



## Rajiv Gandhi Cancer Institute and Research Centre

A Unit of Indraprastha Cancer Society  
Registered under "Societies Registration Act 1860"

Architect's Impression of RGCI & RC (post expansion)



# News Letter

Vol. XIX

No. 9

Price: 50 Paisa

### EDITORIAL

#### OCTOBER – BREAST CANCER AWARENESS MONTH

The then first lady of the United States, Nancy Reagan was diagnosed with a suspicious lesion on a routine mammogram as a part of the annual examination in October 1987. She then underwent a biopsy of the lesion that confirmed that it was cancerous. She underwent a mastectomy and twenty eight years later she is still alive 94 years young. She lost her husband Sir Ronald Reagan to Alzheimer's disease in 2004. The moral of the story is

1. Early Breast cancer is curable with no significant impact on normal life expectancy.
2. Mammography picks up cancers much before they appear or can be felt.
3. Mammography helps in early detection and thus saves lives from breast cancer.

The incidence of cancer has been increasing all over the world in the last decade. India in particular has been fast to catch up with the increasing trend. Breast cancer is no exception. In fact the rise in the incidence of breast cancer has been so rapid that it has overtaken cervical cancer and is the most common cancer among urban women. Presently it is predicted to affect one in 25 women in the major cities.

We may boast that we are still far behind the incidence in the developed world that is 1 in 8 in the United States. But more disturbing fact is that the number of deaths due to breast cancer is more in India than in the U.S. If we fail to take steps to curb this growing epidemic, then it will soon emerge as the most common cancer among Indian women with significant mortality.

The prime reason of breast cancer mortality is attributed to the advanced nature of presentation. The rationale for mammographic screening is to detect breast cancer at a stage when it is minute and impalpable. The fact that mammography saves lives has been proven beyond doubt by the Swedish two county trial of 77080 women. A 30 % reduction in mortality was achieved in the screening group. The risk reduction was significant in the 50 + age groups. It was not so significant in the 40 – 49 group. The Western countries implemented mammographic screening in the 50 + age

group uniformly. However a consensus was not achieved in the 40 – 49 yrs. age group.

On the other hand a recent article on three decades of screening mammogram published in the NEJM concluded that screening mammography has substantially increased the number of early stage breast cancer cases, only marginally reduced advanced stage presentation, resulted in substantial overdiagnosis, and has had little or no effect on breast cancer mortality. This underlines the fact that mammography picks up indolent disease in one third of the cases which might have no major impact on survival. So contrary to the popular belief mammography may not save as many lives as proposed.

#### The Indian perspective :

We have been passive onlookers to the whole phenomenon of mammographic screening upsurge and plateau in the west. The widespread mammographic screening has achieved early detection of breast cancers in the large proportion of women but has not helped to reduce the incidence of breast cancer. Secondly even though the survival of breast cancer has dramatically improved it is difficult to attribute it singularly to mammographic screening discounting increased awareness and the paramount advances in the treatment of breast cancer.

In the vast majority of rural population the incidence of breast cancer is lower than the urban population and hence may not substantially benefit from periodic screening mammogram. As far as the urban population is concerned increased awareness leads to early detection. A more prudent approach would be to enhance "breast awareness" of the population, recommend a baseline mammogram of all women at the age 40 (Indian women have an earlier age of onset of breast cancer than their counterparts in West), screening of the high risk population and establish breast centres for asymptomatic women.

**Dr. Dewan AK**  
Medical Director

## HALF MATCHED: YET THE PERFECT KIN RGCIRC BRINGS THE FUTURE ERA OF BONE MARROW TRANSPLANT

### Indications and Eligible Donor

Hematopoietic stem cell transplantation (HSCT) is a potentially curative therapy for a variety of hematologic malignancies (blood cancers) and genetic diseases, including the acute and chronic leukemias, myelodysplasia, lymphoma, multiple myeloma, thalassemia, sickle cell disease, aplastic anemia and immunodeficiency disorders. The best donor for HSCT is an HLA-matched sibling or matched unrelated donor. However, the successful application of HSCT to patients of these diseases is limited by the lack of histocompatible (HLA matched) donors in a majority of patients. Recent advances in transplant research has made it possible to perform transplants using partially matched (halfmatched/haploidentical) related donors with outcomes at par with matched related or unrelated donors.

