Scientific events at SGCCRI (EZO Workshop & CME 2015)

Inauguration of 7th EZO CME

Henry Shaw Oration being conferred on Prof. A.K. D’Cruz

Saroj Gupta Oration conferred on Prof. T.S. Rao

Audience at Floatel

Release of EZO CME 2015 Souvenir

Organising Committee
Glimpses of Weekly CME at SGCCRI

Dr. Reena Nair (extreme left)
Dr. Sarvanan Veeramalai (extreme right)
Dr. Kalyan Sarkar (centre)
Dr. Ramesh Nimagadda
Dr. A.K. Malhotra (extreme left)
Dr. Deep Narayan Mukherjee (extreme left)
Dr. Dipak Kumar Mishra (extreme left)
Dr. Chanchal Goswami (third from right)

Scientific Events at SGCCRI (Jan-Dec, 2016)

Press Conference on 1st 25 Successful Bone Marrow Transplant on 28th June, 2016
Nicotine Replacement Therapy Workshop on 6th March, 2016
International Nurses day celebration at SGCCRI on 12th May, 2016
Press Conference on 1st 25 Successful Bone Marrow Transplant on 28th June, 2016

The Research Advisory Committee Board Meeting on 8th July, 2016
National Nutrition Week Celebration on 10th September, 2016
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Editorial Committee</td>
<td>2</td>
</tr>
<tr>
<td>2. From the Editor's Desk</td>
<td>3</td>
</tr>
<tr>
<td>3. Original Articles</td>
<td>6</td>
</tr>
<tr>
<td>a) Liquid Biopsy</td>
<td></td>
</tr>
<tr>
<td>b) Autologous Haematopoietic Stem Cell Transplantation Programme</td>
<td></td>
</tr>
<tr>
<td>4. Journal Scan</td>
<td>13</td>
</tr>
<tr>
<td>5. Pic. Ur. Quiz</td>
<td>17</td>
</tr>
<tr>
<td>6. Case Report</td>
<td>19</td>
</tr>
<tr>
<td>7. Weekly CME</td>
<td>25</td>
</tr>
<tr>
<td>8. Panorama of Academic activities</td>
<td>29</td>
</tr>
<tr>
<td>9. Achievements</td>
<td>33</td>
</tr>
<tr>
<td>10. Scientific events</td>
<td>34</td>
</tr>
<tr>
<td>11. Other Events</td>
<td>35</td>
</tr>
</tbody>
</table>
EDITORIAL COMMITTEE

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pCR as Surrogate End Point – The Paradox
Dr. S. Bhattacharyya
Dept. of Surgical Oncology, SGCCRI

The importance of pCR after neoadjuvant therapy in breast cancer was reported in a long-term analysis of the NSABP B-18 and B-27 trials. Both disease free interval (DFS) and over-all survival (OS) were significantly improved in those women experiencing pCR (1). Improved outcomes have been reported in other cancer types, such as rectal cancer (2), esophagus cancer (3), and in urinary bladder cancer (4). This raises the question: can improvement in pCR rates be considered as a surrogate end point for the final end point of survival?

In this context one has to remember that correlation and causation are not synonymous. Buyse et al (5) proposed a method to quantitatively assess the degree of effect of a surrogate end point vis-à-vis the final end point from meta-analysis of pooled data. In this method, regression analysis was used to compare the effects of treatment on surrogate end point with that on the final end point. The coefficient of determination (R²) can quantitatively predict the relationship of surrogate end point with the final end point. Thus, no association is denoted by an R² of 0, while a complete association is seen in an R² of 1. An R² of 0.75 is considered as an acceptable standard for surrogacy (6).

pCR in breast cancer and survival: The CTNeoBC pooled analysis analyzed data from 10 international trials with 9,440 breast cancer patients treated with neoadjuvant therapy followed by surgery. The researchers reported that R² value for pCR as a surrogate for event free survival (EFS) was very low at 0.03 (95% CI, 0.00 to 0.25), and that for OS at 0.24 (95% CI, 0.00 to 0.70). The conclusion reached was that pCR was not validated as a surrogate for EFS or OS (7). Berruti et al (8), in a meta-regression analysis of 29 trials with 14,641 women treated with neoadjuvant therapy followed by surgery, reported similar low association between pCR and effect on EFS (R², 0.08; 95% CI, 0.00 to 0.47) or OS (R², 0.09; 95% CI, 0.01 to 0.41).

Is improvement in pCR rate in breast cancer associated with better OS? In a recent analysis, it was noted that out of 10 trials, in which the experimental arm showed improvement in pCR, in four there was no OS benefit, and three trials were false negative (9).

Does improvement in pCR rate relate to OS in specific breast cancer types? It has been suggested that in HER-2 positive and triple negative breast cancers betterment in pCR may be associated with better OS (10). However, the CTNeoBC pooled analysis, previously referred to (7), found strong correlation, but no evidence of surrogacy within HER2-positive or triple negative subgroups.

pCR improvement and OS in rectal cancer: In a pooled analysis of EORTC 22921 and FFCD 9203 randomized rectal cancer trials, consisting of 1867 patients, Bonnetain et al reported that though addition of concurrent chemotherapy to preoperative radiation therapy increased pCR rates from 3.7% to 11.2% (p<.001), there was no improvement in OS (5-year OS: 65.9% vs 66.3%, HR = 1.04 (0.88–1.21)). R² of progression-free survival as a surrogate for OS was 0.88 (95% CI, 0.77–1). In contrast, the R² of pCR as a...
surrogate for OS was 0.11 (95% CI, 0.0 -0.44) denoting poor surrogacy (11).
The Radiation Therapy Oncology Group (RTOG) 0247 study compared the efficacy of addition of irinotecan versus oxaliplatin to concurrent capcitabine plus neoadjuvant radiotherapy. Capecitabine-irinotecan combination produced a lower pCR, and was dropped (12). However, in a later analysis (13), the irinotecan arm was found to have a numerically superior survival (4-year OS: 85% v 75%; P <.05). It has to be mentioned that the study was not powered to detect a statistical difference. The authors concluded that, in spite of a lower pCR rate, addition of irinotecan to neoadjuvant chemoradiotherapy protocols was warranted, and that pCR was an unsuitable surrogate for survival metrics.

The paradox: It has been shown in many studies that achievement of pCR with neoadjuvant therapies is associated with an improved outcome. It would seem very logical to expect that therapies that improve pCR rates over standard therapies would translate into a better outcome. However, present day evidence does not support this hypothesis. This may occur due to several reasons:

a. pCR denotes the effect of a therapy only on the primary tumor; however, the outcome of the cancer is usually determined by the effect of therapy on the micrometastases outside of the primary tumor. These micrometastatic cells may phenotypically or genotypically different from cells in the primary tumor and may not be as sensitive as the primary tumor cells.

b. On the other hand, a treatment that has a significant effect on over-all survival may not have significant pCR rates. Hormonal therapy for breast cancer is a prime example.

c. Further, an additional therapy to the standard protocol may increase pCR rates. However, that additional therapy is needed to produce pCR points to a worse biological behavior, and a worse outcome.

Conclusion:
Achieving an improved pCR rates is a very tempting prospect. It offers a much faster outcome analysis in comparison to standard clinical trials based on OS or PFS analysis. Rose et al (9) reported in 2016 that in approximately 50% of enrolling phase II rectal cancer trials and 45% of the phase III breast cancer trials of preoperative therapy, pCR was the primary end point. One has to mention that, additional therapy to standard protocol may be associated with higher toxicity (not to mention, higher costs). So, the question whether betterment of pCR rates with additional therapy should be considered as a surrogate end point for survival matrices needs to be answered.

Reference:


The Yin and Yang of Liquid Biopsy
Dr. Susanta Roychoudhury, Dr. Somsubhra Nath
Dept of Basic Research, SGCC&RI

Cancer is one of the deadliest forms of disease, worldwide, including India. It causes a significant number of deaths, and most of the deaths occur from the recurrence of the disease rather than from the burden of primary tumor. To combat against this disease, two strategies must be adopted: 1) early detection of primary tumor, and 2) regular monitoring of disease recurrence. Detection of tumors relies largely on tissue biopsy, a method of taking out a part of suspected tumor and searching for cancerous cells in it. Here, we will describe an alternative form of biopsy, known as liquid biopsy, and its potential applications in cancer diagnostics.

As we have just mentioned, tissue biopsy is the gold standard for solid tumor detection. However, as it requires removal of body parts, it is a painful surgical procedure and depends on patient’s physical condition. Moreover, deeper the tumor, it becomes inaccessible to reach the site without major surgical approaches. For instance, lung tumors often come with difficulties in collecting tissue from the site. However, despite these obstacles, in majority of the patients, tissue biopsy is performed to detect the presence of tumor. Based on clinical decision, tumors might be operated out subsequently. The real problem would arise afterwards. During the post-operative routine check-up period, tissue-biopsy is not doable before any secondary tumor becomes physically prominent. However, by that time, the disease might already recur and management might get difficult to provide the patient any disease-free as well as overall survival benefit. Here comes the utility of liquid biopsy.

Liquid biopsy is the collection of blood sample or other form of body fluid from a patient affected with cancer and searching for the cancerous cells or mutational signature in the collected specimen. It is beneficial in the context of cancer when a) primary tumor is small or difficult to access or b) tumor is not available post-surgery. Indeed, it is useful for a) monitoring disease progression or recurrence b) monitoring treatment response. Additionally, the collection of body fluid is a minimal or non-invasive method, which is faster and cheaper than a surgical procedure. Moreover, a number of analytes can be examined in liquid biopsy specimen. The potential of liquid biopsy in cancer diagnostics can be categorized into several parts. For a population, suspected of developing cancer due to family history or carcinogen exposure, liquid biopsy can be adopted as a tool for screening. However, we are yet to achieve this aim and so far, no fruitful outcome has emerged from various trials in this respect. For a patient suspected with the onset of cancer, liquid biopsy can have the potential of replacing tissue biopsy towards the detection of a tumor. Furthermore, for a cancer-affected patient, post-operative disease monitoring can be done using liquid biopsy to examine minimal residual disease. The same liquid biopsy specimen can be tested for monitoring post-operative treatment response. Furthermore, liquid biopsy can be used in search for a drug-able target. However, for all these applications, a specific or a group of analytes must be validated to act as indicators for a specific tumor. Among these analytes, circulating tumor DNA and exosomes are being used for diagnostic purposes. However,
isolation of these three analytes from blood specimen followed by searching cancer-specific genetic signature(s) requires high-end technology. In the next section, we will describe the applicability of these liquid biopsy-based analytes in the battle against cancer.

