was about Gynaecological Malignancies. The speakers were Dr Shikha Goyal (Chandigarh), Dr D N Sharma (Delhi), Dr Deepak Abrol (Jammu), Dr Paras Khanna (Jammu) and Dr Bhavana Rai (Chandigarh).

The program was attended by medical faculty and delegates from all over India including Dr Tasaduk Hussain Itoo (medico cum noted columnist). Each scientific session was followed by a panel discussion.

Conferences



26TH ANNUAL CONFERENCE NZ-AROICON

JAMMU, 16TH - 17TH APRIL 2022 – DR. VIKAS ROCHAN

The program also included sponsored sessions, Onco quiz, cultural and folk events, etc.



Conferences



ICRO PRODVANCE 2022 - SOUTH ZONE

MIOT INTERNATIONAL HOSPITALS, CHENNAI 23 - 24TH APRIL 2022
– DR. V SRINIVASAN

Association of Radiation Oncologists of India (AROI) has always focused on being at the forefront of academic and research activities in Radiation Oncology all across the country, covering all aspects of radio therapeutic management. Radiation Oncology has witnessed a markedly rapid progress in cancer care across the globe. Recent advancements in Radiation techniques have improved the outcomes with good tumour control with reduced complication rates. Stereotactic Body Radiotherapy-SBRT has made it possible to deliver high doses without much major side effects.

PRODVANCE is a career oriented initiative for Young Radiation Oncologists organised by ICRO (Indian College of Radiation Oncology) an academic wing of AROI in four zonal levels every year. Trainees in Radiation Oncology and Post MD Radiation Oncologists with less than 10 years of experience are encouraged to register for this Course.

The ICRO PRODVANCE 2022, SOUTH ZONE on Emerging role of Radiation in Hepato-Pancreaticobiliary Tumours was conducted on the 23rd and 24th of April 2022 at MIOT International hospitals at Chennai.

On Day 1, we covered the Anatomy of Hepatopancreaticobiliary system and Imaging in HPB

tumours: as a guide to RT Planning followed by Pathological classification of Hepatopancreaticobiliary tumours. Epidemiology and Etiopathogenesis of HPB Tumours and the Classification of HCC: beyond the TNM staging were discussed. The Principles of Surgery and emerging role of SBRT in HCC along with the Contouring Guidelines for GTV in Liver lesions were explained.

Post Lunch, the Motion management in Hepatic tumours and the role of TACE and TARE and other advancements in Liver tumours were dealt with and the day ended with the lecture on the Role of Chemotherapy in Hepatic Tumours and an insight in to advances in targeted therapy.

On Day 2, Evidence-based management of Pancreatic Tumours and the role of SBRT in Ca Pancreas –was discussed. We had a session on Gall bladder malignancies: Stage wise approach and the Emerging role of Protons in Liver Tumours. Finally the programme ended with lectures on SBRT in Cholangiocarcinoma and Post SBRT Imaging and toxicities and management of them.

This PRODVANCE was well attended by more than 80 participants and was very well appreciated by all the delegates.



Conferences



CONVENTIONAL TO CONFORMAL IN CERVICAL CANCER - A HANDS-ON WORKSHOP CADAVERIC WORKSHOP

RAMAIAH MEDICAL COLLEGE, BENGALURU, 30TH APRIL - 1ST MAY 2022
— DR. MANUR GURURAJACHAR JANAKI

The programme was conducted for a total of 15.5 hours over two days and included presentations from experts in the field, hands on training on the treatment planning system, demonstration of cadaveric intracavitary and interstitial application by resource persons and practice sessions of both procedures on cadavers by each of the delegates.

A total of twenty-six postgraduates from Bangalore, Pondicherry, Manipal and Hyderabad and they felt the programme was excellent especially the cadaveric practice. Overall, every aspect of radiation

for cervical cancer was covered and the feedback also gave a lot of ideas about how to improve during subsequent sessions.

We wholeheartedly thank the entire advance learning centre for the excellent coordination and the Eeckert Ziegler Company for making this happen by providing licenses for the students to work on the treatment planning g system.

We would look forward to do many more such events in the coming years.