### Safari from Venom to Elixir

Historical experience with haploidentical stem-cell transplantation has been characterised by a high rejection rate, graft-versus-host disease (GVHD), and transplant-related mortality. These drawbacks have been addressed successfully due to the development of new extensive T cell depletion methods [ex-vivo T cell depletion (using CD34+ Selection, CD3/CD19 depletion, OKT-3 or T10B9 monoclonal antibodies) and in-vivo T cell depletion (cyclophosphamide, Antilymphocyte globulin, Anti-thymocyte globulin, alemtuzumab)] with mega dose stem-cell administration and intensive immunosuppression (cyclosporine, steroids, Anti-thymocyte globulin). The John Hopkins group, United States pioneered the use of post transplant cyclophosphamide in an effort to reduce GVHD rates. The rationale for administering cyclophosphamide after



transplantation is that the recently activated, alloreactive T cells (cells most responsible for GVHD) are selectively sensitive to the toxic effects of this drug. This approach has proven to be very effective, requiring no stem cell manipulation, a simple marrow collection, and well tolerated conditioning with modest toxicity. Furthermore, development of reduced intensity conditioning regimen in haploidentical transplants resulted in reducing early transplant-related mortality and GVHD, while enabling sustained engraftment, and hence allowing for co - morbid patients to benefit from haploidentical transplantation.

### Pros and Cons of Half Matched Transplant

The HLA genes are tightly linked and inherited in a genetic unit called a haplotype. Haplotypes can be determined by testing for alleles at three loci: HLA-A, HLA-B, and HLA-DR. Every child inherits one haplotype from each parent. Two siblings have a 25% chance of inheriting the same two parental haplotypes and thus of becoming HLA-genotypically identical (fullmatch). There is always an excellent chance of finding a family member who shares with the patient at least one HLA haplotype but differs in one to three human leukocyte antigens (HLA) in the second haplotype (halfmatched/haploidentical). So, virtually every needy patient has an inherited privilege to find a haploidentical donor. Hence, donors can be identified promptly avoiding the delays (associated with subsequent relapse) required for searching a matched unrelated donor. The other advantages of haploidentical related donor transplantation is the ability to select the best donor on the basis of age, sex, and infectious disease status, optimal graft composition, and prompt access to repeated donation in case of graft failure or need for cellular therapy after transplant. In addition, the cost of haploidentical transplant is half of that spent in a unrelated donor transplant because of high costs of high-resolution HLA typing, donor registry, collection and transportation of stem cells and banking expenditures involved in unrelated transplant. The benefit can also be extended to patients with refractory disease. Also, a more potent graft-versus-tumor (GVT) effect may occur following histo incompatible transplant. With the advent of successful strategies in halfmatched transplants many patients can be cured to live with eternal happiness. However, post transplant infectious complications and relapse remain the most important barriers yet to be overcome in this setting. Effective T-cell depletion in adults is associated with a profound and prolonged immunodeficiency that predisposes patients to life-threatening infections and, in the absence of donor lymphocyte mediated graft versus tumor effect, to leukemia relapse, both representing leading cause of death in this treatment approach.

### RGCIRC Success Saga

Very few centres in India have ventured to introduce this novel technique in the treatment armamentarium of various hematological disorders. The Hemato-Oncology team at our institute comprising six stalwart hematologists has pioneered the arena of haploidentical HSCT in India since 2011. We have performed 34 haploidentical HSCT in last 4 years which is the largest number in North India, with outcomes comparable to matched related and matched unrelated HSCT.



Stem cell collection from peripheral blood

Team of Haemato Oncology & Bone Marrow Transplant

## MINIMALISM - AN IMPORTANT CONCEPT IN NEURO - ONCOLOGY

Neurosurgical oncology is now well developed as a specialty to be recognized as a separate enterprise. It is now certified as a neurosurgical subspecialty by the Society of Neurological Surgeons, with particular requirements for training. We, at RGC and RC, take pride in being the only major hospital in north India practicing pure neurosurgical-oncology.

Every year in India, more than 50,000 people are diagnosed with a brain tumor. Surgery plays a very important part in the treatment of these lesions. Though radical excision/debulking of these tumors is the procedure of choice, a combination of maximal safe resection along with a minimally invasive approach is the most desired thing in neuro-oncology. Minimally invasive approach leads to faster recovery, reduced hospital stay and reduced cost of surgery.

We at RGC and RC are committed to this concept of minimalism with maximal safe resection while dealing with brain and spinal tumors.