**Circulating tumor cells**: A typical cancerous tumor contains cells harboring genetic mutations driving them to grow, divide, and invade the local tissue in which they are embedded. However, as they proliferate, some cells slough off the edges of a tumor and are swept away by the circulation (bloodstream or lymphatic) system. These so-called circulating tumor cells (CTCs) can remain loose in circulation, cluster together as they travel or lodge themselves in new tissues. Whatever their path, their common origin means that CTCs hold information about a tumor; information that researchers think could be key to cancer diagnosis or treatment. While metastasis remains very challenging for a tissue biopsy, recent advances are enabling the isolation of CTCs from the blood of patients with various types of cancer. Pragmatically, they can be seen as an opportunity to isolate, in real time, live cancer cells that are derived from proliferating primary as well as metastatic lesions in patients using minimally invasive liquid biopsy. In fact, detection of CTCs greatly varies depending on the technology used for their isolation. The majority of platforms currently available for CTC isolation rely on the expression of cell surface markers or physical properties to distinguish CTCs from normal blood components. For epithelial cancer types that generally express high levels of epithelial cell adhesion molecule (EpCAM), the CellSearch system is currently the only Food and Drug Administration (FDA)-approved device in the clinical setting. On the other hand, size-based enrichment platforms, such as Parsortix and ScreenCell, take advantage of the slightly bigger size of CTCs compared with red and white blood cells. These advances in the CTC field, however, should be seen as the starting point of a journey that promises to bring liquid biopsies into clinical practice. Significant steps ahead are required to achieve standardized protocols for real-time CTC monitoring and molecular interrogation, early during primary tumour onset and later during metastatic disease progression.

**Circulating tumor DNA**: The increasing knowledge of the molecular pathogenesis of cancer and the rapid development of new molecular techniques are promoting the study of early molecular alterations in body fluids. Scientists have discovered that dying tumor cells release small pieces of their DNA into body fluid. These pieces are known as circulating tumor DNA (ctDNA). Although a tumor itself is the major source of tumor DNA, acquiring DNA through a biopsy is invasive and often not possible. ctDNA can be found in serum, plasma, urine, and other body fluids, representing a “liquid biopsy”, which is a circulating picture of a specific disease. ctDNA in plasma or serum is the best characterized, while those in urine is less known. In principle, ctDNA fragments contain genetic defects identical to those of tumor tissues. To perform tumor genotyping assays by using ctDNA will be greatly beneficial for guiding personalized cancer treatment. The quantity of ctDNA is related to prognosis, and ctDNA analyses can be used to detect actionable and druggable gene mutations as well as resistance mutations at the earliest moment. Using ctDNA characterization for the early diagnosis of tumors has a great potential for clinical application; however, some limitations have to be considered. First, even if ctDNA could be distinguished from total cell-free DNA using somatic mutations analysis, the very low presence of ctDNA (often only 0.1%) needs more sensitive and reproducible methods. Secondly, ctDNA characteristics could be different among patients, forcing a qualitative analysis and specific optimization procedure for each patient. Despite these limitations and the low number of large studies on diagnostics, there are a number
of potential clinical applications encouraging the search for new, sensitive, and robust methods. A very promising application in early diagnosis is adding ctDNA detection to conventional markers used for screening programs; in this context, the detection of somatic mutations might suggest an early development of disease. In 2016, the U.S. Food and Drug Administration approved the cobas EGFR Mutation Test v2, a blood-based companion diagnostic for the cancer drug Tarceva (erlotinib). This is the first FDA-approved, blood-based genetic test that can detect epidermal growth factor receptor (EGFR) gene mutations in non-small cell lung cancer patients. Such mutations are present in approximately 10-20 percent of non-small cell lung cancers (NSCLC).

**Exosome**: A third liquid-biopsy approach targets exosomes. Exosomes are membranous vesicles released by all living cells into biofluids, such as plasma/serum, urine, cerebrospinal fluid, and saliva, as an active process of cellular communication. They contain RNA, including mRNA and other RNA species, as well as DNA fragments and proteins, from their cell of origin. Exosomal RNAs contain fingerprints for cancer of different types, so have potential as liquid biopsy. Isolation of exosomes from body fluid is minimally invasive or non-invasive, to traditional needle or excision biopsies. Much about them remains unknown, but a cancer test based on exosomes has already been commercialized. In January 2014, a blood test developed by Exosome Diagnostics of Cambridge, Massachusetts, for detecting lung cancer by analysing tumor-exosome RNA was certified for laboratory use under the Clinical Laboratory Improvement Amendments (CLIA) quality programme in the United States. Exosomes can be harvested from a patient's blood, and potentially from other bodily fluids such as urine, which are even more convenient and easy to access than blood. However, the isolation of tumor-derived exosomes, which are variable in size, and their separation from normal exosomes, remains particularly challenging when compared with isolating free-floating DNA or tumor cells, so it will take some time before the technique is mature enough to detect other forms of cancer.

**References**

Autologous Haematopoietic Stem Cell Transplantation Programme At Saroj Gupta Cancer Centre And Research Institute: Our Experience

Dr. P P Gupta, Dr. R N Ghosh
Bone Marrow Transplant Unit & Department of Haemato-oncology, SGCCRI.

Introduction:

Haematopoietic stem cell transplantation (HSCT) is now used worldwide in the treatment of many malignant and non malignant haematologic conditions and in the treatment of various solid tumors. HSCT is of two types: i) Autologous Transplant in which patients own stem cell is infused to reestablish bone marrow function following high dose therapy (HDT) and ii) Allogeneic Transplant where stem cell is obtained from a HLA matched healthy donor to restore normal haematopoiesis in patients whose bone marrow function is defective.

Multiple Myeloma is the most common indication for autologous stem cell transplantation (ASCT) followed by Non Hodgkin's and Hodgkin's Lymphoma and Acute Myeloid Leukemia, solid tumors like Neuroblastoma and Germ Cell Tumor and certain non malignant diseases such as Autoimmune Disorders like SLE and Multiple Sclerosis.

At our centre Autologous Transplant Programme has been started since January 2013. We are hereby giving a brief update of the 32 Autologous HSCT done so far at our centre for various Haematological Malignancies.

Material and Method:

Total of 32 patients of which 26 patients had Multiple Myeloma, one each had Plasma Cell Leukemia, Hodgkin Lymphoma and Acute Promyelocytic Leukemia and the other three had Relapsed Non Hodgkin's Lymphoma (DLBCL) who received Autologous HSCT between January 2013 and December 2016. Multiple Myeloma patients were conditioned with High Dose Melphalan (200 mg/m² or 140 mg/m²). BEAM was utilized as a conditioning Chemotherapy for the relapsed DLBCL and Hodgkin Lymphoma patients, the Plasma Cell Leukemia patient received Melphalan @ 200mg/m² and the APL patient received Busulphan-Cyclophosphamides conditioning Chemotherapy. Acyclovir and Fluconazole were given as prophylaxis for HSV and fungal infections respectively. G-CSF was started from Day +5. Peripherally inserted central catheter (PICC) was done in all patients for IV access except for one patient, who had a chemoport inserted during salvage chemotherapy. Peripheral Blood Stem Cell apheresis was done through femoral line. This femoral catheter was removed on day 0, following infusion of stem cells through this line.
Table 1. List of Peripheral Blood Stem Cell Transplant done at SGCCRI

<table>
<thead>
<tr>
<th>No</th>
<th>Age /Sex</th>
<th>Diagnosis</th>
<th>Conditioning Chemotherapy</th>
<th>Cell Dosage CD 34 +Ve- 10^6/kg</th>
<th>Engraftment Neutrophil</th>
<th>Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>44 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>5.7</td>
<td>Day + 9</td>
<td>Alive 1439 days without progression.</td>
</tr>
<tr>
<td>2.</td>
<td>40 M</td>
<td>NHL</td>
<td>BEAM</td>
<td>9.5</td>
<td>Day +10</td>
<td>Relapsed &amp; died Day 135.</td>
</tr>
<tr>
<td>3.</td>
<td>58 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>4.8</td>
<td>Day +12</td>
<td>Alive 1057 days without progression.</td>
</tr>
<tr>
<td>4.</td>
<td>65F</td>
<td>MM</td>
<td>Melphalan 140mg/m2</td>
<td>2.34</td>
<td>Day + 11</td>
<td>Relapsed and died Day 298.</td>
</tr>
<tr>
<td>5.</td>
<td>52F</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>10.2</td>
<td>Day + 9</td>
<td>Alive 985 days without progression.</td>
</tr>
<tr>
<td>6.</td>
<td>65 M</td>
<td>MM</td>
<td>Melphalan 140mg/m2</td>
<td>13.9</td>
<td>Day +10</td>
<td>Alive 900 days without progression.</td>
</tr>
<tr>
<td>7.</td>
<td>51 F</td>
<td>PCL</td>
<td>Melphalan 200mg/m2</td>
<td>3.7</td>
<td>Day +11</td>
<td>Relapsed and LFU 8 months later</td>
</tr>
<tr>
<td>8.</td>
<td>49 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>5.5</td>
<td>Day +9</td>
<td>Alive 879 days without progression.</td>
</tr>
<tr>
<td>9.</td>
<td>69 F</td>
<td>MM</td>
<td>Melphalan 140mg/m2</td>
<td>9.2</td>
<td>Day + 10</td>
<td>Alive 878 days without progression.</td>
</tr>
<tr>
<td>10.</td>
<td>50 F</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>9.1</td>
<td>Day + 9</td>
<td>Alive 837 days without progression.</td>
</tr>
<tr>
<td>11.</td>
<td>48 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>5.2</td>
<td>Day +10</td>
<td>Alive 768 days without progression.</td>
</tr>
<tr>
<td>12.</td>
<td>50 M</td>
<td>NHL</td>
<td>BEAM</td>
<td>4.7</td>
<td>Day + 11</td>
<td>Alive 755 days in CR.</td>
</tr>
<tr>
<td>13.</td>
<td>50 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>5.7</td>
<td>Day +9</td>
<td>Alive 739 days without progression.</td>
</tr>
<tr>
<td>14.</td>
<td>57 M</td>
<td>MM</td>
<td>Melphalan 140mg/m2</td>
<td>4.4</td>
<td>Day +10</td>
<td>Alive 711 days without progression.</td>
</tr>
<tr>
<td>15.</td>
<td>40 M</td>
<td>NHL</td>
<td>BEAM</td>
<td>4.5</td>
<td>Day +11</td>
<td>Alive 635 days in CR.</td>
</tr>
<tr>
<td>16.</td>
<td>62 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>25.4</td>
<td>Day +10</td>
<td>Alive 618 days without progression.</td>
</tr>
<tr>
<td>17.</td>
<td>47 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>10.18</td>
<td>Day +10</td>
<td>Alive 565 days without progression.</td>
</tr>
<tr>
<td>18.</td>
<td>52 F</td>
<td>HL</td>
<td>BEAM</td>
<td>9.7</td>
<td>Day +9</td>
<td>Alive 461 days without progression.</td>
</tr>
<tr>
<td>19.</td>
<td>58 F</td>
<td>MM</td>
<td>Melphalan 140mg/m2</td>
<td>7.9</td>
<td>Day +10</td>
<td>Alive 397 days without progression.</td>
</tr>
<tr>
<td>20.</td>
<td>40 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>3.06</td>
<td>Day +10</td>
<td>Alive 394 days without progression.</td>
</tr>
<tr>
<td>21.</td>
<td>60 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>3.6</td>
<td>Day +10</td>
<td>Alive 372 days without progression.</td>
</tr>
<tr>
<td>22.</td>
<td>60 F</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>8.5</td>
<td>Day +9</td>
<td>Alive 369 days without progression.</td>
</tr>
<tr>
<td>23.</td>
<td>53 F</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>9.5</td>
<td>Day +10</td>
<td>Alive 334 days without progression.</td>
</tr>
<tr>
<td>24.</td>
<td>57 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>7.24</td>
<td>Day +10</td>
<td>Alive 277 days without progression.</td>
</tr>
<tr>
<td>25.</td>
<td>55 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>6.78</td>
<td>Day +9</td>
<td>Alive 326 days without progression.</td>
</tr>
<tr>
<td>26.</td>
<td>55 F</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>5.72</td>
<td>Day +9</td>
<td>Alive 228 days without progression.</td>
</tr>
<tr>
<td>27.</td>
<td>57 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>5.9</td>
<td>Day +9</td>
<td>Alive 200 days without progression.</td>
</tr>
<tr>
<td>28.</td>
<td>52 F</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>5.52</td>
<td>Day +9</td>
<td>Alive 66 days without progression.</td>
</tr>
<tr>
<td>29.</td>
<td>38 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>10.83</td>
<td>Day +9</td>
<td>Alive 51 days without progression.</td>
</tr>
<tr>
<td>30.</td>
<td>46 M</td>
<td>MM</td>
<td>Melphalan 200mg/m2</td>
<td>9.8</td>
<td>Day +10</td>
<td>Alive 40 days without progression.</td>
</tr>
<tr>
<td>31.</td>
<td>62 F</td>
<td>MM</td>
<td>Melphalan 140mg/m2</td>
<td>4.1</td>
<td>Day +10</td>
<td>Alive 19 days without progression.</td>
</tr>
</tbody>
</table>

