

THE CANCER CENTER *Newsletter*

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CURRENT MANAGEMENT OF ESOPHAGEAL CANCER

By Paul C. Lee, MD
Director, Thoracic Surgery, NYHQ

Approximately 13,900 new patients will develop esophageal cancer annually in the United States and more than 95% of them will succumb to their disease.

The treatment options for esophageal cancer are varied and include primary surgical resection, surgical resection after preoperative chemotherapy, preoperative chemoradiation or nonoperative therapy using definitive chemoradiotherapy.

Multiple randomized trials have failed to definitively demonstrate the superiority of any one treatment strategy over all others. Despite the promising pathological response rates reported after preoperative chemoradiotherapy, most randomized trials have shown that 5-year survival is no better than that achieved by surgery alone (18 - 23%). Herskovicz in 1992 reported a randomized trial comparing radiotherapy to radiochemotherapy delivered with curative intent. The 5-year survival after combined modality therapy was 27%. A randomized trial by Bedenne compared preoperative chemoradiation with primary chemoradiation in patients with locally advanced squamous cell carcinoma. Median survival was 19 months for the non-surgical arm and 17.7 months for the surgical arm. A more recent prospective multi-center randomized phase III trial CALGB 9781 of tri-modality therapy was originally designed to recruit 500 patients, but the study was closed due to poor accrual. An intent-to-treat analysis showed a median survival of 4.5 years in patients receiving preoperative cisplatin and 5FU concurrent with 50.4 Gy of radiation therapy followed by surgical resection versus 1.8 years in the surgical alone arm. Five year overall survival was 39% vs. 16%. The results were striking, although there were only 30 patients in the tri-modality arm and 25 patients in the surgical arm. All of the aforementioned studies raised the inevitable question about the role of surgery, if any, in esophageal cancer.

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Member

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 Affiliate: Weill Medical College of Cornell University

PAUL C. LEE, M.D.

Paul C. Lee, M.D. is the Director of Thoracic Surgery at NYHQ and he is an Assistant Professor of Cardiothoracic Surgery at the New York Presbyterian Hospital, Weill Medical College of Cornell University.

Dr. Lee is a native of Queens. He graduated from Harvard University and earned his M.D. from Johns Hopkins University School of Medicine. He completed his general surgery residency at University of Pittsburgh Medical Center where he was also a research fellow. His research focused on the molecular effects of Nitric Oxide on cardiopulmonary physiology and heart-lung transplant rejection. During residency, he received a two-year research grant from the Thoracic Surgery Foundation.

Dr. Lee returned to New York City and finished his cardiothoracic surgery residency at the New York-Presbyterian Hospital-Cornell Medical Center and the Memorial-Sloan Kettering Cancer Center. During this time, he received additional training in minimally invasive



PAUL C. LEE, M.D.

thoroscopic surgery at the University of Pittsburgh Medical Center.

Since Dr. Lee joined the Cardiothoracic Surgery Department at NYHQ in 2003, he has built a world-class thoracic surgery program. Dr. Lee is skilled in the latest minimally invasive technique in diagnosing and treating patients with thoracic malignancies. The goal of this technique is to decrease post-operative pain and complications with a shorter length of stay in the

hospital. For patients with advanced lung malignancy, palliative procedures such as endobronchial laser therapy, brachytherapy, and stenting are offered. In his approach, Dr. Lee emphasizes the multidisciplinary care of cancer patients and works closely with radiation oncologists, medical oncologists, pulmonary and primary care physicians. He has also initiated a phase II study in NYHQ examining presurgical treatment of lung cancer with an angiogenesis inhibitor pazopanib.

Dr. Lee is a member of the American Cancer Society and the Society of Thoracic Surgeons. He is also a fellow of the American College of Surgeons. He is often an invited lecturer and has been a guest speaker on numerous radio programs. He has a high level of commitment to providing the most compassionate, prompt and personal care for thoracic cancer patients. He is also fluent in both Cantonese and Mandarin.

MICHAEL J. WARHOL, M.D.