### Brain Tumors

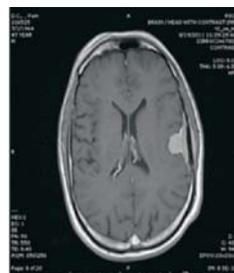
At our centre, high grade gliomas, meningiomas, pituitary adenomas and brain metastases are the most commonly encountered lesions. All the patients are evaluated with proper imaging including functional MRI (fMRI), and diffusion tensor imaging (DTI) which are particularly important in surgical planning. The ability to create fMRI paradigms that accurately allow assessment of movement, speech, memory, and vision areas is a difficult task requiring a dedicated group of neuroradiologists/neurosurgeons which is present at our centre. Least invasive and direct route to the tumor is planned with a stereotactic craniotomy which enables access through small incisions. Intraoperative ultrasound and neuronavigation is used to reach deep lesions with minimal damage. Our OT is equipped with the latest Pentero microscope for high definition microneurosurgery. The principle of maximal safe resection is followed to avoid neurological deficits. Minimally invasive approach further helps us in starting early radiotherapy, if needed, after surgery due to better/faster wound healing. Pituitary adenomas are dealt with an endoscopic endonasal approach to the anterior skull base. Deep lesions are stereotactically biopsied when needed, to know their nature.



Pre-op MRI brain with a left temporoparietal eloquent area large glioma



Post-op MRI brain showing near complete resection



Pre-op MRI brain with a left speech area metastatic lesion

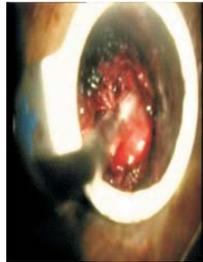
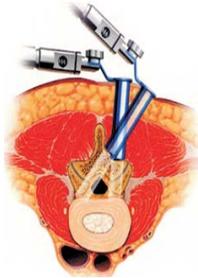


Post-op MRI with complete excision of the lesion with overlying involved bone

### Spine Tumors

Spinal metastases and primary spinal tumors are the commonly presenting lesions at our centre. Around 40% of the cancer patients develop spinal involvement during the course of their disease. Minimally invasive spine surgery (MISS) is a highlight at our centre. In fact, it's a boon for cancer patients because many cancer patients have poor general condition, poor bone quality and involvement of multiple levels. It helps in early mobilization of the patients, provides dramatic relief in back pain and improvement in neurological deficits, thus making them amenable for further adjuvant treatment. MISS can be done after the failure of adjuvant treatment (radiation therapy) also. All patients are evaluated with a whole spine screening MRI which helps us in picking up asymptomatic lesions also. All patients are objectively assessed with a spinal instability neoplastic score. Whenever needed, vertebral lesions are biopsied through a transpedicular CT guided approach to avoid any damage to the vertebral anatomy. Lesions encroaching in the spinal canal requiring decompression are operated through a unilateral approach using Metrx tubular system under high magnification, thus preserving spinal anatomy and providing maximal spinal decompression. Neoplastic vertebral collapses are stabilized with multi-level balloon kyphoplasty with or without percutaneous pedicle screw fixation. All these surgeries require very small incisions which heal faster, reduce patient morbidity and hospital stay.

Vertebral collapse with posterior vertebral wall breach, dealt with kyphoplasty



Metrx spinal tubular retractor system View through the Metrx system used for spinal decompression



Pre-op CT spine



Post-op CT spine with cement in-situ



Pre-op X ray spine



Post-op X ray spine with cement in-situ

**Dr. Ramandeep Singh Jaggi**  
 Consultant – Neuro Surgical Oncology

**CONTINUING MEDICAL EDUCATION PROGRAMME – IMA, DWARKA**



RGCIRC organized a CME Programme on Oncology in association with IMA, Dwarka on Saturday, 22nd August 2015. Dr. L. M. Darlong, Consultant & Head – Thoracic Surgical Oncology spoke on “Esophagus and Lung Cancer”. The talk was attended by more than 90 doctors.

- Mr. D. S. Negi (C.E.O.)
- Dr. A. K. Chaturvedi
- Dr. D. C. Doval
- Dr. Gauri Kapoor
- Dr. Anurag Mehta
- Dr. S. A. Rao
- Dr. P. S. Choudhury
- Dr. S. K. Rawal
- Dr. Dinesh Bhurani
- Dr. Sunil Kr. Gupta
- Dr. B. K. Naithani
- Dr. (Col.) A. K. Bhargava
- Dr. Vineet Talwar
- Dr. Sheh Rawat
- Dr. S. K. Sharma
- Dr. Shivendra Singh
- Dr. Rajeev Kumar
- Dr. Rajan Arora
- Dr. R. S. Jaggi
- Dr. L. M. Darlong
- Dr. Swarupa Mitra
- Dr. Ullas Batra
- Dr. Sanjeev Gupta

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