**Result:** The age of the patients ranged from 40 years to 69 years (median 51 years) with male:female ratio of 1.6:1. The median peripheral blood stem cell dose was 5.7x10^6 CD34+ve cells/kg (range 2.34-13.9 x10^6 CD34+ve cells/kg). Adequate peripheral blood stem cell mobilization was possible with G-CSF alone in 24 patients, chemotherapy followed by G-CSF in one patient and the remaining 7 patients required Plerixafor along with G-CSF in the mobilization protocol for apheresis of desired minimum stem cell dose. One elderly female patient with relapsed Multiple Myeloma who received three different lines of chemotherapy (including Melphalan based regimen) prior to transplant required 2 doses of Plerixafor at standard daily dose (0.24mg/kg/day) following 4 days of G-CSF @ 10µgm/kg/day to obtain a peripheral blood stem cell dose of 2.34 x10^6 CD34+ve cells/kg of body weight. She was given conditioning chemotherapy @ 140 mg/m^2 of IV Melphalan. Engraftment was successful with recovery of neutrophil count took place on day+11 and platelet on day+14. She attained partial remission, and was started on oral chemotherapy with Lenalidomide and Dexamethasone. She eventually had frank relapse and died of chest infection about 8 months following ASCT. Rest of the Multiple Myeloma patients (25 cases) received early ASCT as consolidation therapy following 4 to 6 cycles of three drug bortezomib based combination chemotherapy as induction. These patients are now on oral maintenance therapy with IMiDs, either lenalidomide or thalidomide and all of them are doing well.

The most challenging transplant among these patients was a case of Multiple Myeloma with CKD, we transplanted in January 2015. He is a case of Light Chain only Myeloma (kappa restricted) with baseline urea 94mg/dl and creatinine 3.6mg/dl. He received 6 cycles of bortezomib and dexamethasone prior to ASCT and had good response with normalization of kappa/lambda ratio. Plerixafor was required for stem cell mobilization and melphalan was given at a dose of 140mg/m^2. He became febrile on day+5 and urea and creatinine level started to rise progressively. Supportive therapy was intensified but the patient further deteriorated and renal function worsened over next three days. On day+9 his urea and creatinine levels were 149mg/dl and 6.4mg/dl respectively, TLC 260/cumm, Hb 7.2gms% and platelet 10 000/cumm and he had features of sepsis with altered level of consciousness, persistent febrile neutropenia, severe mucositis, watery diarrhea, oliguria and his BP dropped to 80/60 mm Hg. Meropenem and Teicoplanin was started empirically with dose adjustment according to creatinine clearance along with caspofungin, as he was febrile, neutropenic and in haemodynamically unstable state. Inotropic support with dopamine was also initiated along with antimicrobial therapy. Irradiated PRBC and SDP were transfused. His condition started to improve from day+10 onwards with restoration of bone marrow function. Fever gradually subsided over next 2-3 days, blood pressure stabilized and renal function improved to pretransplant level after a week of intensive supportive care. All antibiotics were withdrawn on day+15 and he was discharged on day+17. He is now on thalidomide maintenance and remains in VGPR. On last follow up in October 2016 he was asymptomatic with stable renal function (urea 60 mg/dl and creatinine 2.8mg/dl).
Conclusion:
The outcome of ASCT in transplant eligible Multiple Myeloma patients have greatly improved with the introduction of novel agents including bortezomib and IMiDs. ASCT remains a necessary component of therapy. Early versus late transplant is an unresolved issue and remains a subject of debate. In our Institute we follow early transplant approach, as it deepens the response and leads to superior progression free survival. Our Multiple Myeloma patients are so far doing very well with this approach although longer follow up data is required to validate this.

Reference:
   Authors: P. Moreau, J. San Miguel, H. Ludwig, H. Schouten, M. Mohty, M. Dimopoulos, M. Dreyling
3. Have drug combinations supplanted stem cell transplantation in myeloma? Antonio Palumbo1 and Federica Cavallo1
   1Myeloma Unit, Division of Hematology, University of Torino, Torino, Italy

Abstract: For the first time in decades, patients with difficult-to-treat cancers such as advanced stage metastatic melanoma are being offered a glimpse of hope in the form of immunotherapies. By targeting factors that foster the development and maintenance of an immunosuppressive microenvironment within tumors, these therapies release the brakes on the host’s own immune system; allowing cure of disease. Indeed, phase III clinical trials have revealed that therapies such as ipilimumab and pembrolizumab which target the CTLA4 and PD-1 immune checkpoints, respectively, have raised the three-year survival of patients with melanoma to ~70%, and overall survival (>5 years) to ~30%. Despite this unprecedented efficacy, many patients fail to respond, and more concerning, some patients who demonstrate encouraging initial responses to immunotherapy, can acquire resistance over time. There is now an urgent need to identify mechanisms of resistance, to predict outcome and to identify targets for combination therapy. Here, with the aim of guiding future combination trials that target specific resistance mechanisms to immunotherapies, we have summarised and discussed the current understanding of mechanisms promoting resistance to anti-PD1/PDL1 therapies, and how combination strategies which target these pathways might yield better outcomes for patients.

Editorial comments: Anti-PD1/PDL1 therapy has been one of the breakthroughs in recent times. Though melanoma is the prototypal indication, their efficacy has been reported in more than 15 cancer types, including NSCLC, RCC, urinary bladder carcinoma and Hodgkin's lymphoma. The concept behind of anti-PD1 therapy is the presence of tumor antigen-specific T-cells within tumor microenvironment. The dynamic tumor microenvironment is regulated by complex cross-talk between the tumor cells, and the cells in the microenvironment, both immune and non-immune. The immune-regulatory pathways involved are known as immune checkpoints. Immune check point blockade is one of the most interesting aspects of cancer therapy. Unfortunately, the reality of the effects of anti-PD1/PDL1 therapy in melanoma is: 60% of patients do not respond to it (primary resistance); 40% do respond, but eventually progress (secondary resistance). The present article discusses the immunological phenomena in cancer, how they can be targeted with anti-PD1/PDL1 therapy, the routes of development of resistance, and what is the probable way forward.


Abstract: Despite progressive improvements in the management of patients with locoregionally confined, advanced-stage solid tumours, distant metastasis remains a very common — and usually fatal — mode of failure after attempted curative treatment. Surgery and radiotherapy are the primary curative modalities for these patients, often combined with each other and/or with chemotherapy. Distant metastasis occurring after treatment can arise from previously undetected micrometastases or, alternatively, from persistent locoregional disease. Another possibility is that
treatment itself might sometimes cause or promote metastasis. Surgical interventions in patients with cancer, including biopsies, are commonly associated with increased concentrations of circulating tumour cells (CTCs). High CTC numbers are associated with an unfavourable prognosis in many cancers. Radiotherapy and systemic antitumour therapies might also mobilize CTCs. We review the preclinical and clinical data concerning cancer treatments, CTC mobilization and other factors that might promote metastasis. Contemporary treatment regimens represent the best available curative options for patients who might otherwise die from locally confined, advanced-stage cancers; however, if such treatments can promote metastasis, this process must be understood and addressed therapeutically to improve patient survival.

**Editorial comments:** Patients with apparently locoregional solid cancers are generally treated with locoregional therapy such as curative-intent surgery, radiotherapy, or chemoradiotherapy with or without adjuvant therapy. However, a significant number of such patients develop distant metastasis and ultimately die. These metastases have been postulated as arising out of micro-metastases and/or residual local disease. A possibility, which is a matter of concern, is that cancer therapies such as surgery, radiotherapy, or systemic therapy may increase the risks of metastasis. Circulating tumor cells (CTC) are necessary for distant metastasis to occur. Though metastasis is a very inefficient process, higher numbers of CTCs are associated with poorer outcome. This article discusses the evidences pointing to different aspects of mobilization of CTCs (increase in either the number or the proliferative capacity) caused by these therapies. Studies into may lead to lowering in the development of metastasis after seemingly localized tumors, and as such are very interesting.