Dr. Michael J. Warhol is the new Chairman of Pathology. Dr. Warhol was educated at Princeton University and received his medical degree from the University of Pittsburgh. He did his internship and residency at the Peter Bent Brigham Hospital in Boston, MA. Dr. Warhol has previously served as Pathologist at the Brigham and Women's Hospital in Boston, MA and was Chairman of Pathology and Director of Laboratories at Pennsylvania Hospital in Philadelphia, the nation's first hospital.

Dr. Warhol's previous teaching appointments have been Associate Professor of Pathology at Harvard Medical School and Clinical Professor of Pathology and Laboratory Medicine at the University of Pennsylvania School of Medicine. He also was Professor of Pathology, Anatomy and Cell Biology at Thomas Jefferson University and Adjunct Professor of Microbiology at Pennsylvania State University.

Dr. Warhol has published approximately seventy peer-reviewed publications, authored a textbook of Surgical Pathology, and was editor of the series "Techniques in

Diagnostic Pathology." Dr. Warhol's research interests have included the ultrastructure and immunoantigenicity of tumors; the pathology of mesotheliomas, and the molecular genetics of sarcomas. Among Dr. Warhol's accomplishments is the first ultrastructural demonstration that Human Papilloma Virus (HPV) was incorporated into human chromosomes in cervical neoplasia. Dr. Warhol's research in mesotheliomas helped facilitate the diagnosis of that neoplasm and its distinction from adenocarcinomas.

MOLECULAR PATHOLOGY LABORATORY

Dr. Warhol's plans for New York Hospital Queens include the establishment of a molecular pathology laboratory. This laboratory will perform in-house immunocytochemistry, facilitating the diagnosis and classification of tumors. It will also explore molecular markers important in establishing a tumor's prognosis and response to therapy. The laboratory will be capable of performing in-situ hybridization, a technique which is capable of defining gene amplification in malignancy as well as chromosomal translocations which cause malignancy.



MICHAEL J. WARHOL, M.D.

Ultimately, Dr. Warhol hopes the pathology laboratory can better serve the ethnic diversity of our community by relating tumor behavior to genotype. It appears to be that there are racial differences in the behavior of common tumors such as breast carcinomas. This research needs to be confirmed and extended to other racial groups. New York Hospital Queens provides the patient substrate for such studies. Understanding the patient's disease at the molecular level allows for the planning of more rational and effective therapies.

TRAVELING FROM OVERSEAS FOR CANCER TREATMENT AT NYHQ

How does an electrical engineer from Athens, Greece end up being the first person to undergo a new form of cancer treatment at New York Hospital Queens?

Philip Gaitanis, 55, was recently diagnosed with prostate cancer. After the initial shock wore off, Gaitanis used the Internet to research his treatment options. He found these included surgery to remove his prostate, or an internal radiation procedure known as brachytherapy.

Gaitanis further learned that cesium-131, a new radioisotope

used in the brachytherapy procedure, could offer fewer side effects and less complications after radiation. However, this procedure wasn't being performed in Greece.

Gaitanis decided he would travel to the place that did. Gaitanis discovered this procedure was only performed in

the US, and the radiation oncologist who was the first to use it in the northeast was Dattatreyyudu Nori, M.D., Chairman of Radiation Oncology at New York Hospital Queens, Professor of Clinical Radiology at Weill Medical College of Cornell University and Radiation Oncologist-in-Chief at

New York-Presbyterian Weill Medical College of Cornell University.

It was tough to be diagnosed with prostate cancer at my age, but I was very fortunate that it was detected at such

an early stage," said Gaitanis. "I wanted to make sure that I explored all my options and wasn't quite ready to settle on surgery."

In December 2006, Gaitanis, along with his wife Antigone, traveled to New York to meet with Dr. Nori for a consultation. Dr. Nori, who practices in Manhattan and Queens, recommended that Gaitanis have the cesium-131 treatment in Queens. Since Gaitanis has relatives in Kew Gardens, he readily agreed.

