

# HOSPITAL PHYSICIAN®

## ONCOLOGY BOARD REVIEW MANUAL

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The *Hospital Physician Oncology Board Review Manual* is a study guide for fellows and practicing physicians preparing for board examinations in oncology. Each manual reviews a topic essential to the current practice of oncology.

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## Stage III Non–Small Cell Lung Cancer

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## Stage III Non–Small Cell Lung Cancer

Nathan A. Pennell, MD, PhD

### INTRODUCTION

Lung cancer is the most common cause of cancer-related mortality in both men and women in the United States, with an estimated 213,000 new cases and 160,000 deaths in 2007.<sup>1,2</sup> Approximately 87% of lung cancer cases are non–small cell lung cancer (NSCLC).<sup>1</sup> Lung cancer has a dismal 5-year overall survival rate of 16%.<sup>1,2</sup> Of NSCLC cases, approximately one third of patients annually present with locally advanced (stage III) disease.<sup>3</sup> Although these numbers may be discouraging, it is important to recognize that stage III NSCLC is potentially curable with modern therapy.

Treating NSCLC patients with either early-stage or late-stage disease is relatively straightforward. Otherwise healthy patients with early-stage disease (stages IA–B and IIA–B) typically undergo surgical resection with curative intent and are considered for adjuvant chemotherapy (except in stage IA). Patients with metastatic NSCLC are treated with chemotherapy alone, and modalities such as surgery and external beam radiotherapy (EBRT) are reserved for palliation. However, the debate regarding the best treatment approach for patients with stage III NSCLC is somewhat contentious. The only guiding principle for patients with stage III NSCLC is that combined-modality treatment (ie, combinations of surgery, EBRT, and/or chemotherapy) is necessary.

Determining the best treatment approach for stage III NSCLC is difficult, as this is a catchall category that includes many patient groups with widely divergent prognoses and treatment needs. For example, stage IIIA patients with primary lesions involving the chest wall or proximal airways (T3) with hilar node involvement (N1) have a better prognosis than other stage IIIA patients and typically undergo primary resection followed by adjuvant chemotherapy, as in early-stage disease. Although patients with malignant pleural or pericardial effusions traditionally are included in stage IIIB, they have a prognosis identical to that of patients with metastatic disease and are treated with palliative chemotherapy. The tumor, nodes, and metastases (TNM) classification system will likely consider these

patients to be M1 (stage IV) in the new NSCLC staging recommendations that will be released soon.<sup>4</sup> Therefore, these patients will not be discussed in this review. Most patients with stage III NSCLC have mediastinal and/or supraclavicular nodal involvement. These patients may still be cured with combined modality therapy, with a goal of both local tumor control and eradication of micrometastatic disease; however, the optimal combination and timing of treatment modalities for these patients remains elusive. Using an illustrative case, this manual will address the approach to the patient with stage III NSCLC, including the initial work-up, staging, and treatment considerations.

### DIAGNOSTIC APPROACH AND STAGING

#### CASE PRESENTATION

A 65-year-old woman is referred to an oncologist by her primary care physician after the patient presents with a 6-week history of productive cough and blood-tinged sputum. She was treated initially with antibiotics, but her symptoms did not improve. On evaluation by the oncologist, the patient denies fever, chills, shortness of breath at rest or with moderate exertion, chest pain, bone pain, weight loss, headaches, and focal neurologic symptoms. She has an excellent Eastern Cooperative Oncology Group (ECOG) performance status score of 1 and is able to walk several flights of stairs without dyspnea.

The patient's medical history is significant for localized breast cancer 15 years ago, treated with mastectomy of the right breast and tamoxifen therapy for 5 years. She also has a 15-year history of mild hypertension. She previously smoked approximately 1 pack of cigarettes per day for 45 years but quit 3 years ago. She has no known exposures to asbestos or radon. Her only medications are daily low-dose aspirin and hydrochlorothiazide; she is not allergic to any medications. Her father, a lifelong smoker, died of lung cancer at age 80 years.

On physical examination, the patient is a thin, elderly woman in no apparent distress except for a persistent,