**Abstract:** The spectrum hypothesis posits that there are distinct clinical states of metastatic progression. Early data suggest that aggressive treatment of more biologically indolent metastatic disease, characterized by metastases limited in number and destination organ, may offer an opportunity to alter the disease course, potentially allowing for longer survival, delay of systemic therapy, or even cure. The development of stereotactic body radiation therapy (SBRT) has opened new avenues for the treatment of oligometastatic disease. Early data support the use of SBRT for treating oligometastases in a number of organs, with promising rates of treated metastasis control and overall survival. Ongoing investigation is required to definitively establish benefit, determine the appropriate treatment regimen, refine patient selection, and incorporate SBRT with systemic therapies.

**Editorial comment:** Hellman and Weichselbaum identified oligometastasis as a unique biological state, in 1995. Oligometastatic patients have a distinct pattern of metastasis, and a better outcome
as compared to the usual metastasis patients. Surgery for limited state metastasis came into use even before the concept of oligometastasis was proposed, especially in colorectal liver metastasis. The use of radiotherapy for this condition is more recent. Stereotactic body radiotherapy (SBRT) refers to the use of precisely delivered high-dose hypofractionated (usually 1-5 fractions) to the targeted lesions. The process is also referred to as stereotactic ablative radiotherapy (SABR), but best described as hypofractionated image-guided radiotherapy (HIGRT). SBRT in oligometastasis is mostly employed in lung, spine, liver, and adrenal metastasis. Treated metastasis control (TMC) for such tumors have been quite encouraging. The present article discusses various aspects of SBRT in oligometastatic tumors, and newer directions, such as use in other cancers like in breast cancer, combining SBRT with systemic therapy or immunotherapy. It should be worth reading by clinicians interested in treating oligometastatic disease.

4. **Prostate Cancer: Developing novel approaches to castration-sensitive disease.** Francini E, Taplin ME. Cancer 2017;123:29-42.

**Abstract:** Although androgen-deprivation therapy (ADT) remains the mainstay of castration-sensitive prostate cancer (CSPC) therapy, the disease's heterogeneity and the limited duration of the response have chaperoned the introduction of chemotherapy and the investigation of novel hormonal targeted agents in this setting. Combinations of ADT plus chemotherapy or novel hormonal therapies are being tested at various stages of CSPC with promising results. Furthermore, immunotherapy and experimental drugs are also being actively investigated in this setting. Intriguing multimodality strategies, chiefly deployed for early-stage disease with the aim of maximizing the efficacy and duration of the response, are being explored and may become valid therapeutic options in the future. Ultimately, striking a balance between the clinical gains of these combinations and possibly increased toxicity and reduced quality of life will be necessary. The development of precision medicine and accurate biomarkers is fundamental to progress.

**Editorial comment:** Treatment of metastatic prostate cancer remains a problem. Nearly 90% of patients initially respond to ADT, leading to disease control for several years and improvements in quality of life. However, ADT is not generally curative, and the disease typically starts to progress within 2 to 3 years despite castrate levels of serum testosterone, a state referred to as castration-resistant prostate cancer (CRPC). Despite improvements in treatment options, death usually occurs in 2 to 4 years. Recent breakthroughs in the understanding of the mechanisms of PCa adaptation to ADT, focusing on the AR pathway, have demonstrated that PCa continues to be hormone-dependent even when evolving to castration resistance. This concept allows a refined definition of untreated PCa, which is now termed castration-sensitive prostate cancer (CSPC). The present article discusses various newer developments in the management of CSPC, such as ADT combined with second-line hormonal agents like Abiraterone and Enzalutamide, ADT combined with androgen receptor axis targeted agents, ADT combined with chemotherapy, ADT combined with bone targeted therapy, ADT combined with immunotherapy, and non-hormonal approaches (VEGF targeted therapy, Metformin, MAPK kinase/SRC targeted therapy with or without ADT. A multimodality approach has been advocated in CSPC because of demonstrated heterogeneity in PCa. Hopefully, these advances may increase the efficacy and the duration of response.

**Abstract:** Purpose: We review the biological mechanisms of action, clinical safety and efficacy of immunotherapies for urothelial carcinoma. We also describe current areas of research in immunotherapy, and highlight ongoing trials and promising and novel investigational agents.

**Materials and Methods:** Data were obtained by a search of PubMed, ClinicalTrials.gov and Cochrane databases for English language articles published through February 2016. Applicable abstracts from recent Society of Urologic Oncology, European Association of Urology, American Urological Association and ASCO meetings were used.

**Results:** Bacillus Calmette-Guerin is one of the most successful immunotherapies in cancer treatment and remains the gold standard of care for patients with high risk, nonmuscle invasive bladder cancer, with initial response rates of approximately 70%. However, with the exception of valrubicin and standard chemotherapeutics there is a paucity of available treatment options for patients with recurrence or progression to more advanced disease. Recently there has been significant interest in novel immunotherapeutic agents in the management of cases where bacillus Calmette-Guerin fails, as well as cases of more advanced cancer. These investigational therapies can generally be classified into several broad categories, including recombinant bacillus Calmette-Guerin and cell wall derived therapies, cytokines, gene therapy, cancer vaccines, immune checkpoint inhibitors, oncolytic viruses, adoptive immunotherapies and immune agonists, as well as several additional immunomodulatory agents. The majority of these agents are currently under investigation in phase I or II clinical trials. Recently investigators reported evidence that inhibition of the PD-1/PD-L1 pathway has clinical activity in patients with advanced bladder cancer. These findings, along with successful phase III trials and U.S. Food and Drug Administration approvals of other checkpoint inhibitors in melanoma, non-small cell lung cancer and renal cell carcinoma, ultimately led to Food and Drug Administration approval of atezolizumab for advanced disease, the first new treatment approved for advanced urothelial carcinoma in 20 years.

**Conclusions:** While bacillus Calmette-Guerin has demonstrated significant clinical efficacy in the treatment of patients with bladder cancer, additional therapies are needed for those in whom bacillus Calmette-Guerin fails, as well as for those with advanced disease. Immunotherapy for urothelial carcinoma remains a promising and active area of research, and numerous agents, particularly the monoclonal antibodies targeting checkpoint inhibition pathways, are showing encouraging signs of clinical activity.

**Editorial comments:** Immunotherapy in the form of BCG in urinary bladder cancer came into clinical use following the work of Morales et al in 1976. Almost half century later, it still remains the standard of care in non-muscle invasive high-risk urinary bladder cancer, which proves that immunotherapy is effective in urothelial carcinoma. The present article discusses the different options available in progression following BCG use, and the directions of present and future research in the field of immunotherapy in urothelial carcinoma. The recent FDA approval of atezolizumab, a monoclonal IgG1 antibody that binds PD-L1 heralds a new era in the treatment of advanced stage disease.
Pic Ur Quiz
Dr. Arnab Gupta
Dept. of Surgical Oncology, SGCCRI

Qs 1. What procedure is being done? What are the post-operative complications after operating on an obese patient?

Ans 1. Epidural catheterization for post-operative analgesia. Post-operative complications in an obese patient include chest complications, wound infection, and deep vein thrombosis.

Qs 2. What is the X-ray of? Describe the radiological abnormalities. What is the diagnosis?

Ans 2. Right thigh and knee joint. Periosteal reaction with sunray spicules, Codman’s triangle. Osteosarcoma.

Qs 3. What procedure is being done and for what cancer.

Ans 3. TRUS (Transrectal Ultrasound) with guided core biopsy. It is commonly done for diagnosis of Prostatic Cancer.

Qs 4. What is the diagnosis? What is the treatment?

Ans 4. Pseudomyxoma, appendectomy in females. TAH BSO.
Qs 5. Describe the abnormality. What could be the diagnosis for this recurrent superficial tumour?

**Ans 5.** Large ulceroproliferative growth just below the right knee with a scar just distal to it, suggesting previous surgery. Dermatofibrosarcoma protuberans.

Qs 6. What is being done during a Breast Conservation surgery and why?

**Ans 6.** Specimen Mammography. This is to ensure that the tumour before chemotherapy has been taken out. The normal mammary gland and the radio-opaque marker which was placed at the centre of the gland was mammography and it is important in such cases to ensure a complete resolution of the breast tumour after neo-adjuvant chemotherapy. The radio-opaque clips are used for the orientation of the specimen.

Qs 7. What is the relative frequency of male breast cancers compared to females? What is the risk of other family members?

**Ans 7.** 1% of all breast cancers affect males. Male breast cancer is a high risk for the family members and is often associated with BRCA gene mutations. 7% of all breast cancers affect the males. Male breast cancer is a high risk for the family members and is often associated with BRCA gene mutations.

Qs 8. What is this exophytic tumour in the distal stomach? How do you score the risk of recurrence in such tumours? How does a Pathologist confirm the diagnosis?

**Ans 8.** GIST (Gastro-intestinal Stromal Tumour). The risk factors are based on the size, site, mitotic figures, CD 117 & DOG 1 tend to be positive on IHC.
Extranodal Natural Killer/T-cell lymphoma, Nasal Type With Bilateral Breast Involvement- A Case Report

Sanghamitra Jena¹, Shravasti Roy²

1. Department of Surgical Oncology,
2. Department of Pathology,
   Saroj Gupta Cancer Centre and Research Institute,

ABSTRACT:
Extranodal natural killer/T cell (NK/T cell) lymphoma (ENKTL), nasal type, is a rare non-Hodgkin lymphoma originating in the nasal cavity or in the paranasal sinuses. It can involve the skin, gastrointestinal tract, soft tissue, and testis, but involvement of breast is rare. Herein we report a case of extranodal NK/T cell lymphoma with bilateral breast involvement in a middle aged female. The unusual presentation and difficulties in obtaining histological diagnosis created a diagnostic dilemma, but the progressive cavitating nasal lesion, repeat biopsies and immunohistochemistry study (IHC), eventually helped us to reach the rare diagnosis and plan the treatment accordingly.

Key words: Extranodal NK/T cell lymphoma, nasal type, breast, diagnostic dilemma

INTRODUCTION
Extranodal natural killer/T cell (NK/T cell) lymphoma (ENKTL), nasal type, is a rare non-Hodgkin lymphoma originating in the nasal cavity or in the paranasal sinuses. It occurs in middle-aged persons and affects males more frequently than females [1,2]. Patients with this lymphoma mainly present with destructive lesions in the nasal cavity and other regions in the upper respiratory system [3]. This disease also originates primarily in the extra-upper aero digestive tract areas such as the skin, gastrointestinal tract, soft tissue, and testis [3,4], but involvement of breast is rare [5]. Herein we report a case of extranodal NK/T cell lymphoma with bilateral breast involvement, presenting as a diagnostic challenge. The progressive cavitating nasal lesion, repeat biopsies and immunohistochemistry study (IHC), helped us to reach the rare diagnosis and plan the treatment.
Routine blood tests were normal. Ultrasonographic findings of abdomen and pelvis and chest X-ray findings were within normal limits. Nasal endoscopy revealed thick slough covered ulceroproliferative growth involving almost whole of left nasal cavity, ala of nose, left side of nasal septum, all the turbinates and meatai on the left side.