Conferences



40TH ICRO SUN PG TEACHING PROGRAM ON LUNG CANCER

AIIMS, RISHIKESH, UTTARAKHAND
30TH APRIL AND 1ST MAY 2022 – DR. V SRINIVASAN

Lung cancer is the most common cancer all over the world and accounts for the highest mortality among all cancers. However recent developments in the treatment have led to an improvement in the overall survival of these patients.

Surgery, Radiation therapy, chemotherapy, targeted and Immunotherapy play an important role in the treatment of Lung Cancer. Early-stage lung cancers are usually treated primarily by surgery or Stereotactic Body Radiotherapy. Locally advanced cancers are treated with radiation and chemotherapy.

AIIMS, Rishikesh is a 1000 bedded medical college and hospital in Rishikesh, Uttarakhand, India. The institute operates autonomously under the Ministry of Health and Family Welfare. The department is currently functioning with 2 Linacs- Elekta-Versa HD and Varian- Halcyon treating around 100-150 patients per day. The department also has HDR Brachytherapy machine. Various intracavitary and interstitial procedures are being performed in the department.

This Course was the first offline ICRO SUN PG teaching course conducted since the COVID started in 2020. The course covered the basics of lung cancer in the form of pathology and radiological anatomy. The course covered the advanced treatment strategies for the management of early, locally advanced, and metastatic lung cancer. The role of surgery, chemotherapy and radiation was covered in detail.

Palliative care in lung cancer patients was also dealt with separately. Other tumors like carcinoid tumors and pleural mesothelioma were also discussed.

The 40th ICRO SUN PG Teaching Course was conducted in such a way that students could understand the basics as well as the recent advancements in Lung Cancer. They also had live interactions with the Faculties who presented the various lectures and are experts in their field. We had paid registrations including students from India and students from FARO countries.

There was a lively interaction between faculty and students post each lecture where students cleared their doubts. Also, students had a chance to interact with faculty members over the Gala Dinner and interact with students from other institutes.

The Course concluded with the ICRO QUIZ and the top two winners will be honoured with an award and free Registration; Travel and Accommodation to the next Annual National Conference - AROICON 2022 in New Delhi.

The two-day course ended on a happy note. Since it was an offline course after a long time, students and faculty had a better interaction and requested to conduct these courses offline only.

Last but not least our sincere thanks go to Mr. Arvind Suri, SUN oncology, and his team who were involved at each step and helped the team in organizing the course successfully.

Conferences



40TH ICRO SUN PG TEACHING PROGRAM ON LUNG CANCER

AIIMS, RISHIKESH, UTTARAKHAND
30TH APRIL AND 1ST MAY 2022 – DR. V SRINIVASAN



Conferences



41ST ICRO SUN PG TEACHING PROGRAM ON BRACHYTHERAPY

SRI SHANKARA CANCER HOSPITAL AND RESEARCH CENTRE, BENGALURU,
4TH - 5TH JUNE 2022 – DR. V SRINIVASAN

Brachytherapy is considered to be an ultimate form of Conformal Radiation therapy. Brachytherapy fulfils all the goals of modern day radiotherapy in terms of favorable efficacy and reduced toxicity. Brachytherapy treatment is now available with the state-of-the-art technology, high patient acceptability, cost-effectiveness, and a personalized treatment approach, proves to be a preferred mode of treatment.

Benefits of brachytherapy is delivering radiation from the 'inside, out' and there by radiation dose is delivered precisely to target tumor area and does not travel through healthy tissue. Brachytherapy not only increases the therapeutic index but is also an irreplaceable component of contemporary cancer care. There is a renewal of interest in training the young postgraduate students of this immortal art by conducting this course.

Sri Shankara Cancer Hospital and Research Centre, Bengaluru is a 480 bedded stand alone comprehensive cancer centre situated in the middle of Bangalore. The department is currently functioning with 3 Linacs - a Varian Trilogy LA with HD MLC, a FFF Truebeam and a TrueBeam SVC with hyper arc facility. Along with a HDR Brachytherapy machine – Gamma Med that treats around 250 patients every year with ICBT, ILBT, Vaginal Brachytherapy and ISBT to various sites.

