RGCIRC
Ethics, Empathy & Excellence

NEWSLETTER

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EDITORIAL

THE EVOLUTION OF REVOLUTIONS IN RADIATION ONCOLOGY

From unicellular organisms to multicellular beings, from caves to skyscrapers, from riding on horseback to journeys beyond our planet, we have evolved. Evolution is the law of nature. Our scriptures expressed this truth long ago giving direction to our manifestation for the battle of good against bad.

परित्राणाय साधूनां विनाशाय च दुष्कृताम् । धर्मसंस्थापनार्थाय सम्भवामि युगे युगे ॥

Ironically, few verses describe radiation oncology even better than our modern-age literature. Its dharma has never changed: destroy the tumour, protect the healthy tissue around it. Yet in every age it has reappeared in a new form, sharper, gentler and more precise than the last. This is the story of those revolutions, and of our own small part in them.

Radiation oncology was born almost by accident, and almost overnight. Röntgen discovered X-rays in November 1895, and within months, in 1896, the first patients were being treated with them while Becquerel was stumbling upon natural radioactivity. In 1898 Marie and Pierre Curie discovered radium, and by 1899 a skin cancer had been cured with X-rays. Röntgen received the very first Nobel Prize in Physics in 1901, and the Curies shared the 1903 prize with Becquerel. Those pioneers had little more than courage and curiosity, and many paid for it with their own health.

The first great lesson was patience. In the 1920s, Regaud and Coutard in Paris showed that dividing the dose into small daily fractions could cure cancers of the larynx while letting normal tissue recover. By the 1930s the Paris and Manchester systems had turned radium brachytherapy into a science of dose. Fractionation remains radiobiology's founding principle, nearly a century later.

Then came power. Lawrence's cyclotron in the early 1930s opened the door to particle beams; in 1946 Robert Wilson proposed protons, which stop where the tumour ends, and the first patient was treated at Berkeley in 1954. In 1951, cobalt-60 units in Canada carried megavoltage beams to the world. In 1953 the first medical linear accelerator treated patients at Hammersmith Hospital, London, and in 1956 a Stanford LINAC saved the sight of a young child with retinoblastoma. Deep tumours could now be reached without burning the skin, and radiotherapy became a mainstream curative modality.

Next came sight. Hounsfield's CT scanner (1971) let us plan on true three-dimensional anatomy instead of shadows on film. In 1982 Anders Brahme described inverse planning, and by the 1990s intensity modulation was sculpting dose around the tumour and away from the parotid, the spinal cord and the bowel. Leksell's Gamma Knife (late 1960s) and Adler's CyberKnife (1994) turned radiation into a scalpel without an incision. The first hospital-based proton centre opened at Loma Linda in 1990, and carbon ions followed at Chiba in 1994. The new millennium brought image guidance before every fraction, helical tomotherapy and, from 2008, volumetric arc therapy.

Today radiation oncology stands at its most powerful moment. Beams are shaped to the millimetre, delivered in minutes and verified in real time. On-board imaging and surface guidance watch the patient breath by breath, while gating and tracking chase tumours that move with every respiration. CyberKnife and stereotactic radiotherapy deliver ablative doses in a handful of sessions, MR-guided radiotherapy, in the clinic since 2014, lets us see the tumour as we treat it, and proton beams stop where the tumour ends. Tumour control is better, side effects are fewer, and patients gain a real survival advantage.

Artificial intelligence has entered the bunker. Organs that once took hours to contour are delineated in minutes, plans are optimised automatically, and adaptive therapy redraws the plan on the anatomy of the day while the patient waits on the couch. Virtual and simulation-free workflows, planning directly on diagnostic or MR images, are shrinking the wait from consultation to first fraction. Surface-guided, open-face and frameless techniques are freeing patients from rigid casts and masks.

Radiation has also stepped beyond cancer. Low-dose radiotherapy relieves painful benign conditions such as osteoarthritis and plantar fasciitis, prevents keloids and heterotopic ossification, and treats trigeminal neuralgia and arteriovenous malformations. Most strikingly, since a landmark 2017 report, stereotactic cardiac radioablation has treated refractory ventricular tachycardia without a single incision, often where catheters have failed. The radiation oncologist's beam has reached the heart.

The pipeline is fiercer still. FLASH therapy, first used in a patient in 2019, delivers an entire dose in under a second. Spatially fractionated GRID and lattice therapy attack bulky tumours, and proton arc therapy refines the particle beam further. Biology-guided radiotherapy lets the tumour's own PET signal steer the beam. Radiotheranostics, dose-amplifying nanoparticles and radiation combined with immunotherapy promise to recruit the body's own defences. Each revolution serves the same promise: more dose to the cancer, less to everything else.

