



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)



Vol. XVIII

No. 6

Price: 50 Paisa

EDITORIAL

CLINICAL SENSE - THE SIXTH SENSE

Clinical knowledge depends upon three processes-**observing, recording and thinking**. **Observing** requires a sense of perception, that is skilled use of five senses. **Recording** depends on the use of words in their correct sense, that is the art of making sense. **Thinking** includes the process of consideration, deliberation and analysis, that is a sense of wisdom. These three kinds of processes make clinical sense. In other words, the art of medicine depends on the stimuli that enter the mind of physician / surgeon, the processes that go on in the mind and the resulting material produced by it is clinical sense. The stimuli enter into the human mind by five senses of perception. Then the deliberation, rejection, ponderings and common sense assimilate into clinical medicine. The sense of humor at the time of application acts like a catalyst or a flavoring agent and gives taste to the bolus of knowledge.

Although the method of clinical observation had arisen early in 19th century as a means of diagnosing underlying pathological disturbance, it rapidly achieved a dominant position in the emergence of new medical knowledge. The ability to observe the significant phenomena in a particular case came to be recognized as a sixth sense in the experienced clinician. The observant Clinician is sometimes able to watch the course of events in which nature herself performs the experiment (in human body).

Clinical sense acquired by experience provides the clinician medical authority. The knowledge derived from own experience remains personal knowledge. It can only be tested within the further experience of individual clinician. The

impact of this is three fold. Firstly, it legitimates the autonomy of individual clinicians whose clinical experience remains inviolate. Fewer clinicians with greater experience who don't disseminate knowledge are referred as "the dead hands of medicine". Secondly, clinical observation or clinical sense gives the doctor a dominant position in doctor- patient relationship. Thirdly, his clinical practice is usually free from external interferences e.g. control over quality of medical care is virtually impossible. Such clinicians talk of eminence based medicine rather than evidence based medicine.

As clinicians of modern era, we shut our eyes to observations which don't agree with our ideas. We close our ears to bits of history which seem out of place. We refrain from speaking our observations when they are not listed in our textbooks. This shows eyes don't see what mind does not know. But intuitive clinicians with sixth sense will see beyond - observe, record, tabulate, communicate, use all six senses. Learn to see, learn to hear, learn to feel, learn to smell and know that by practice alone you can become an expert.

Although some people are born with common sense, but it also comes from knowledge, experience and an ability to focus on what is important.

"The value of experience is not in seeing much, but in seeing wisely" (William Osler)

Dr. Dewan AK
Medical Director

TREATING LIVER CANCERS: RADIOLOGISTS HAVE A ROLE TO PLAY RADIOFREQUENCY ABLATION (RFA) AND TRANSARTERIAL CHEMOEMBOLIZATION (TACE)

HCC is the most common malignant tumor of the liver. At RGCI & RC we have been performing radiofrequency ablation for primary and metastatic liver cancer for the past 13 years. So far we have treated more than 250 patients. It is a minimally invasive treatment in cancer where thermal energy is used to destroy cancerous tissue. It is an attractive option for local tumor control in patients who are not surgical candidates or who have failed conventional therapies. It is a technique that causes tissue necrosis by a process of heating. RFA has been conventionally used to treat liver cancers. It is very successful in small primary liver cancers as well as metastatic liver cancers. We have been able to destroy even large liver lesions by using multiple needle electrodes at the same sitting. However sometimes patients are detected at an advanced tumor stage where resection or RFA is not the choice. These patients have poor hepatic function reserve, thus, precluding an effective curative treatment. HCCs derive their vascular supply mostly from the hepatic artery in contrast to the normal liver which derives its two-thirds of supply from the portal vein and the remaining one-third from the hepatic artery. This difference forms the basis for diagnosis of such tumors on contrast enhanced CT and MRI examinations and also is the rationale behind transarterial therapy for HCC.