This Course covered the basic Radiobiology and Brachy physics aspects along with the recent advancements in Cervical Cancer Brachytherapy. We also dealt with the usefulness of Brachytherapy in Breast, Head & Neck Cancers, Prostate and in Paediatric population with video demonstrations of implant procedures.

The 41st ICRO SUN PG Teaching Course was designed in such a way that students could understand the basics as well as the advancements in Brachytherapy for different sites. They also had live interactions with the Faculties who were experts in the field of Brachytherapy. While there were many Webinars being done every other day in India, We had an astonishing 158 paid registrations including 96 students from India and 62 Students from Bangladesh.

All the speakers did an excellent job and the students were very happy and interactive and were firing questions for every lecture.

The Course concluded with the ICRO QUIZ and the top two winners will be honoured with an award and free Registration; Travel and Accommodation to the next Annual National Conference - AROICON 2022 at New Delhi. The two day Course ended in a happy note with all the lectures completed on time and lots of appreciations from the students saying that they are looking forward to such offline programmes.

Last but not the least our sincere thanks go to Mr. Arvind Suri, SUN oncology and his team who were strong pillars of support in doing this successfully. the coming years.

The Winners Two first prizes

1. Dr. Soham Sanyal, AIIMS, Newdelhi
2. Dr. Sharanya.R.Nair, AIIMS, Rishikesh

One second prize

3. Dr. Sasmita Priyadarshini Sahoo, Medanta-The Medicity, Gurgaon

Conferences



41ST ICRO SUN PG TEACHING PROGRAM ON BRACHYTHERAPY

SRI SHANKARA CANCER HOSPITAL AND RESEARCH CENTRE, BENGALURU,
4TH - 5TH JUNE 2022 – DR. V SRINIVASAN



Webinar



FARO – AROI WEBINAR

20TH MAY 2022 – DR. VIKAS JAGTAP

Federation of Asian Radiation Oncologist – Education & Training Committee (FARO-ETC) international webinar was organized by AROI on 20th May 2022. The topic of the webinar was Cardiac Health & breast Cancer radiotherapy. The webinar was greeted with welcome address from - Dr. Junlin Yi (China - FARO Officer – Treasurer) & Dr. Rajesh Vashistha (India - AROI – President/FARO Vice President).

Various interesting topics were covered by esteemed speaker from AROI.

Dr. Nanditha Sesikeran Boindala (MD, MRCP, FRCR) Consultant Clinical Oncologist, AIG Hospitals, Hyderabad - India), Dr. Kundan Singh Chufal (MD) Senior consultant & Unit Head, Radiation Oncology, Rajiv Gandhi Cancer Institute, Delhi- India), Mrs. Anurupa Mahata Senior Medical Physicist (Tata Medical Centre, Kolkata) were the speakers who elaborated on contouring, cardiac sparing and medical physics planning aspect in breast cancer radiotherapy.

The panel discussion was moderated by Dr. Kaustav Talapatra (MD) (Director Radiation Oncology - Nanavati Max Super specialty Hospital, Mumbai – India) in presence of panel comprising of Dr. Rima Pathak (MD) (Asst. Professor, Radiation Oncology, TMH, Mumbai - India), Dr. Sayan Paul (MD) (Senior Consultant, Radiation Oncology Apollo Gleneagles, Kolkata- India) & Prof. Soehartati Gondhwiardjo (President of IROS, Senior Consultant - Radiation Oncologist, Cipto Mangunkusumo National General Hospital/Faculty of Medicine Universitas Indonesia – Jakarta). The closing remarks were given by Dr. Mayang Permata (Indonesia) (Chair ETC Committee – FARO). AROI specifically appreciated the opportunity given by FARO and technical support from IROS to hold the webinar. Webinar was a huge success with highest no. of attendance during the online session.