On February 21, Gaitanis had the cesium-131 brachytherapy procedure completed within two hours and was able to leave the Cancer Center that day.

Gaitanis reported that he had minimal discomfort that evening.

CESIUM-131

Instead of using other radioisotopes in the implantation of radioactive seeds into a tumor site, for appropriate patients, Cesium-131 can be used. Cesium-131 has several advantages over Iodine-125 and Palladium-103, which have been the most commonly used radioisotopes up until now. It has a higher energy, shorter half-life and uses a lower total dose of radiation. A shorter half-life means faster dose delivery, that cancer cells have less opportunity to repopulate, and less

protracted radiation to normal healthy tissues. A stronger energy means that fewer radioactive seeds are required. This reduces the risk of urinary reactions following implantation.



PHILIP GAITANIS



DATTATREYUDU NORI, M.D.

RECENT EVENTS

Susan H. Lee, M.D., Attending Physician, Breast Center and Assistant Professor of Surgery in Clinical Obstetrics and Gynecology, Weill Medical College of Cornell University has been inducted into the Society of Surgical Oncology.

Nandanuri Reddy, Ph.D., Senior Physicist; **Brij Sood, M.D.**, Attending Radiation Oncologist and Associate Professor of Radiology at Weill Medical College of Cornell University; **Seshadri Sampath, Ph.D.**, Physicist; **Andrej Mazur, Ph.D.**, Physicist; **Adrian Osian, M.S.**, Director, Physics; **Akkamma Ravi, M.D.**, Attending Radiation Oncologist and Assistant Professor of Radiology at Weill Medical College of Cornell University; **Jaganmohan Poli, M.D.**, Radiation Oncology Resident; and **Dattatreya Nori, M.D.**, Chairman, Radiation Oncology and Professor, Weill Medical College of Cornell University submitted a paper on "Single Course IMRT to Deliver 45 Gy to Seminal Vesicles and 81 Gy to Prostate in 45 Fractions" which was published in the October issue of *Technology in Cancer Research and Treatment*.

Paul C. Lee, M.D., Director, Thoracic Surgery and Assistant Professor of Cardiothoracic Surgery, Weill Medical College of Cornell University; was a coauthor of "Downstaging of T or N predicts long-term survival after preoperative chemotherapy and radical resection for esophageal carcinoma" in the *Annals of Thoracic Surgery*, 2006;82:480-4. He also coauthored "Accuracy of surveillance computed tomography in detecting recurrent or new primary lung cancer in patients with completely resected lung cancer" in the *Annals of Thoracic Surgery*, 2006;82:1009-15; "Long-term survival and recurrence in patients with resected non-small cell lung cancer 1 cm or less in size" in the *Journal of Thoracic Cardiovascular Surgery* 2006;132(6):1382-88; "Tuberculosis presenting as an endo-bronchial mass" in the *Journal of Thoracic Cardiovascular Surgery*, 2007;133:582-584; "Surgical resection for multifocal (T4) non-small cell lung cancer: Is the T4 designation valid?" in the *Annals of Thoracic Surgery*, 2007; 83:397-401.

Dr. Lee also recently presented at two national meetings. He presented on "Long-term Survival and Recurrence in Patients with Resected Subcentimeter Non-small Cell Lung Cancer at the 86th Annual Meeting of The American Association for Thoracic Surgery, Philadelphia, PA and on "Risk Factors for Occult Mediastinal Metastase in Clinical Stage I Non-Small Cell Lung Cancer Screened by Computerized Tomography and Positron Emission Tomography" at the 43rd Annual Meeting of The Society of Thoracic Surgeons, San Diego, CA.

Dr. Lee was also an invited visiting professor at the University of Virginia in Charlottesville, where he gave a talk entitled, "A surgeon's view of the behavior of early non-small cell lung cancer. Small lung nodules: management in patients at risk for lung cancer and technique of radiotracer guided thoracoscopic excisional biopsy of lung nodules." This course was sponsored by the University of Virginia Departments of Surgery and Radiology.