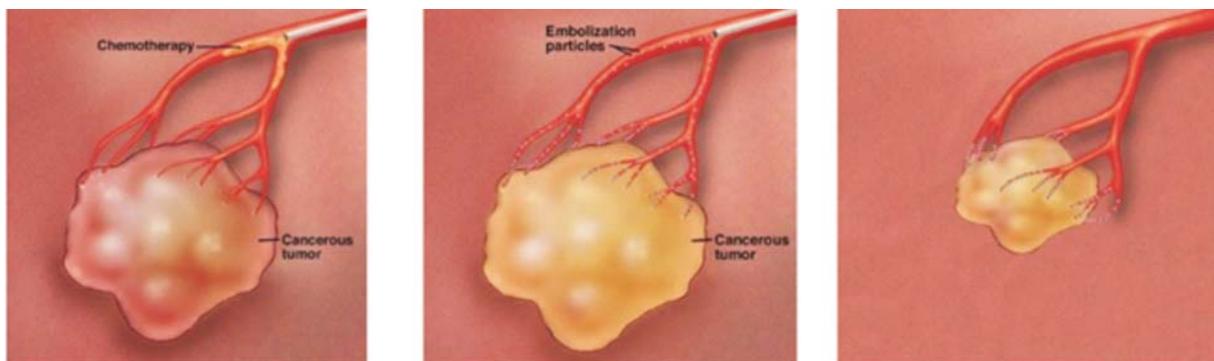
Transarterial Chemoembolization (TACE) has been successfully added to the list of therapeutic procedures in the department of radiology at RGCI & RC. It is a step forward in providing comprehensive cancer care to our patients. In fact, it is a significant milestone achieved after our success with radio frequency ablation.

TACE is a minimally invasive TARGETED THERAPY for HCC confined to the liver and combines transarterial embolization (TAE) and regional chemotherapy showing synergistic, anti-tumor effects with a high objective response rate. Selective arterial occlusion induces ischemic tumor necrosis while minimizing damage to the liver tissue. In addition, the chemotherapeutic agents are administered at high concentrations and remain in the tumor for a long period. The embolotherapy cuts off the blood flow to a tumor and prevents washout of the chemotherapeutic agents from a tumor and also lowering the drug toxicity because of low systemic drug levels.

The selection of TACE as a treatment option can be offered to a group of patients with multinodular HCCs who are not candidates for surgery. Commonly it is done in the following group of patients:

- Palliative treatment of unresectable HCCs
- Patients on transplant list
- Prior to Radiofrequency ablation (RFA)
- Residual tumors
- Patients with metastatic neuroendocrine tumors in liver

CT or MRI including angiography examinations are done prior to TACE to know the extent and characteristics of the tumor, the anatomic variants and hemodynamic features of hepatic artery and portal vein and to locate all the feeding arteries of a tumor including any possible extra-hepatic arteries.



Embolic agents used

Commonly used embolic agents include gelatin sponges, polyvinyl alcohol (PVA) particles and microspheres. Lipiodol functions as a microvessel embolic agent, as a vehicle to carry and localize chemotherapeutic agents and as an augmentor of antitumor effects of TACE by efflux into the portal veins. After injection, the anticancer drug is slowly released from Lipiodol and remains in high concentrations within the tumor for a prolonged period.

A novel system combining PVA beads and doxorubicin as drug-eluting beads (DEB) releases doxorubicin in a slow and controlled manner, thereby its decreasing plasma levels and the systemic side effects (e.g., cardiotoxicity).

Chemotherapeutic agents (Doxorubicin and cisplatin are the most commonly used) are usually suspended in Lipiodol and are delivered as close to a tumor as possible followed by the embolization process. The usual dose for doxorubicin and cisplatin per session is 10-70 mg and 10-120 mg respectively.

Therapeutic Efficacy

TACE can induce extensive tumor necrosis in most patients and this has been substantiated by the pathological identification of tumor necrosis, by a reduction in tumor burden as seen on contrast enhanced CT scans and by a decrease in tumor marker concentrations after the procedure. The objective response rate of TACE has been reported between 15% and 61% in various studies. They also showed that TACE prevented significant tumor progression compared with conservative or inactive treatments.

Cumulative meta-analyses including all published RCTs showed that TACE significantly reduced the overall 2-year mortality rate compared to control patients who received conservative or inactive treatments.

Complications

However, TACE is not done for patients with extensive liver disease (Child-Pugh classification C/ late B), HCC involving the major portal veins or patients with large burden of metastatic disease outside the liver. The most common complication of TACE is a post-embolization syndrome consisting of transient abdominal pain, fever and elevation of hepatic transaminases occurring in 60-80% of the patients. Post-embolization syndrome is usually self-limiting within 3-4 days, and the use of antibiotics is not necessary to treat the fever. Other less common TACE-related complications are liver abscesses, ischemic cholecystitis, biliary strictures, septicemia or irreversible liver failure.