FELLOWSHIP INDIAN COLLEGE OF RADIATION ONCOLOGY

- DR. V SRINIVASAN (SECRETARY – ICRO)

Guidelines and Instructions for nomination of candidates

An individual elected as a Fellow of the Indian College of Radiation Oncology is expected to:

- a) Stand out among peers in the profession as a person of distinction at the national/international level.
- b) Have distinguished himself/herself in the profession:
 - i. as a physician in his / her specialty; and/or
 - ii. in service to Medicine in patient care, teaching, public health work and/or health administration.

The Eligibility Criteria for the Fellowship of Indian College of Radiation Oncology:

1. Founder Members of the ICRO
OR
2. Membership of the ICRO for at least 5 years and possessing more than 15 years of experience after post-graduation.
 - A. Founder members are automatically eligible for award of the Fellowship, subject to submission of Application and the payment of the Admission Fees for the Fellowship. (Fellowship Fees-Rs 7800/- Includes the GST)
 - B. For other than Founder Members, Application needs to be submitted and after Election as a Fellow, a communication will be sent to the Elected Fellows for depositing the Admission Fees for the Fellowship, by the due date as per the communication.
 - C. Fellowships will be awarded after the receipt of the Admission Fees.

Format of the Application Form and the Instructions can be downloaded from the AROI Website. A soft

copy of the application is to reach Dr. V Srinivasan, Secretary ICRO through e.mail (secretaryicro@gmail.com) so as to reach him not later than 12 midnight of 31st July, 2022. A hard copy of the application along with all supporting documents is to reach the Secretary, ICRO (Address given in the application form) at the earliest but not later than 10th August, 2022. The applications will be valid for a period of 2 years (The current year, if received by deadline, and for the subsequent year). Late applications will be considered only for the Election of Fellows for the subsequent year.

Admission Fees for ICRO Fellows:

Rs 7800/- (Rupees Seven Thousand and Eight hundred only. This includes GST), through DD / Online Bank Transfer to "AROI-ICRO", Name of A/C: AROI-ICRO
Bank: State Bank of India
Bank Address: Millerganj, Ludhiana, Punjab-141001
Account No: 30619770736
IFSC: SBIN0000731

Type of Account: Savings

The Nominees are to be Proposed and Seconded by Members of AROI of GOOD STANDING of FIFTEEN YEARS duration. The PROPOSERS AND SECONDEES MUST BE ICRO MEMBERS.

Soft copy of the Application must reach the Secretary, ICRO by midnight of 31st July of the year of Election, with a copy to the Chairman, ICRO. Documentary evidence of all Statements/Experience/Awards must be attached to the HARD COPY of the Application and is to be sent to the Secretary, ICRO so as to reach him/her on or before 10th August of the year of Election.

The attention of the Proposer and Secunder making the nomination is invited to the Guidelines and Instructions laid down for the purpose.



FELLOWSHIP INDIAN COLLEGE OF RADIATION ONCOLOGY

- DR. V SRINIVASAN (SECRETARY – ICRO)

1. The Proposer and Secunder nominating the candidate should certify from personal knowledge the professional and scientific standing/achievements of the candidate
2. Every candidate shall be proposed and seconded by a statement in writing signed by at least two Life Members of AROI of GOOD STANDING of FIFTEEN YEARS duration. The PROPOSERS AND SECONDS MUST BE ICRO MEMBERS.

INSTRUCTIONS

1. Five copies each and a CD/DVD of the following documents must accompany the application for nomination.
 - i. A precise statement limited to 120 words on nominee's professional and scientific standing/ achievements which form the basis for nomination signed by proposer/secunder.
 - ii. Information as per format prescribed, duly completed. Follow the same section numbers in their submission as in the nomination form avoiding reference to enclosed appendices.
 - iii. List of publications:
 - a) Two separate lists of publications i.e. one in Journals included in Medical Databases, Medical Literature analysis and retrieval system (Medlar) etc. and other one in Journals, not included in medical database but published in Journals of National Societies/Professional Associations.
 - b) Be written in chronological order and should include (1)

Names and initials of all authors, (2) Title of article, (3) Title of publication abbreviated, (4) Volume number, (5) First and last page number, (6) Years of publication.

- c) Reference to books should include: (1) City of publication (2) Name of Publisher (3) Year of Publications.
- d) Abstracts and Proceedings of Conferences etc. should not be included in the list of publications.