Computed Tomography (CT) of the face and the skull showed irregular soft tissue mass within the vestibule of left nasal cavity abutting inferior turbinate and lateral wall of vestibule.

Mammography identified oval shaped soft tissue opacity in the medial and retroareolar region of right breast extending up to the nipple. Skin thickening was present. Oval shaped large soft tissue opacity was seen in the retro areolar area of the left breast. Biopsy from the lesion showed wide area of necrosis and inflammation along with scattered islands of neoplastic cells [Figure 2]. IHC showed diffuse positivity for LCA, but the tissue was inadequate for further immunohistochemistry study and a rebiopsy was requested.

Core needle biopsies were performed from both the breasts and the analysis revealed malignant cells but no clear diagnosis could be made, so incisional biopsy was done from the left breast lesion. It showed epidermis under which there was a mass composed of monomorphic population of round to oval cells predominantly centred in dermis. Cells had vesicular chromatin, some with nucleoli and amphophilic cytoplasm. Mitotic figures were plenty [Figure 3]. IHC was negative for estrogen, progesterone and HER2 expression. CD45, CD3 [Figure 4a], CD5 and CD56 [Figure 4b] were diffusely positive in tumor cells, CD20 positive in few background lymphocytes and Ki-67 was positive (index >90%). In situ hybridization for Epstein-Barr virus-encoded mRNA (EBER) was diffusely positive. Depending on the histopathology and IHC study from the left breast lesion, the diagnosis of T cell lymphoma - high grade, favouring extranodal NK/T cell lymphoma, nasal type was made. Bone marrow trephine biopsy was normal.
In consideration of the poor general condition of the patient and need for early treatment, chemotherapy with Vincristine (2 mg), Cyclophosphamide (900 mg), Adriamycin (60 mg) and Prednisolone (100mg for five days) was started. The treatment was started on the basis of diagnosis of T-cell lymphoma but IHC diagnosis of NK cell lymphoma was pending at that time. After completion of the first cycle of chemotherapy, she developed pancytopenia but the lesion in the midface and breast decreased in size. The patient received supportive management to combat pancytopenia. Meanwhile, the final diagnosis of extranodal NK/T cell lymphoma, nasal type was made depending on the IHC study, and it was planned to start “SMILE” regimen comprising of Dexamethasone, Methotrexate, Ifosfamide, L-asparaginase, and Etoposide, for further treatment of the patient. But the patient died after the first cycle of chemotherapy.

Discussion
Extranodal NK/T-cell lymphomas are a rare group of invasive and destructive lymphoproliferative disorders that are immunophenotypically distinct from B-cell and T-cell non-Hodgkin lymphomas. Because of their rarity, rapid clinical progression and inadequacy of biopsy specimen due to extensive necrosis, the diagnosis of ENKTL has always been a challenge. In this case the presentation with simultaneous bilateral breast lesion added to the diagnostic dilemma.

They are derived from either activated NK cells or, rarely, cytotoxic T-cells. Now it has been classified as a distinct entity within the World Health Organization classification of hematopoietic and lymphoid neoplasms [6].

Its prevalence is higher in countries in South-East Asia and in Central and South America than in Europe and in North America. It occurs commonly in middle-aged persons and affects males more frequently than females [1,2].

These lymphomas are commonly extranodal and usually arise within the nasal cavity as midfacial destructive lesions and present with nasal obstruction, facial pain, or swelling. The nasal-type group however is more likely to have localized cutaneous manifestations and presents less aggressively compared to the extranasal and nonnasal groups which are more aggressive and disseminated [7]. The nonnasal group symptoms could include cytopenia, B symptoms, early distant metastasis and hemophagocytic syndrome in approximately 3% of cases [7]. Hemophagocytic syndrome is often a fatal complication which may present with high fevers, maculopapular rash, central nervous system symptoms, multiorgan failure, abnormal liver function tests, hepatosplenomegaly, cytopenias, and coagulopathy [8]. However, as such the patients with ENKTL usually do not have lymphadenopathy and bone marrow involvement [9,10].

The nonnasal group, as the name implies, has other sites of manifestation of NK/T-cell lymphomas that include the skin, gastrointestinal tract, salivary glands, spleen, and testis [3,4]. Breast is a rare site of
involvement. Between 73 patients published recently by Li S et al [5], one patient had ENKTL involving the breast and the neoplasm was associated with a breast implant placed for cosmetic results. In this case report the patient is a middle aged female who presented with a nasal cavity mass and lesions in both the breasts without any lymphadenopathy and bone marrow involvement. In such cases it is important to explore the nasal cavity to confirm that the disease is really nasal-type lymphoma involving the breast and not primary breast carcinoma metastasing to nasal cavity.

Clinical course of ENKTL, nasal type is usually very rapid and disease is often in advanced stage at the time of diagnosis. In the majority of cases malignant cells are not found in blood smears or bone marrow aspiration studies [10]. Biopsy plays an important role in reaching the diagnosis. The interpretation of biopsy specimen, however, generally is not simple because of inadequate biopsy specimen size and masking of neoplastic cells by secondary inflammation and necrosis. In this case also, the unusual presentation with bilateral breast lesions and extensive necrosis of the nasal cavity lesion, made it very difficult to establish a diagnosis. But repeat biopsies and good pathological assistance helped us to think of ENKTL as a probable diagnosis, first detected in the breast specimen and then in the nasal lesion. The final diagnosis was however established by IHC of both the specimens.

Histologically, NK/T-cell lymphomas are often angiocentric with prominent necrosis and vascular destruction. Immunophenotypically, they typically express CD2 (T-cell marker), CD56 (NK cell marker), and intracellular cytoplasmic CD3 but lack surface CD3 expression. Other positive markers include cytotoxic granule proteins, Granzyme B, TIA-1, and Perforin [11]. Another distinguishing feature of NK/T-cell lymphomas is the strong association with EBV, with EBER positivity in greater than 80% of cases [12]. Our patient's tumour showed an angiocentric pattern of growth, EBV positivity and immunophenotypically, the tumour cells were CD56 and CD3 positive, confirming the histological diagnosis of extranodal NK/T cell lymphoma, nasal type. The high Ki-67 index (>90%), indicated that it was a high grade lesion [5].

The treatment of nasal NK cell lymphoma has been controversial. Initially, radiotherapy alone used to be the primary treatment in stage I/II disease and yielded a complete remission rate of between 40% and 80% [13]. Local relapses occurred at a rate of around 50% [13,14]. Contributing factors include dosages less than 45 Gy to 50 Gy and radiotherapy planning not assisted by radiological imaging [14]. Systemic relapses with radiotherapy alone occurred in 25–30% of patients, where more than a half were not associated with local recurrence, suggesting that subclinical dissemination of lymphoma has occurred in these apparently early staged patients who were “cured” [13,15]. The use of chemotherapy alone has been associated with a treatment failure of about 40%. Therefore combined chemotherapy and radiotherapy is the treatment of choice and can be expected to be curative in at least 70–80% of patients with stage I/II nasal NK cell lymphomas [15]. There are however documented relapses more than ten years and up to thirty years in early stage nasal NK cell lymphoma, and hence life-long follow-up is recommended [15].
Chemotherapy is the mainstay of treatment in advanced NK cell lymphomas [15]. A novel regimen “SMILE,” comprising of Dexamethasone, Methotrexate, Ifosfamide, L-asparaginase, and Etoposide, has been shown to be promising in phase I and II studies. In patients with relapsed or refractory NK cell lymphoma, SMILE treatment resulted in an overall response rate of 74% and a complete remission rate of 35–50% [15]. The commonly used CHOP (Cyclophosphamide, Doxorubicin, Vincristine, Prednisolone) chemotherapy regime gives moderate response for stage I/II nasal NK/T-cell lymphomas but has a high rate of disease progression (30–40%) and a high rate of relapse (30–40%) after initial complete remission [14,17]. It has a poor outcome when used in advanced staged diseased with an overall response rate of below 20% [15,16].

The option of autologous and allogenic hematopoietic stem cell transplantation (HSCT) as a consolidation therapy following high-dose chemotherapy alone has been considered in patients with advanced stage, relapsed or refractory disease [15]. This is controversial as there are several issues to be considered. There are no prospective trials evaluating the role of autologous HSCT in patients. The largest retrospective trial of 47 patients only showed that HSCT had a survival benefit for patients with stage I/II disease and high risk patients who achieve complete remission [17]. However, patients in these lower stages are likely to have a complete remission with combined chemotherapy and radiotherapy, so it is doubtful that frontline autologous HSCT is beneficial [13]. As for the high risk patients in complete remission, the recommendation is to carefully consider autologous or allogenic HSCT for consolidation therapy [13,17]. In patients with advanced, relapsed or refractory diseases, the role of HSCT remains poor [17].

**Conclusion**

We present a case of extranodal NK/T cell lymphoma, nasal type with bilateral breast involvement in a middle aged female. This tumour with breast involvement appears to be rare, as we could find only a few cases reported in the literature. The unusual presentation and difficulties of obtaining histological diagnosis can result in a delay in diagnosis. Clinical suspicion, immunohistochemistry and good interaction with the pathologist can help us in establishing the diagnosis of this rare disease. In conclusion, clinicians should consider extranodal nasal lymphoma as a differential diagnosis of destructive lesion of nasal cavity with breast involvement and plan the treatment accordingly because the disease has a rapid fatal course.

**Declaration**

The patient has given her informed consent regarding publication of her case.