Our own department has ridden this wave. It began in 1996 with two linear accelerators and a cobalt unit. Today it runs TrueBeam, Synergy, Tomotherapy, CyberKnife and modern brachytherapy, with another TrueBeam arriving this year. A dedicated SRS/SBRT programme runs successfully, and the department has anchored its growth in translational research and evidence-based medicine. More than 2,500 patients a year are treated here, gaining both quality and quantity of life, while our trials, our AI work and our trainees carry the department into its next "yuga".

Amid all this change, one thing has stayed the same: the courage of the patient on the couch. They come to us not as victims but as partners in the fight, and today they come with good reason to be confident. Radiation once carried a reputation for harshness; that reputation has changed because the results have changed. Side effects that patients once accepted as inevitable, such as dry mouth, skin burns and bowel injury, are now far less common. Cures and long-term control are achieved more reliably, and patients increasingly return to work, family and full lives during and after treatment. Confidence in radiation oncology has grown because it has been earned, patient by patient and trial by trial.

Yet this progress calls for humility, not pride. Every gain we celebrate rests on the pioneers who came before us, on the patients who braved the fight against cancer remaining on trials that taught us, and on questions that remain unanswered. Cancer still humbles us, and no machine, however advanced, earns a patient's trust on its own.

तस्मात्त्वमुत्तिष्ठ यशो लभस्व जित्वा शत्रून्भुङ्क्ष्व राज्यं समृद्धम् । मयैवैते निहताः पूर्वमेव निमित्तमात्रं भव सव्यसाचिन् ॥

That is how we see our work. The physics was written into nature long before Röntgen, and the biology long before us. Machines will keep evolving, age after age. Our duty is to be worthy instruments: skilled, humble and devoted to the patient in front of us.

Nimitta-mātram bhava. Let us be the instrument.

Guest Editor - **Dr. Munish Gairola**, Director Radiation Oncology
- **Dr. Sarthak Tandon**, Consultant, Radiation Oncology
Co-Author - **Dr. A. K. Dewan** - Principal Director - Surgical Oncology

RGCIRC HOSTED 'SAMVAD, SAHYOG, SEVA - II' : HIGHLIGHTS HOW PHILANTHROPY GOES BEYOND FINANCIAL AID



RGCIRC (Rajiv Gandhi Cancer Institute & Research Centre), one of India's foremost authorities in cancer care and research, successfully organised '**Samvad, Sahyog, Seva - II**' - an interactive session between donors and beneficiaries. Organised by the Department of Philanthropy & Patient Welfare Services at the Institute's Rohini campus, the programme highlighted a central message: philanthropy at RGCIRC goes beyond financial assistance; **it helps ensure that no family faces the cancer journey alone.**



The event brought together beneficiaries, donors, CSR partners, NGOs, foundations, hospital leadership and patient-welfare teams, providing a platform to share experiences and understand how coordinated support can address the financial, emotional, nutritional, logistical and counselling needs of patients and their families.



The programme began with an introduction to '**Samvad, Sahyog, Seva - II**' by **Mr. Tanish Anand, Patient Welfare Executive**, followed by a welcome address by **Dr. D. S. Gangwar, CEO, RGCIRC. Dr. Vineet Talwar, Medical Director, RGCIRC, Rohini**, and **Dr. Gauri Kapoor, Medical Director, RGCIRC, Niti Bagh**, also addressed the gathering, underscoring the importance of patient-centred support alongside high-quality clinical care. **Ms. Swarnima Jaitely, Head of philanthropy and patient welfare services**, narrated through the journey of the cancer survivors and patients at the event.



Through '**Samvad, Sahyog, Seva - II**', RGCIRC highlighted the strength of the ecosystem created by **individual donors, CSR partners, NGOs and foundations** working alongside its patient-welfare teams. Guided by its core values of **Ethics, Empathy and Excellence**, the Institute continues to extend cancer care beyond the hospital and beyond treatment - towards prevention, dignity, support and survivorship.