2. Five copies each of six published papers considered to be best by the proposer. The Citation Index of six best published papers of the nominee and Average Impact Factor of the Journals in which the six best papers have been published may also be provided along with nomination for Fellowship. (Impact factor of the Journal in the year of publication of the concerned article).

The under-mentioned guidelines may also please be noted in this connection:

1. Only Life Members of AROI of GOOD STANDING of FIFTEEN YEARS duration and who are ICRO Members can Propose or Second the Nominee.
2. A Member may not propose more than three names for Fellowship in a year. He/ She may, however, second any number of proposals.
3. The candidate shall be Indian citizen. Exceptionally a foreign national who may have done outstanding work in India or for India in his/her own country may be considered.

Note: Nominations which are either incomplete or not according to the prescribed format will not be processed.



FELLOWSHIP INDIAN COLLEGE OF RADIATION ONCOLOGY

- DR. V SRINIVASAN (SECRETARY – ICRO)

<u>Chairman, ICRO</u>	<u>Secretary, ICRO</u>
Prof. Satyajit Pradhan Director, Homi Bhabha Cancer Hospital & Mahamana Pandit Madan Mohan Malaviya Cancer Centre, Sundar Bagiya, BHU Campus, Varanasi-221005, Uttar Pradesh E.mail: satyajit.pr@gmail.com	Dr. V Srinivasan Head, Radiation Oncology MIOT International Hospital No.4/112, Mount Poonamallee Road, Manapakkam, Chennai-600089, Tamilnadu E.mail: secretaryicro@gmail.com

FOR ELECTION OF ICRO FELLOW, AN OVERALL ASSESSMENT IN ALL SPHERES WILL BE DONE AND VARIOUS CRITERIA WILL BE CONSIDERED AND NOT ONLY EXCELLENCE IN ONE PARTICULAR SPHERE ALONE.



Secretary – ICRO
Dr. V Srinivasan



Vice Chairman – ICRO
Dr. D N Sharma



Chairman - ICRO
Dr. Satyajit Pradhan

AROI

Fellowships/Grants



APPLICATIONS INVITED FOR: FELLOWSHIPS/ GRANTS/ BEST PAPERS

S.No	Name of Fellowship	No's	For	Age Group	Fellowship Grant (in Rs)	Basis	Member of AROI For #/yrs.	Min Papers	Regularly Attending AROI conferences	Already availed fellowship in the past
1. Overseas										
1.1	AROI Fellowship	1	Radiation Oncologist	>50	1.5 Lakhs	MD/DNB	20	5	Yes	Then weightage to be given To those who have not Availed any Fellowship (or Any other Candidate is not available)
1.2	AROI Fellowship	2	Radiation Oncologist	41-50	1.5 Lakhs	MD/DNB	10	5	Yes	
1.3	AROI Fellowship	3	Radiation Oncologist	35-40	1 Lakh	MD/DNB	5	3	Yes	
1.4	AROI Fellowship	3	Radiation Oncologist	30-35	1,00,000	MD/DNB		3	Yes	
2. Within India										
2.1	AROI Fellowship	1	Medical Physicist	<40	30,000	DRP/MSc(MP)	2	BASED ON THERESUME AND INTERVIEW AT THE CONFERENCE & PREFERENCE GIVEN TO PAPER PRESENTERS	Yes	
2.2	AROI Fellowship	1	Radiation Oncologist	< 35	30,000	MD/DNB	3			
2.3	AROI Fellowship	1	RT Technologist	<45	15,000	AERB Certified	Yes			No
2.4	Neil Joseph Fellowship	6	Radiation Oncologist		20,000	Student MD/DNB	Yes	RESUME AND INTERVIEW		