Conclusion and Future Perspectives

TACE has been widely accepted as a standard therapy in selected patients. It has been shown that TACE is the only palliative treatment that can benefit HCC patients ineligible for curative treatment in terms of survival. Recent advancements in microcatheter technology have made it possible to perform ultraslective catheterization of tumor feeding arteries. Another strategy to improve the therapeutic effect of TACE may be the use of DEB which consists of PVA beads and doxorubicin. There have been efforts to improve therapeutic efficacy of TACE by combining TACE with other modality treatments such as radiofrequency ablation (RFA). Future directions include using Anti-VEGF antibodies in combination with TACE or TACE in combination with p53 gene therapy. Through these, the limitations of TACE are expected to be overcome, and it is hoped to expand the indications and clinical benefits of TACE.

Dr. Arvind Chaturvedi, Director - Radiology

Dr. Abhishek Bansal, Senior Resident- Radiology

DEPARTMENT OF NEURO SURGICAL ONCOLOGY

RGCI & RC takes pride to start a very important sub specialty of Neurosurgery and Oncology - Department of Neuro Surgical Oncology under expert guidance of Dr. P. K. Sachdeva (Experienced Neuro & Gamma Knife Surgeon) and Dr. R.S. Jaggi (Neuro Surgeon). This will be first of its kind department in India, which aims to provide Integrated Comprehensive Care to all age group of patients suffering with brain or spine tumors. Neuro oncology is a sub division of medical science which deals with treatment of brain, spine and other nervous tumors (cancerous and non cancerous).

Brief management of brain tumor patient

A brain tumor is an abnormal growth of cells within the brain, which can be cancerous or non-cancerous (benign). Brain tumors are either primary which form and grow from the structures of the brain or those that are tumors from other parts of the body which enter brain and grow there are called secondary or metastatic tumor.

Symptoms of brain tumor

In general, the most common symptoms of a brain tumor includes:-

- Headaches
- Seizures or convulsions
- Difficulty thinking, speaking, or finding words
- Personality or behavior changes
- Weakness or paralysis in one part or one side of the body
- Loss of balance or dizziness
- Loss of hearing
- Vision changes
- Confusion and disorientation
- Memory loss

It should be understood that all the above symptoms by themselves are not indicators of Brain Tumors but can be commonly found in brain tumor patient.

Treatment of brain tumors aims at removing the tumor by performing Surgery and in those which can be melted by using radiation called radiotherapy or using anti cancer drugs called chemotherapy. Depending upon the type and nature of the tumor, a combination of the above will be required. With advances in imaging, earlier diagnosis, sophisticated planning, preoperative, anesthetic management, special microscopes and surgical instruments, it is possible to remove brain tumor by doing surgery safely without damage to the normal brain tissue and producing deficits. The advent of PET CT, IGRT and Gamma knife surgery (stereotactic radio surgery) is revolutionizing the treatment of various problems in the brain, including benign brain tumors in treacherous locations, like the brain stem or near the optic nerve.

Team of Neuro oncology comprises:

- Neurosurgeon
- Neuro radiologist
- Radiation oncologist
- Psychologist
- Neuro anesthetist
- Neuro pathologist
- Medical oncologist
- Rehabilitation team

Dr. P. S. Sachdeva / Dr. R. S. Jaggi
 (Team - Neuro Surgical Oncology)

CONGRATULATIONS DR. ARVIND CHATURVEDI



(Pic 1)



(Pic 2)



(Pic 3)

Dr. Arvind Chaturvedi, Director Radiology and Imaging and former Medical Director of the institute was honoured as a distinguished invitee by the National Cancer Institute, Ministry of Health, Malaysia. He conducted a 3 day training workshop program for the Radiologists and Oncologists of NCI at Putrajaya, from 9th to 11th May 2014 (Pic 1 & 2) . He was also conferred with the distinguished service award for contribution to the field of radiology by the IRIA at Delhi (Pic 3).

- Mr. D. S. Negi (C.E.O.)
- Dr. A. K. Chaturvedi
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Printed & Published by Mr. K. K. Mehta on behalf of Indraprastha Cancer Society & Research Centre and Printed at Raju Art Printers, 18-A, Old Gobind Pura Extn., Street No. 2, Parwana Road, Delhi-51, Tel. : 9871006333, Published from RGCIRC, Sector-V, Rohini, Delhi-110085

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