The event ended with a thank you note by **Ms. Archana Talreja, Medical Superintendent, RGCIRC.**

CME WITH IMA VARANASI





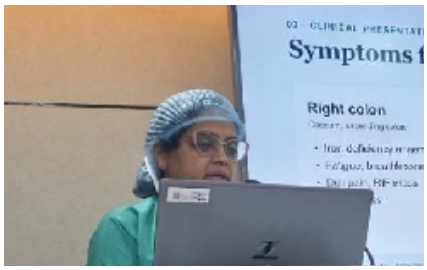
RGCIRC organized an Oncology CME in association with IMA Varanasi, UP on Saturday, 10th October 2026 at The Clarks, Cantonment, Varanasi, UP, where Dr. Vineet Talwar, Medical Director delivered an insightful lecture on "Immunotherapy: Nuts & Bolts" and Dr. Mudit Agarwal, Director – Academics and Chief of Head & Neck Onco Surgery (Unit-II) shared his knowledge on "Salvage Partial Laryngectomy in Laryngopharyngeal Cancer".

CME WITH ROHINI DOCTORS

On Saturday, October 24, 2026, RGCIRC, Rohini, Delhi, hosted an Oncology CME in collaboration with Rohini Doctors at IP Hall 1. The session brought together medical professionals for insightful discussions led by esteemed faculty: Dr. D. S. Gangwar (CEO) spoke on "Integrated Care in Oncology: **The Essential Role of Primary Care Providers (PCPs) in Cancer Care Continuum.**" Dr. Varun Goel (Sr. Consultant – Medical Oncology & Principal Coordinator – Day Care Services) discussed the "**Approach & Management of Stomach Cancer Patient.**" Dr. Shaifali Goel (Consultant – GI Onco Surgery) shared insights on the "**Management of Colon Cancer.**"







A SMILE THROUGH THE STORM: A TEENAGER'S FIGHT FOR LIFE

Today, I am 23 years old, and working as Functional Consultant at Deloitte. When I was 16 years old, I began experiencing intermittent pain in my right leg**.** Since the pain came and went, I continued playing sports and carrying on with my routine activities. Gradually, the pain worsened, and one night it became so severe that I woke up from my sleep.

My parents took me to an orthopaedic centre, where an X-ray revealed a mass. This led my family to consult multiple doctors. A biopsy finally confirmed the diagnosis, a rare paediatric bone cancer known as **Ewing sarcoma**, affecting my femur.

Like any parents, my parents' first question to the doctors after learning about my diagnosis was, "Is she going to live?" The doctors were honest with us: "We are going to do everything we can to save her life." My parents knew that RGCIRC was the best place for my treatment. We all believed in our hearts that whatever was needed to provide the safest and most advanced care for me would be available there. My condition required the combined expertise of both pediatric oncologists as well as surgeons specializing in bone and soft tissue tumors.

I began the first of 16 cycles of aggressive chemotherapy. Every two weeks, we came to the hospital for chemotherapy, each admission lasting between two and five days. Halfway through the treatment, radiation therapy was added to my rigorous treatment regimen. The goal was to shrink the tumour as much as possible before deciding whether surgery would be necessary. **Ewing sarcoma** patients often require limb-sparing surgery, in which the diseased bone and joint are removed and replaced with a metal endoprosthesis. Before radiation, doctors also advised a surgical procedure to spare my ovarian function.

Our family had to adapt to a completely new way of life. My parents spent long days with me in the hospital while trying to keep life as normal as possible for my younger sibling. My sister struggled to understand what was happening to me. She was scared to see me so sick and upset that our parents had to be away from her so often. Meanwhile, I was fighting my own battle; dealing with nausea from chemotherapy, missing my friends and tuition classes, and coping with the fear and uncertainty that had become part of my everyday life.

Yet, my smile rarely dimmed, and my personality shone through it all. The paediatric oncology team became a great source of support for me, as well as for other patients and parents. During my treatment, I developed a close friendship with another teenage cancer patient, and our bond became an important support system for both of us.



I turned 17 in November 2019, about four months into my treatment. That same month, a new round of scans brought encouraging news for my family and the medical team. The large tumour in my leg had reduced significantly in size. The doctors told my parents that if the progress continued, there was a possibility that I might not require surgery. I continued with chemotherapy and radiation and successfully completed my treatment in June 2020.

I completed my Bachelor of Business Administration (BBA) from IMS Ghaziabad and am currently pursuing MBA from Amity University, Noida.

My journey with cancer has been truly life-changing. It has taught me gratitude not only for what I have, but also for what I once missed. Today, I feel more connected to my family and friends than ever before.

Through this journey, words can never fully express my gratitude to the entire paediatric oncology team at RGCIRC. Every patient here is strong and special. I truly believe there is hope for everyone. There is always hope beyond what we see. It is possible not just to survive, but to thrive and live a healthy, meaningful life again. Life is 10% of what happens to us and 90% of how we react to it. One can be a victim of cancer or a survivor of cancer, it is a matter of mindset.

Kritika Bhargava

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