**Conflict Of Interest**

The authors declare that there is no conflict of interests regarding the publication of this article.
REFERENCES


## WEEKLY CME FROM (DECEMBER 2015 - DECEMBER 2016)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>03/12/15</td>
<td>Screening in Ovarian Cancer</td>
<td>Dr. Rahul Roychowdhury</td>
</tr>
<tr>
<td></td>
<td>Chemoresistance and Cancer</td>
<td>Dr. Susanta Roychowdhury</td>
</tr>
<tr>
<td>10/12/15</td>
<td>Breast Cancer Updates</td>
<td>Dr. Arnab Gupta</td>
</tr>
<tr>
<td>17/12/15</td>
<td>Role of Erlotinib in NSCLC</td>
<td>Dr. Tamohan Choudhuri</td>
</tr>
<tr>
<td>24/12/15</td>
<td>Case Report</td>
<td>Dr. N.R. Mondal</td>
</tr>
<tr>
<td>31/12/15</td>
<td>Management of ALK+NSCLC</td>
<td>Dr. Rakesh Roy</td>
</tr>
<tr>
<td>07/01/16</td>
<td>Limb salvage in Bone and tissue sarcoma- multimodal approach</td>
<td>Dr. Kousik Nandy</td>
</tr>
<tr>
<td>14/01/16</td>
<td>Retinoblastoma</td>
<td>Dr. Soma De</td>
</tr>
<tr>
<td>21/01/16</td>
<td>Management of CINV?</td>
<td>Dr. Rakesh Roy</td>
</tr>
<tr>
<td>28/01/16</td>
<td>Laser Technology &amp; Application to Photodynamic Therapy</td>
<td>Dr. Gopal Chandra Bhar</td>
</tr>
<tr>
<td>11/02/16</td>
<td>Electronic Medical Records</td>
<td>Dr. Ramesh Nimagadda (Apollo Chennai)</td>
</tr>
<tr>
<td></td>
<td>Invasive Candidiasis (The role of echinocandins)</td>
<td>Dr. Arindam Kar (I.C.U Specialist, Medica Super Speciality Hospital, Kolkata)</td>
</tr>
<tr>
<td>18/02/16</td>
<td>Advanced Laboratory Services in Oncology.</td>
<td>Dr. Atul Thatai (HOD Molecular diagnostic &amp; Oncopathology, Dr. Lai Pathlabs)</td>
</tr>
<tr>
<td>25/02/16</td>
<td>Management of Ovarian Cancer</td>
<td>Dr. Sandip Ganguli (Medical Oncologist, Tata Medical Centre Kolkata)</td>
</tr>
<tr>
<td>10/03/16</td>
<td>Multiple Myeloma - What is new on Horizon? Update from ASH 2015</td>
<td>Dr. P P Gupta</td>
</tr>
<tr>
<td>17/03/16</td>
<td>Cardiotoxicity of Trastuzumab</td>
<td>Dr. Tamohan Choudhuri</td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
<td>Speaker(s)</td>
</tr>
<tr>
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</tr>
<tr>
<td>24/03/2016</td>
<td>Skin Cancers - Surgical Vs Non Surgical treatment</td>
<td>Dr. Yajati Ghosh (UK)</td>
</tr>
<tr>
<td>31/03/2016</td>
<td>Renal Cell Ca</td>
<td>Dr. Chanchal Goswami (Consultant Medical Oncologist, Medica Superspeciality Hospital)</td>
</tr>
<tr>
<td></td>
<td><strong>Panel Discussion:</strong> Aneesh &amp; Babita</td>
<td>Dr. Rakesh Roy</td>
</tr>
<tr>
<td>07/04/2016</td>
<td>Challenges in CML: Monitoring to Mutation</td>
<td>Dr. Deepak Kumar Mishra</td>
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<tr>
<td>21/04/2016</td>
<td>Management of Mets Colon Ca</td>
<td>Dr. Rakesh Roy</td>
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<tr>
<td>28/04/2016</td>
<td>Prostate Cancer Case based discussion</td>
<td>Dr. Kalyan Sarkar</td>
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<tr>
<td>05/05/2016</td>
<td>Optimising Anti HER2 Neu therapy, In MBC</td>
<td>Dr. Rakesh Roy Panelist: 1) Dr. Arnab Gupta 2) Dr. Ketaki Moitra 3) Dr. Tamohan Chaudhuri 4) Dr. Sandip Ganguli (Consultant Medical Oncologist Tata Medical Centre Kolkata)</td>
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<tr>
<td>12/05/2016</td>
<td>Management of Locally advanced Breast Cancer with Chemotherapy &amp; Radiotherapy.</td>
<td>Dr. Tamohan Choudhuri</td>
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<tr>
<td>19/05/2016</td>
<td>Can molecular replace axillary nodule status as prognostic marker in Breast Ca.</td>
<td>Dr. Sudip Halder</td>
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<td>Primary Malignant Melanoma of the Vulva at SGCCRI</td>
<td>Dr. N.R. Mondal</td>
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<tr>
<td>26/05/2016</td>
<td>Multiple Myeloma</td>
<td>Dr. Reena Nair (Tata Medical Centre, Kolkata)</td>
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<tr>
<td>Date</td>
<td>Event Description</td>
<td>Presenter(s)</td>
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<tr>
<td>02/06/2016</td>
<td>- Hormone receptor Positive &amp; HER2 negative MBC</td>
<td>Dr. Rakesh Roy</td>
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<td></td>
<td>Panelist: 1) Dr. Arnab Gupta 2) Dr. Ketaki Moitra 3) Dr. Abhijit Sarkar 4) Dr. Samoy Ganguli</td>
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<tr>
<td>09/06/2016</td>
<td>- Optimal therapy in RAS wild-type mCRC with special reference to RAS testing.</td>
<td>Dr. Sarvanan Veeramalali (Medical Science Liaison officer, Merck Oncology)</td>
</tr>
<tr>
<td>16/06/2016</td>
<td>- Role of REGORAFENIB in MCRC.</td>
<td>Dr. A.K. Malhotra (Chief Surgeon &amp; Surgical Oncologist in South Eastern Railway Hospital)</td>
</tr>
<tr>
<td>23/06/2016</td>
<td>- Case Presentation</td>
<td>Dr. Sanchayan Mondal</td>
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<td>- Chemo-resistance in Ovarian Cancer- a genomic view.</td>
<td>Dr. Susanta Roychowdhury</td>
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<tr>
<td>30/06/2016</td>
<td>- Paediatric Anaplastic Large Cell Lymphoma</td>
<td>Dr. Soma De</td>
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<tr>
<td>07/07/2016</td>
<td>- Case Experience Sharing at SGCCRI</td>
<td>Dr. Sarah Price</td>
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<tr>
<td>14/07/2016</td>
<td>- Recent advancement in docetaxel formulation and use of TPGS docetaxel.</td>
<td>Dr. Ravindranath Kunjithai</td>
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<td></td>
<td>- FDA approved tissue of origin test &amp; Brief discussion on Liposomal Daunorubicin/Rusbercase emerging clinical evidence.</td>
<td>(AVP &amp; Head Regulatory affairs, sayre therapeutics)</td>
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<tr>
<td>21/07/2016</td>
<td>- Benefits of Physiotherapy in Cancer Rehabilitation</td>
<td>Dr. Priyanka Anarkat</td>
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<tr>
<td>28/07/2016</td>
<td>- Update of Bone Marrow Transplantation Programme at SGCCRI.</td>
<td>Dr. P. P. Gupta</td>
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<tr>
<td>04/08/2016</td>
<td>- ALK positive NSCLC a different entity &amp; management</td>
<td>Dr. Rakesh Roy</td>
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<tr>
<td>18/08/2016</td>
<td>- &quot;Placental Umbilical Cord Whole Blood &amp; Nuclear Disaster Management: A Possibility.&quot;</td>
<td>Dr. Niranjan Bhattacharya (HOD Of Regenerative Medicine &amp; Translational Science, School of Tropical Medicine)</td>
</tr>
<tr>
<td>25/08/2016</td>
<td>- &quot;Challenges and pitfalls in the diagnosis of acute Leukaemia.</td>
<td>Dr. Amar Dasgupta (Consultant Haematologist SRL INDIA)</td>
</tr>
<tr>
<td>Date</td>
<td>Topic</td>
<td>Presenter</td>
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<tr>
<td>01/09/2016</td>
<td>&quot;Do you need to have a relook into antibiotic dosages in this era of MDR pathogens.&quot;</td>
<td>Dr. Susrut Bandyopadhyay (Physician, AMRI Salt lake)</td>
</tr>
<tr>
<td>08/09/2016</td>
<td>Antifungal Update</td>
<td>Dr. Tufan Kanti Dolui (Consultant Haematologist, Ruby General Hospital)</td>
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<tr>
<td>15/09/2016</td>
<td>Fertility preservation in Gynaecological Cancer</td>
<td>Dr. Gautam Khastagir</td>
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<tr>
<td>22/09/2016</td>
<td>Overview of Lymphoma</td>
<td>Dr. Maitreyee Bhattacharya (HOD, Dept of Haematology CMCH, Kolkata)</td>
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<tr>
<td>29/09/2016</td>
<td>Chemotherapy management of lung Cancer</td>
<td>Dr. Tamohan Choudhuri</td>
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<tr>
<td>06/10/2016</td>
<td>1) Updates in medical management of MRCC.</td>
<td>Dr. Rakesh Roy</td>
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<td>2) Brief intro of Global Ceritinib study at SGCCRI.</td>
<td>Dr. Rakesh Roy</td>
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<tr>
<td>13/10/2016</td>
<td>Radiotherapy evolution and present.</td>
<td>Dr. M. Aniff</td>
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<tr>
<td>20/10/2016</td>
<td>Biosimilars: Myths and Facts</td>
<td>Dr. Rakesh Roy</td>
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<tr>
<td>27/10/2016</td>
<td>Role of Bevacizumab in MCRC</td>
<td>Dr. Arnab Bhattacharya</td>
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<tr>
<td>03/11/2016</td>
<td>Clinical Trials: An Overview</td>
<td>Dr. Tamohan Choudhuri</td>
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<tr>
<td>10/11/2016</td>
<td>&quot;Recent diagnostic updates on solid Cancer (NGS &amp; CTC)</td>
<td>Dr. Sarjana Dutt (Director-molecular biology and R&amp;D &amp; Cytogenetics.)</td>
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<tr>
<td>17/11/2016</td>
<td>Wound healing &amp; tissue repair.</td>
<td>Dr. Debashish Datta</td>
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<tr>
<td>24/11/2016</td>
<td>Indications of Halaven</td>
<td>Dr. Rakesh Roy</td>
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<tr>
<td>01/12/2016</td>
<td>Diabetes, Stem Cell &amp; Cancer</td>
<td>Dr. Sabyasachi Sen (USA)</td>
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<tr>
<td>08/12/2016</td>
<td>3D Printing Technology in Medicine</td>
<td>Dr. Kamlesh Kothari</td>
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<tr>
<td>15/12/2016</td>
<td>Role of IV Fosomycin in Era of Global GNR Crisis</td>
<td>Dr. A. Shobhana (INS, Kolkata)</td>
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<tr>
<td>22/12/2016</td>
<td>Ovarian Malignancy 0 to 19 year age 20 years study at SGCCRI</td>
<td>Dr. N. R. Mondal</td>
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<tr>
<td>29/12/2016</td>
<td>Management of Relapsed Ovarian Cancer</td>
<td>Dr. Rakesh Roy</td>
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</table>
PANORAMA OF ACADEMIC ACTIVITIES

Dr. Sanchayan Mandal

Publication

Dr. Sanghamitra Jena

· International Poster Presentation
  “Axillary Reverse Mapping in Patients Undergoing Axillary Lymph Node Dissection for Breast Cancer: A Feasibility Study in Indian Scenario” at the SSO 69th Annual Cancer Symposium, March 2-5, 2016 at Boston, Massachusetts