CANCER CENTER CLINICAL PROGRAM LEADERSHIP

DIRECTOR Dattatreya Nori, M.D., F.A.C.R., F.A.C.R.O.	670-1501
BREAST CENTER Karen Karsif, M.D. Susan Lee, M.D.	670-1185
COLORECTAL SURGERY Howard Tiszenkel, M.D.	445-0220
GASTROINTESTINAL, MEDICAL Roger Mendis, M.D.	670-2559
GASTROINTESTINAL, SURGICAL Kenneth Rifkind, M.D.	445-0220
GYNCOLOGIC ONCOLOGY Marie Welshinger, M.D. Manolis Tsatsas, M.D.	670-1170
HEAD AND NECK ONCOLOGY Jerry Huo, M.D.	670-0006
MEDICAL ONCOLOGY Barry Kaplan, M.D., Ph.D.	460-2300
NEUROSURGERY Jaime Nieto, M.D.	670-1837
PULMONARY MEDICINE Stephen Karbowitz, M.D.	670-1405
RADIATION ONCOLOGY Dattatreya Nori, M.D.	670-1501
RADIOLOGY William Wolff, M.D.	670-1594
SURGICAL ONCOLOGY Simon Fink, M.D.	670-1120
SURGICAL PATHOLOGY Michael Warhol, M.D. Stanley Kerpel, D.D.S. (<i>Oral Pathology</i>)	670-1141 670-1520
THORACIC SURGERY Paul Lee, M.D.	670-2707
UROLOGY Albert Tarasuk, M.D.	353-3710
GENETIC COUNSELING Brenda Zak	670-2110
NUTRITION Jack Pasquale, M.D. Mary Grace Sucholet, R.D.	465-0041 670-2550
PAIN MANAGEMENT Peter Silverberg, M.D. Vikas Varma, M.D. Margaret Cawley, R.N.	670-1080 460-1111 670-1422
SOCIAL SERVICE Marlene Smike	670-1300
CANCER RESEARCH Engracio Cortes, M.D. Brij M. Sood, M.D. Chu-Cheng Kan, Ph.D.	279-9101 670-1501 670-1724
ADMINISTRATION Maureen Buglino, R.N., M.P.H. <i>Vice President, Ambulatory Services</i> Tom Deutsch, M.P.H., M.B.A., <i>Administrative Director</i> Vijaya Malladi, C.T.R., <i>Manager</i>	670-1981 670-1501 670-1379

CURRENT MANAGEMENT OF ESOPHAGEAL CANCER

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WHY WE FAIL

The primary argument for the poor results seen in the treatment of esophageal cancer, by any modality, is the fact that the great majority of patients develop metastatic disease, suggesting that the disease may already have disseminated at the time of diagnosis. While undoubtedly this is the case in some patients, a careful analysis of the patterns of failure after surgical resection also suggests inadequate local control using current treatment modalities. For example, the locoregional failure rates reported in the surgery alone arms of several randomized trials ranges between 30 and 45%. Interestingly, the addition of preoperative therapy of any kind did not meaningfully reduce this high local failure rate. Although most patients will admittedly die from metastatic disease, it is doubtful that a favorable long-term outcome could be achieved in the absence of adequate local control.

RADICAL EN-BLOC ESOPHAGECTOMY

We at Cornell Medical Center have adopted a radical en-bloc esophagectomy

approach, introduced by Dr. Skinner and Dr. Altorki. We aim to maximize local tumor control by resecting the tumor-bearing esophagus within a wide envelope of surrounding tissues. Thus for tumors of the middle or lower thoracic esophagus, the en-bloc specimen would include, in addition to the tumor-bearing organ, the pericardium anteriorly, both pleural surfaces laterally, as well as the thoracic duct and all other lympho-areolar tissue wedged posteriorly between the esophagus and the spine. The associated lymphadenectomy includes en-bloc resection of all nodal groups in the neck, chest and abdomen. We have previously reported our results after en-bloc esophagectomy performed in patients with esophageal carcinoma. So far with 209 patients, our overall 5-year survival is 49%. It is notable for the 39% 5-year survival achieved in patients with Stage III disease. An important finding is the remarkably low locoregional failure rate of 8.5%, which validates the basic concept of improved local control achieved by en-bloc resection. Overall hospital mortality is 3.3%, which compares

favorably to the national average. Radical en-bloc esophagectomy also has the ability to provide the most comprehensive staging information. In our experience, over 30% of patients were upstaged as a consequence of information obtained by 3-field dissection.