3.1	Best Proffered Paper for Senior Members	1	Radiation Oncologist	>40 - ≤50				Post MD/DNB >10 Yr.	10-15 years	
3.2	Best Proffered Paper for Senior Members	1	Radiation Oncologist	35-≤40				Post MD/DNB 5-10 yr.	5-10 years	
3.3	Dr. G.C. Pant Young Doctor Award	1	Radiation Oncologist Post MD/DNB	<40		30,000 For fellowship		Post MD/DNB 3 yrs.	3 years	
3.4	Dr. M S Gujral Gold Medal	1	Doing MD/DNB			15,000+Medal			Yes	
3.5	Dr. M C Pant Gold Medal	1				10,000+Medal			Yes	
3.6	Gold Medal Medical Physics	1	Physicist/Radiation oncologist with physicist	<30		10,000		DRP/MSc in Med. Physics	Yes	

AROI

Fellowships/Grants



APPLICATIONS INVITED FOR: FELLOWSHIPS/ GRANTS/ BEST PAPERS

Procedure for Application:

1. Applicants have to send a copies of date of birth certificate, the publications mentioned under each Fellowship and Self-certified proclamation that they are working full time in radiotherapy (soft and hard copy both)
2. Fellowship amount will be given to candidates after 15% tax deduction.
3. All the applications for fellowship/ best paper awards be sent along with the full paper and the letter from head of department/ institute to the office of Secretary General AROI by 5 PM, 30 July 2022.
4. No Objection certificate from their head of Department if selected to go for 4weeks fellowship. Fellowship must be completed before August 2023.
5. PG Students shall send recommendation for presenting best paper through Head of the Department.
6. For best paper NOC for publication in JCRT (if selected). PG students should approach for best paper through their HOD/guide.
7. For fellowship more than 35 years age category should be ICRO member.
8. Mailing address and details -
 - a) Dr. G.V Giri Email : girishuba@gmail.com
 - b) Dr. Rajesh Vashistha Email: drvashistha@gmail.com

Postal Address: Dr. G.V. Giri, H. No. 67 NR Bhartiya Vidya Mandir School Phase III Urban Estate (PUDA), Dugri Ludhiana 141003

Awards



WINNERS OF 40TH AROI - ICRO SUN PG TEACHING COURSE, AIIMS RISHIKESH

- AROI – ICRO OFFICE



First
Dr. D.V.S.Praveen
Dr. B.R.A.IRCH AIIMS New Delhi



Second
Dr. Sharanya R Nair
AIIMS Rishikesh



Third
Dr. Bithi Pal
Medical College and Hospital, Kolkata

WINNERS OF 41ST AROI - ICRO SUN PG TEACHING COURSE, SRI SHANKARA CANCER HOSPITAL, BENGALURU

- AROI – ICRO OFFICE



First
Dr. Soham Sanyal
Dr. B.R.A.IRCH AIIMS New Delhi



First
Dr. Sharanya.R.Nair
AIIMS Rishikesh

Second
Dr. Sasmita Priyadarshini Sahoo
Medanta-The Medicity, Gurgaon

Upcoming

UPCOMING
MEETINGS



42nd Annual Conference of Association of Radiation Oncologists of India **AROICON 2022**

"Personalizing Isodoses, Curing Lives"

SAVE THE DATE
01-04 DECEMBER
NEW DELHI

MORE DETAILS, COMING SOON....



delhi@aroicon2022.com | www.aroicon2022.com

Upcoming

UPCOMING
MEETINGS



ESTRO



5TH AROI - ESTRO GYN TEACHING COURSE

3D Radiotherapy with a Special Emphasis on Implementation of
MRI / CT Based Brachytherapy in Cervical Cancer

30th June – 3rd July, 2022
Kolkata, India

Organised by
Department of Radiation Oncology
Burdwan Medical College, Purba Bardhaman

Venue : CEF - Suresh Nautia Centre of Excellence for Leadership, Kolkata

Upcoming

UPCOMING
MEETINGS



PRODVANCE 2022 (NORTH ZONE)

OVERVIEW OF
HEPATO-PANCREATICO-BILIARY TUMORS

23-24 JULY 2022

AYURVIGYAN AUDITORIUM, ARMY HOSPITAL R&R,
DELHI CANTT. NEW DELHI



MORE DETAILS WILL BE SHARED SOON.....