Dr. Arnab Gupta

· Operating Faculty in a Live Workshop of 7th East Zonal Oncology CME held at SGCCRI, Thakurpukur, Kolkata in Nov, 2015.
· Delivered Prof K Krishnamurthy Golden Jubilee Oration at ASICON 2015 held in Gurgaon in Dec, 15. Topic: ‘Recent developments in GI Surgical Oncology’.
· Master Video on Breast Conservation at SASICON 2016 held in Jalpaiguri in Feb, ’16.
· Panelist in a session ‘Breast Cancer in Elderly’ at ACOS 2016 – 12th Annual Conference of Asian Society of Clinical Oncology held first time in India in Delhi in April, 16.
· Chairperson in an East Zonal Meet on HPB Diseases organized by East Zone Alumni of RCS Edin held in Kolkata in June, 2016.
· Invited Lecture on ‘Recent developments of Management of Gastric Cancer’ in Oncosurge 2016 organised by IPGMER in June, 2016.
· Presentation for the Surgical trainees on ‘How to avoid Morbidity in Breast Cancer Surgery’ at UNMC (University Medical Centre Nebraska, Omaha, USA in July, 2016.
· Invited lecture: ‘How to prevent Cancer’ in Annual Celebration of Indian Institute of Chemical Biology in September, 2016.
· Chairperson in a session on Breast Cancer in NATCON IASO held in Jaipur in Sept, 2016.
· Chairperson at Bengal Cancer Summit (Theme: Gynaecological Cancers: emerging trends) held in Kolkata on 22nd October, 2016.
· Guest Lecture & Interaction with Cancer survivor at 38th All India Public Relations Conference held in Kolkata in Dec, 2016.
Dr. Madhuchanda Kar

Speaker

Satellite CME; Organised by Indian Association of Clinical Medicine, West Bengal Chapter, Siliguri: - 8th December 2015: Topic: - Clinical approach to Leukocytosis
APICON 2016; Organised by Association of Physicians of India, Hyderabad: 28th January Topic: - An approach to solitary pulmonary nodule

Update in Medicine & Critical Care:- Organised By North Kolkata Specialists foundation: 17th April 2016; Topic: - Transfusion of Blood & Components in ICU

3rd Best of San Antonio Breast Cancer Symposium: Organised by Encore Medical Education, 12th June: Topic: - The effect of trastuzumab based therapy on overall survival in small, node-negative Her2 positive Breast Cancer.
LYMPHOMA; Organised By IMA Kolkata; 10th June 2016; Topic: - Lymphoma

Controversies in Clinical Oncology: Organised by Department of Radiation Oncology Tata Medical Center, Kolkata: - 23rd July 2016: Topic Adjuvant Therapy in Breast Cancer

ONCOCON 2016: Organised by East Oncology Group; Patna: -13th August: Topic: - Optimal Chemotherapy schedule in CTRT of Head & Neck Cancer

IACMCON WB 2016; Organised by Indian Association of Clinical Medicine, west Bengal Chapter, Kolkata: 11th September 2016: Topic: - ESA in Clinical Practice


Satellite CME, 2016: Organised by Indian Association of Clinical Medicine, West Bengal Chapter, Gangtok: - 12th November: Topic: - Lung cancer -Current Scenario
ISOCON 2016; Organised by Indian Society of Oncology, Patna: - 17th December: Topic 1: - Breast Cancer in India , Topic 2: - Metastatic Breast Cancer

2nd Fight Cancer Conference, In Academic Collaboration with AROI West Bengal Chapter, Kolkata, 8th January 2017: - Targeted Therapy in Colorectal cancer -Present Standards

Chairperson

1st Year Review; Breast Cancer; Organised by TMH Hospital, Mumbai: - 16th Jan 2016, Topic: - Pathbreaking research papers
Mid Term Update; Organised by Association of Physicians of India WB Branch: 1st May 2016. Topic: - Refractory Anemia
Neuro Oncology Update 2016; Organised by Indian society of Neuro-Oncology, West Bengal Chapter; 4th June, Kolkata: Topic: Bevacizumab in Recurrent GBM.

1st International Meet; Organised by API WB Chapter & Royal College of Physicians Ireland, Kolkata: 1st Oct 2016: Topic: Evidence Based Medicine

MEDICON International 2: Organised by Peerless Hospital, Kolkata & Royal College of Physicians, Edinburgh: 18th Dec 2016 Topic: Cardio-Oncology: An emerging Specialty

2nd Year Review; Breast Cancer; Organised by TMH Hospital, Mumbai: 21st Jan 2017, Topic: Pathbreaking research papers in Breast cancer

Panelist

ACOS: Organised by Asian Clinical Oncology Society, Delhi, 9th April 2016: Topic 1: Current & Emerging Strategies in treatment of mRCC, Topic 2: Afatinib: Moving towards complete, potent & irreversible blockage in EGFR positive NSCLC

ISMPOCON 2016 Organised by Indian Society of Medical & Pediatric Oncology, New Delhi, 6th November 2016: Topic: Role of Oral angiokinase inhibitors

2nd Fight Cancer Conference, 2017 In Academic Collaboration with AROI WB Chapter, Kolkata- 8th January 2017: Topic: Consensus in Management of Colon Cancer

Moderator

1st International CME on Soft tissue tumors; Organised by Calcutta Association of Practicing Pathologists, 24th April 2016: Topic: Panel discussion on Soft Tissue Cancers

4th Breast Cancer Symposium; Organised by Kolkata Breast Health & Welfare Association, Kolkata; 7th May 2016: Topic: Panel Discussion on Neo Adjuvant Chemotherapy in LABC


Bengal Cancer Summit 2016; 2nd Annual Conference Oncological Society of Bengal, 22nd October 2016: Topic: Anti-angiogenesis in Gynecological Cancers

Publications

Medicine Update 2016; Published by Association of Physicians of India; Topic: Approach to solitary Pulmonary Nodule

Medicine Update 2017; Published by Association of Physicians of India; Topic: Practical Approach to Leucocytosis

Dr. Rakesh Roy

- Chief Coordinator and a Faculty for ASCO International Palliative Care Workshop held in Dec 2015 at SGCCRI.
- Guest Lecturer: Cancer awareness in the community”, ROTARY HALL, Kolkata Feb 2016.
- Guest Speaker – “Testing and Treatment pattern for newly diagnosed Alk+NSLC patients” at the 34th ICON Meeting at Hyderabad, 11th Mar 2016.
- Guest Panelist in the session “Bladder Cancer anything new” - 12th International Conference of Asian Clinical Oncology Society (ACOS) organized from 8th to 10th April, 2016 at Hotel The Ashok, New Delhi.
- Panelist: ER positive MBC, 2016 KBWHA (Kolkata Breast Cancer Association) at Kolkata.
- Moderator: “Role of Platinum agents in TNBC” – 2016 KBWHA (Kolkata Breast Cancer Association) at Kolkata.
- Moderator – “ER positive MBC” – On 25th May 2016 at Kolkata.
- Invited as a Panelist in an International Breast Cancer Symposium at Kathmandu, Nepal – Topic “BIOSIMILARS MYTHS AND FACTS”.
- Selected as PI for a Multicentric Global Clinical Trial on Advanced Lung Cancer patients who are ALK Positive.
- Received Travel Grant for attending Advanced course in “EGFR Mutated Lung Cancer” conducted by ESMO (European Society of Medical Oncology) in Oct 2016 – Seoul, South Korea.
- Invited as a guest Lecturer for IAPC course for Physicians (Indian Association of Palliative Care) organised by Kolkata Medical College, Nov 2016.

Dr. Shravasti Roy

Publications

1. Solid Papillary Carcinoma of Breast: A Rare Case Report in IOSR Journal of Dental and Medical Sciences; Vol 15, issue 6 Ver. XV (June 2016)

Dr. Rahul Roychowdhury

Publications


Dr. Bimal Chakraborty

Publications


5. Peer Review of article for BOAJ pre publication 2017
Achievements

SGCCRI has achieved 34th Rank in Scientific Research in the recently published Nature Index 2015 - 2016.

SGCCRI has been inducted as a member of National Cancer Grid. This will encourage collaboration between the Institute and other leading scientific organisations.

Prof. Susanta Roychoudhury, Chief of Basic Research and Molecular Biology, has been elected by “Fellow of Indian National Science Academy (FNA).

Four 4 DNB candidates, successfully cleared Final Exams. in 2016 viz. Dr. Inderdeep Singh, Dr. Sujoy Bala and Dr. Vivek Malhotra of Surgical Oncology and Dr. Sumit Pandita of Dept. of Radiotherapy.

Dr. Rakesh Roy, (Med. Oncology and Palliative Care In-charge) and Dr. Abhijit Sarkar (Consultant Radiotherapist) received Travel Grant Fellowship for attending ESMO Conference in Lung cancer in Korea.

Dr. Arnab Gupta (Surgical Oncologist) was invited as a Visiting Faculty for 2 weeks to UNMC (University of Nebraska Medical Centre) at Omaha, USA.

Dr. Sanghamitra Jena Presented poster titled, Axillary Reverse Mapping in Patients Undergoing Axillary Lymph Node Dissection for Breast Cancer: A Feasibility Study in Indian Scenario at the SSO 69th Annual Cancer Symposium March 2-5, 2016 ~ Boston, Massachusetts.
7th EAST ZONAL ONCOLOGY CME and Live Workshop was held on 21st and 22nd November, 2016 under the aegis of Indian Society of Surgical Oncology and Association of Surgeons of India. Chief Guest Dr. P. Neemani (Ex- Secy, IMA and GC Member of Indian Medical Council) inaugurated the meet. Day 1 witnessed a Live Workshop at the Institute with national faculties like Dr. T Subramanesswar Rao (Hyd) and Dr. C S Ravichand (Manipal) performed Lap colorectal and HPB surgeries. Dr. Suvar Roychoudhury demonstrated a US-guided Chemoport insertion. Dr. Arnab Gupta performed a Breast Conservation Surgery. Dr. Andrew Burd (UK/ Kolkata) ran a slideshow on Head and Neck Cancer Reconstruction.

Day 2 witnessed a Multidisciplinary CME on Head and Neck Cancer and Carcinoma Rectum at Floatel, a picturesque venue afloat the Hooghly river. Apart from master videos, case capsules and panels, The Dr Saroj Gupta Oration was conferred upon and delivered by Dr. T S Rao (Director, Indo American Cancer Centre, Hyderabad), and The Henry Shaw Oration was delivered by Dr Anil D’ Cruz, (Director, TMH, Mumbai). Mr. Chittaranjan Chowdhury, Dr. Rajarshi Roy (both from UK) and Dr. C S Ravichand were other eminent faculties. There were more than 200 enthusiastic delegates. The CME has been accredited 4.5 hrs by IMC.