CONCLUSIONS

Radical esophagectomy can be done with low mortality and similar morbidity compared to conventional esophagectomy. It provides the most thorough staging information. Locoregional recurrence rates are substantially reduced. Our 49% 5-year survival rate suggests that prolongation of survival is possible, although future prospective randomized trials would be necessary to validate our findings. The future in treatment of esophageal cancer lies in our continued effort to improve locoregional control and survival. Another exciting avenue requiring further investigation is the use of novel targeted agents as an addition to our current treatment modalities.

NEW CT/SIMULATOR CONSTRUCTION IN RADIATION ONCOLOGY NEAR COMPLETION

A new CT/Simulator that will enable the Department of Radiation Oncology to provide the most accurate, patient friendly treatment planning services will be in operation shortly. With the current increasing use of Intensity Modulated Radiation Therapy (IMRT), the CT/Sim is an important clinical adjunct. IMRT technology allows for pinpoint placement of the maximum possible amount of radiation to the correct area and sparing of healthy tissue. CT/Sim allows for the most accurate and efficient plan development for IMRT. Currently, most IMRT patients are scheduled initially for the Simulator, and

then separately for the CT. These results are then used to develop the treatment plan. These two steps will now be accomplished more accurately and efficiently with one visit on the part of the patient to one very sophisticated piece of equipment, which combines the capabilities of the Simulator and CT in one. This recently purchased, new CT/Simulator, the Philips 100017 Brilliance CT Big Bore System, provides 16 slices per revolution and 2.4 cm volume coverage, allowing for the quick scanning of large areas of the body. It provides whole body, thin slice volume coverage that can reveal even

subtle pathology. Cone Beam Reconstruction Algorithm is a feature of this unit. This allows for true three-dimensional data acquisition and reconstruction in both axial and spiral scanning. Artifacts present in reconstruction are avoided or corrected by reducing pixel to noise ratio. As a result there is superior multislice image quality. UltraImage is another feature of this equipment. It includes hardware and software for enhanced visualization of soft tissue structures. The most difficult to image anatomic structures are most accurately represented because of significantly improved image quality.

PATIENT SUPPORT GROUPS

The American Cancer Society sponsors a “**Man-to-Man**” program for **prostate cancer** patients, which is held on the second Wednesday of every month from 6 p.m. to 7:30 p.m.

The American Cancer Society sponsors a “**Look Good-Feel Better**” program for **female cancer patients undergoing Chemotherapy and Radiation Therapy** on the second Monday of every month from 5:30 p.m. to 6:30 p.m.

The above two programs are held in the Anerena M. Anextis Conference Room in the Department of Radiation Oncology at NYHQ. To register, please call 1-800-ACS-2345.

TUMOR BOARDS/ PATIENT CARE CONFERENCES

The **Department of Radiation Oncology** has **New Patient Conferences** every Tuesday morning at 8 am.

Breast Tumor Board is held on the second and fourth Wednesday of every month from 12 to 1. Lunch is served. Some upcoming dates are April 11 and April 25.

Thoracic Tumor Board is on the third Wednesday of every month from 9 am to 10 am. An upcoming date is April 18.

Gyn Tumor Board is held on the first Wednesday of every month from 8 am to 9 am. An upcoming date is May 2.

General Tumor Board is held every Tuesday from 4 to 5.

There is one Continuing Medical Education (CME) credit awarded per each Tumor Board meeting attended.

All the above noted professional educational programs are held in the **Anerena M. Anextis Conference Room** in the **Department of Radiation Oncology**. Refreshments are served.



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