The Lung Cancer Dilemma

To the Editor:

I greatly enjoyed the article by Dr Benfield,1 which appeared in the August 1991 issue of Chest, particularly his challenge to "abandon tradition in favor of current evidence and approaches." We certainly need new approaches. To quote him, "the opportunity lies in the fact that we have mastered the surgical and radiotherapeutic methods necessary for local control." This mastery applies to surgery alone or to radiotherapy either alone or after surgery. The optimal combination of radiotherapy followed by resective surgery has not been explored. We have not been able to agree to try to treat non-small cell lung cancer with the logical and theoretically best combined therapy of modern full-therapeutic-dose radiotherapy followed by modern resective surgery.

I have two suggestions that might profoundly alter our thinking and may greatly improve our long-term results in locally advanced non-small cell lung cancer. First, I am personally convinced that modern preoperative radiotherapy can allow the surgeon to resect residual viable nodal and primary disease with long-term survival with a reasonable complication rate (morbidity and mortality). Second, manipulative trauma tends to spread cancer; therefore, invasive diagnostic procedures should be minimized, and manipulative staging should be avoided. The role of trauma in promoting metastases has been noted by Scanlon and Murthy.

Radiotherapy and surgery, in that order, are complementary. Radiotherapy works best at the rapidly growing periphery of the primary tumor, where there is no necrosis and the blood supply is best. Also, radiotherapy is best for treating minimal microscopic and macroscopic lymph node spread. Surgery, on the other hand, is employed optimally where the primary tumor is confined to the lung and where lymph node involvement, if any, is minimal.

My radiotherapy colleagues tell me that radiotherapy, as used today, should consist of continuous-course small fractions (150 to 200 cGy) involving the primary tumor and the area of spread from the lung either via direct extension or lymph nodes, using computerized dosimetry, progressively reduced fields, and multiple ports, so that a large total dose is reached (5,500 to 6,500 cGy). This format in itself can stabilize some advanced tumors. Surgery, on the other hand, should be used after such radiotherapy to remove the residual primary tumor with direct extension spread and residual unsterilized lymph nodes. Surgery and radiotherapy are both, by themselves, curative modalities, whereas chemotherapy and immunotherapy are not yet in themselves curative in non-small cell lung cancer, but can be added when better drugs are discovered.

In my own practice since the early 1960s, I have seen large-dose preoperative radiotherapy produce long-term survival. Kirschner2 had 20 percent long-term survival in T3 patients with proved N2 disease. Holmes and Ruckdeschel,3 in writing about the preoperative regimen with 5-fluorouracil, cisplatin, and radiotherapy, state that "one could compare this regimen either with radiotherapy alone with 50-60 Gy or with the same dose of radiation preceded by chemotherapy. It is our opinion that the community standard remain radiotherapy alone" [preoperatively]. As far as I know, this is the only mention in modern literature of the possibility of modern-dosage preoperative radiotherapy being tried.

Employing nonmanipulative, noninvasive scans to rule out distant spread and separating most locally advanced patients as to N1, N2, and N3, as well as T2, T3, and T4, disease might prevent further nodal or bloodstream spread, allowing preoperative radiotherapy and surgery to increase long-term survival. How does manipulative staging help the patient? After all, is it to the patient's advantage to know whether mediastinal nodes are involved if it is not going to alter the therapy? If there accrued only a small improvement in long-term results with use of the above idea, many patients would be saved, since the majority of cases of non-small cell lung cancer are advanced. Is it logical to use mediastinoscopy or anterior or conventional thoracotomy for staging to find only a few patients whose disease is primarily surgically resectable and also curable (resectable and curable are not the same)?

Trials employing these two suggestions would take years to implement. Meanwhile, most patients with curable locally advanced disease are being sent to the radiotherapist, having been invasively staged, and never are considered for potentially curative surgery afterwards because the surgeon does not want to try to operate for cure after full-dose preoperative radiotherapy. Our present management of locally advanced non-small cell lung cancer is not good. Isn't a try of something new indicated?

John S. Chambers, M.D.,
San Diego

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To the Editor:

Dr Chambers suggests that "modern preoperative radiotherapy can allow the surgeon to resect residual viable nodal and primary disease with long-term survival," and that "trauma tends to spread cancer . . . and manipulative staging should be avoided."

I consider it axiomatic in the management of cancer that complete and accurate staging is required if there is to be meaningful assessment of the results of treatment. Manipulating neoplasms is not the problem. The problem is that even the best currently available sampling method (biopsy) fails to provide fully reliable information about the stage and the biologic behavior of neoplasms. Error rates of about 10 percent to 30 percent have been fairly routine whenever the accuracy of imaging methods has been compared with the standard of histologic examination. Hence, I continue to feel that the benefits of invasive staging methods, employed with reasonable clinical justification, usually outweigh the risks of adverse effects.

Preoperative irradiation is a part of a number of trials that are currently seeking long-term control, and possibly cure, of cancers of the lung and the esophagus. For example, Southwest Oncology Group Protocol 8805 employs preoperative irradiation and cisplatin-based chemotherapy for patients with stage IIIA and IIIB tumors. My patients enrolled in this protocol have had some remarkable remissions of cancer locally and in the lymph nodes, but distant metastases in the brain and elsewhere nonetheless occurred in some cases. This is consistent with the experience of others, and it reminds me in some ways of my experience with preoperative irradiation trials and the adjuvant chemotherapy trials into which patients were enrolled in the 1950s. Faced with a frightening problem (lung cancer), one is quick to accept preliminary findings that may not stand the test of scientific scrutiny and the passage of time.

Although Dr Chambers' concepts are intuitively appealing, he has neither presented new evidence nor suggested new concepts. I know of no evidence that would justify treatment regimens outside of an approved protocol that would consist of nonoperative staging followed by preoperative irradiation and eventual resection of lung cancer. There is justification for careful clinical trials that include preoperative irradiation.

In short, I stand by my statement that we should accept change based upon new evidence. Such evidence will come from research.
An Unusual Cause of Electrical Alternans

To the Editor:

This electrocardiogram (ECG) (Fig 1) was recorded during an acute exacerbation in a patient with bronchial asthma. At that time his heart rate (92 beats per minute) was two times his respiratory rate (46 breaths per minute). As a result, the variation in the amplitude of QRS complexes that sometimes occurs with excessive respiratory movements occurred with alternate heart beats, giving an appearance of electrical alternans. This was most marked in lead AVL. The "electrical alternans" was abolished when the ECG was recorded in some leads (Fig 1, bottom row) with the patient holding his breath for the duration of two or three heartbeats.

The patient made an uneventful recovery with usual therapy for bronchial asthma. Clinical features, electrocardiography, plain radiographs of the chest, and echocardiography did not reveal any evidence of cardiac or pericardial disease.

Electrocardiographic electrical alternans is associated with pericardial effusion or myocardial disease. In the latter, it indicates an adverse prognosis. The mechanism causing an appearance resembling electrical alternans in this patient is probably uncommon; it has not been previously reported. Nevertheless, if electrical alternans is encountered in a patient whose heart rate is exactly twice his respiratory rate, the simple bedside maneuver described above may prevent diagnostic and prognostic confusion. Recently, the value of clinical information in the interpretation of ECGs in patients with suspected myocardial infarction has been questioned. This case shows how clinical correlation, as well as the presence of the interpreter when the ECG was being recorded, dramatically altered the interpretation of an ECG abnormality.

Nitin M. Apte, M.D.
 Bombay, India

Reprint requests: Dr. Apte, 10 Deepa Apartments, Malaviya Road, Vile Parle (East), Bombay 400057, India

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