PRODVANCE2022@GMAIL.COM

UNDER THE AUSPICES OF ANGIOCON 2022

COURSE DIRECTOR
DR. ASHOK KUMAR

HOD, RADIATION ONCOLOGY, ARMY HOSPITAL R&R

Upcoming

UPCOMING
MEETINGS



ARO 2022

Annual Conference Bihar Chapter

"Advances in Oncology: Scaling New Horizons"

ALL INDIA INSTITUTE OF MEDICAL SCIENCES PATNA

13th 14th
August 2022

AIIMS
Patna

Organizing Chairman
Prof. Dr. P. N. Pandit
Ex - HOD, Oncology Dept.
PMCH Patna & Director Narayana
Cancer Center Patna

Organizing Secretary
Dr. Pritanjali Singh
Additional Professor & HOD,
Radiation Oncology
Dept - All India Institute of
Medical Sciences Patna



aroibiharchapter@gmail.com www.aroibiharchapter.in

Upcoming

UPCOMING
MEETINGS



ASSOCIATION OF RADIATION ONCOLOGISTS OF INDIA
APOLLO MULTISPECIALITY HOSPITALS, KOLKATA



**AROIO
ESTRO**
European Society for
Radiotherapy & Oncology



TEACHING COURSE ON
**ADVANCED
TECHNOLOGIES**
IN RADIATION ONCOLOGY



**LIMITED
REGISTRATIONS**

REGISTRATION OPENS SOON
ON FIRST COME FIRST SERVE BASIS
GROUP REGISTRATION WILL BE ENCOURAGED

KOLKATA
NOVEMBER 10-13TH, 2022

www.arioiestroatkolkata.com	COURSE COORDINATOR DR. TANVEER SHAHID +91 9831016961	COURSE ORGANISER PROF (DR) LITAN NAHA BISWAS +91 9830067292	CONTACT PERSON DR. JIBAK BHATTACHARYA +91 9830185940
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Upcoming AROI - ICRO courses' 22



INTAS RADIOBIOLOGY COURSE - 2022		
	1.Dr.Shantanu Sharma, SMS, Jaipur (WEST)	SEPTEMBER 24
	2.Dr.Manoj Gupta, AIIMS, Rishikesh (NORTH)	NOVEMBER 19
	3.Dr.Dinesh Makuny, MVR, Calicut (SOUTH)	AUGUST 6
PRODVANCE 2022 - HEPATO-BILIARY TUMOURS		
	1.Dr.Kaustav Talaptra, Kokilaben, Mumbai (WEST)	OCTOBER 15/16
	2.Dr.S.N.Senapati,AHRCC,Cuttack (EAST)	AUGUST 27/28
	3.Dr.(Col.)Ashok Kumar, RR Centre,New Delhi (NORTH)	JULY 23/24
SUN ICRO TEACHING PROGRAMME - 2022		
	1.Dr.Preety Jain, MGM Med College, Indore (HEAD & NECK CA)	SEPTEMBER 3/4
ICRO PRE-CONFERENCE WORKSHOP AROICON		DECEMBER 1
AROI ESTRO GYN Teaching Course		30 th June to 3 rd of July, 2022

AROI APPLICATIONS INVITED FOR 2024

FROM THE OFFICE OF AROI

Application invited for

1. AROICON 2024
2. ICRO SUN PG teaching course 2024
3. Proadvance 2024
4. Radiobiology Course 2023 &2024
5. ESTRO Gyane teaching course 2023 & 2024
6. Estro Advance technology 2023 &2024
7. Best of ASTRO 2024

Application should be send through ZONAL/STATE chapter

Newly elected



Congratulations



Dr. V. Lokesh M.D.

Professor & Head of the Department
Department of Radiation Oncology
SCI - ACRO Advanced Radiation Oncology Centre
Kidwai Memorial Institute of Oncology,
Bangalore 560029
E mail: lokpreeth@gmail.com
Mobile: +91-9845207150

President
AROI Karnataka Chapter



Dr. Ravindra Ganganna MBBS DMRT- DNB

Consultant Radiation Oncologist
HCG hospital Bangalore 560029
Email: drrig4u@gmail.com
Phone: +91-9980922881

Secretary
AROI Karnataka Chapter