4th meeting of Eastern India Paediatric Oncology Forum (EIPOF) was held in the Auditorium of SGCCRI on 12th March, 2016. There were Training programmes for the Nurses, Capacity building sessions, Parent’s support Group Meets and Scientific sessions by the doctors treating childhood cancer in Eastern India with the support of JivDaya Foundation (USA) and CanKids Kids Can (Delhi).

Nicotine Replacement Therapy (NRT), Nutrition and Therapeutic Dietetics Workshop and Certificate Course:
On 6th March, 2016, this workshop was held in our Seminar Hall with about 50 participants. The Programme Director was, once again, Prof Chitta Ranjan Chowdhury (associated with De Montfort University in Leicester, UK, Nara Medical University Japan and NITTE University in Mangalore) where there were about 50 participants. He is the driving force for our Stop Tobacco Clinic and our campaign against the main killer ‘Tobacco’.

International Nurse’s Day (12th May, 2016):
The Day was celebrated at the Nursing Block of SGCCRI where there were academic discussions and motivational speeches highlighting the role of Florence Nightingale in establishing modern nursing practices.

Research Advisory Board Meeting:
Our Research Advisory Board was recently reconstituted taking on board many eminent Scientists and Clinicians. Our Research Subcommittee members appraised them of the recent Research activities and Future plans in a meeting on 8th July, 2016.

National Nutrition Week (10th September, 2016):
To celebrate National Nutrition Week, the Dietetics Dept of SGCCRI organised a seminar with the theme of ‘Defeating Cancer through Nutrition’. Around 90 delegates came from all over Kolkata, including dieticians, nutrition students apart from eminent teaching faculties like Dr. Ranjini Dutta, HOD of clinical Dietetics of KPC Medical College.
Other Events:

· BiswaBharaPraan:
The Aesthetic Therapy Unit of Antara Psychiatric Centre, Gobindapur, presented the composite programme ‘BiswaBharaPraan’ commemorating the 10th Anniversary of Kalamandalam Guru Sri GovindamKutty in our Auditorium on 9th January, 2016. Ms Mandar Mukherjee led the Antara Team like previous years in presence of Mrs. ThankamanyKutty. Sri AshokePalit, renowned poet and professor graced the occasion as Chief Guest.

· World cancer Day (4th February, 2016):
The day was observed in our Auditorium like previous years where many survivors were made to interact with the patients undergoing treatment in our hospital. Eminent actor Sri SubhasishMukhopadhyay graced the occasion as Chief Guest. There were performances by our survivors and some of our patients followed by performance by Rotaractors of Dist 3291. Ms JayatiChakraborty enthralled the audience with her Rabindrasangeets.

· Cooking Class for Parents:
This session was organised by Nutridiet and Rotary Club of RabindraSarobar on 2nd April, 2016 to educate the parents of the children undergoing treatment in our hospital regarding how to cook nutritious and tasty food at nominal cost and minimal ingredients.

· Inauguration of New Pathology Diagnostic machines:
The Garden Reach Ship Builders & Engineers Ltd had been very kind to provide a CSR Grant for our new Pathological Diagnostic machine (Vitek 2 Compact 30, Automated Embedding Station and BD Superpath DTS LBC System). These facilities were formally inaugurated by Admiral A K Verma (Chairman GRSE Ltd) as Chief Guest on 20th April, 2016. Furthermore, CMDE R Ghosh VSM. In (Retd), (Director Shipbuilding), Sri R C Nautiyal (Director Personnel), Sri S SDogra (Director Finance), Sri KalloIRai (Director FinanceRetd) were present on this occasion.

· 6th Anniversary of Dr Saroj Gupta (21st May, 2016):
Blood Donation camp was held in-house where many of our Staff and relatives of patients voluntarily donated blood for our patients. This was followed by Inauguration of a Pathology Museum by Smt SrabaniSen who thereafter paid tribute to our Founder with her Rabindrasangeet in our Auditorium.

· World No Tobacco Day (31st May, 2016):
An awareness programme was held on this day in front of our Registration Counter and like last 2 years, was supported by Price Water House Coopers Service Delivery Centre Pvt Ltd(Kolkata). The patients and relatives were made aware of the bad effects, especially carcinogenic effects, through an interactive session and talks by Specialists.
The same evening our Hospital was invited to be a part of the Cancer Awareness programme organised by MANT at Nazrul Mancha. A CD with Anti Tobacco theme by Dohar was released on this occasion by Smt Usha Uthup.

**World Environment Day (6th June, 2016):**
With the initiative of Rtn Anita Nan Banerjee (President, Rotary Club of Rabindra Sarobar), the day was celebrated in our hospital along with the Presidents and members of many Rotary Clubs of Dist 3291. School bags were given to the children by DG Rtn Jhulan Basu and there was an entertainment programme for them in our auditorium. Our survivors Anjali Roy and Kuntal Bardhan brought tears to many with their exceptional performance. At the end there was plantation of trees under the supervision of our GB member Sri Subhash Guha Neogi, past President of Agri Horticultural Society of Kolkata.

**Cultural programme by members of All India Radio:**
Like previous years, the members of AIR, under the leadership of Sri Moloy Ghosh, organised a programme for the entertainment of patients and their families on 11th June, 2016 in our Auditorium. Many artists took part in the cultural programme. The Musical session by Sri Srikanto Acharya was highly appreciated by all. The programme was graced by Swami Divyanandaji, Mountaineer Sunita Hazra. Stamp books for each child patient with their own photo was given out. The programme was conducted by Sri Kaushik Sen. In addition there was an In-house Blood Donation camp where many members of AIR and their special invitees donated blood.

**Sudeshna Beacon of Hope** organised a Fund raising meet through a musical evening, “Sudeshna Memorial Concert” at Science City on 17th July 2016.

**Z Bangla ’Dadagiri’ initiative:**
Ms Dona Ganguly, eminent Dancer, fulfilled her Dadagiri promise on 23rd June, 2016 by gifting a large Keyboard to the children for their entertainment. She spent quality time with them, encouraging them in their fight.

**Rath Yatra:**
Like previous years the day was celebrated on 6th July, 2016 by our children who had decorated a chariot and pulled it inside our hospital premises. Sweets were distributed to all the children and parents.
· **Independence Day Programme:**
  This was the first project of Rotaract Club of Calcutta Presidency to bring a smile to the real fighters in life on the day of our 70th Independence Day, 15th August, 2016. Flag hoisting, Rakhi celebration, followed by a Magic show and distribution of goodies took place at the child care unit of our hospital.

· **Raksha Bandhan:**
  On 18th August, 2016, the occasion was celebrated with the children with the initiative of Rotary Club of Rabindra Sarobar. The programme was graced by Rtn Shyamashree Sen (District Governor of Rotary Club of Dist 3291) along with many other eminent Rotarians of the district. Some special children were felicitated on this occasion.

· **Entertainment Programme by Kacha Kachi Pasha Pashi (K2P2):**
  The members of this newly formed NGO by young Facebook friends working for the betterment of the children organised an entertainment programme for our child patients on 22nd Sept, 2016 which included birthday celebration, cultural programme by the members. The event was graced by Sri Sovandeb Chattopadhyay, Ministry of Power (Govt of WB), eminent film personalities like Sri Soumitra Chattopadhyay, Soham, and also renowned Scientist Dr Utpal Sanyal.

· **Children’s Day Celebration (14th Nov, 2016):**
  The Hospital has been celebrating Children’s Day in a big way since 2002 to bring smile back to the faces of children suffering from cancer. On 14th November, 2016 for 15th consecutive year, A Sit & Draw competition was held for which all the participating children were given prizes. The Judge was eminent Artist Sri Somnath Chowdhury of Tulika Art School who also spent time on the wards to teach the children how to sketch. Eminent Actor & singer Sri Arindam Ganguly & Eminent actress Ms Soumili Biswas were our Guests this time who encouraged the children in their fight against the dreaded disease by their gracious presence and inspiring talks. Some of our children performed in a Dance recital which brought tears to the audience sitting in the hall. In addition there was a Magic show, performance by Street children of an NGO New Life. The programme reached its climax during the Musical tribute by Kinjol and his band. Students of Save the Children School for Orphans were our special invitees like previous years.
On the 87th Birth anniversary of our Founder Dr Saroj Gupta, our Founder’s day was celebrated on 5th Dec, 2016. Blood Donation Camp was organised in the morning where members of the Management and many staff donated blood. In the afternoon, our new Research wing, funded by Ms ManjuMitra in memory of her parents, was inaugurated by Swami Suparnanda, Hony Secretary of R K Mission Gol Park. He also flagged of a new battery operated Ambulance, which was donated to us by L & T through their CSR grant, in presence of Mr A K Ghosh(Regional Manager) and Mr Dubey(Admin) of L & T. Eminent Kathak Dancer Ms Dona Ganguly and her Dancer troupe ‘DikshaManjari’ presented an hour long Dance recital which was appreciated by all. This was followed by a Drama ‘KarkatLagna’ (written by Dr Saroj Gupta) enacted by the members of the Management and the Staff of SGCCRI which kept the audience glued to their seats. This drama was the 1st fund raising event for the Hospital which was staged in RabindraSadan on 25th February, 1973 with the help of ‘Sikha’ led by Dr Anil Paul. Dr Saroj Gupta himself had acted in this play as a cancer patient which had brought tears to lot of people seating in the hall.
Comprehensive Cancer Hospital with 40 years of experience, affordable to all classes of people

Recent Additions & Highlights:
- All modern Diagnostic & treatment facilities
- Surgery: LASER, Radio Frequency Ablation, CUSA & Harmonic Scalpel for advanced Liver surgeries
- Radiotherapy: LINAC machines (with 3DCRT), Interstitial & Intraluminal Brachytherapy with Oncentra Treatment Planning system
- Bone Marrow Transplant Unit
- Paediatric Medical ICU, AC Wards, Toy Train & Toy Centre for the children
- 4 storied Palliative Care (for terminal care) with Suites, AC Cubicles, General wards, Music therapy
- PET-CT Scan & MRI Unit
- Excellent natural ambience with Super Deluxe cottages

Saroj Gupta Cancer Centre & Research Institute
(Formerly known as Cancer Centre Welfare Home & Research Institute),
Mahatma Gandhi Road, Thakurpukur, Kolkata- 700063
Tel: (033) 2467-8001/2/3, 2453-2781/2/3 Fax: (033) 2467 8002, 2453-4765/6711
Email: cancercentre6@gmail.com, cancerwelfare@yahoo.co.in,
Web-site: www.cancercentrecalcutta.org

24Hrs. Help Line No.: 9007087270