01 - SECTION 1 Diagnosis of Respiratory Disorders

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Approach to the Patient

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Respiratory System The majority of diseases of the respiratory system present with cough and/or dyspnea and fall into one of three major categories: (1) obstruc tive; (2) restrictive; and (3) vascular diseases. Obstructive pathophysi ology is most common and primarily results from airway diseases, such as asthma, chronic obstructive pulmonary disease (COPD), bronchiec tasis, and bronchiolitis. Diseases resulting in restrictive pathophysiol ogy include parenchymal lung diseases, abnormalities of the chest wall and pleura, and neuromuscular disease. Pulmonary embolism, pulmo nary hypertension, and pulmonary venoocclusive disease are examples of disorders of the pulmonary vasculature. Although many specific diseases fall into these major categories, both infective and neoplas tic processes can affect the respiratory system and result in myriad pathologic findings, including those listed in the three categories above (Table 295-1). Disorders can also be grouped according to gas exchange abnor malities, including hypoxemia, hypercarbia, or combined impairment; however, many respiratory disorders do not manifest as gas exchange abnormalities. As with the evaluation of most patients, the approach to a patient with a respiratory system disorder begins with a thorough history TABLE 295-1 Categories of Respiratory Disease CATEGORY EXAMPLES Obstructive pathophysiology— airway disease Asthma Chronic obstructive pulmonary disease (COPD) Bronchiectasis Bronchiolitis Restrictive pathophysiology— parenchymal disease Idiopathic pulmonary fibrosis (IPF) Asbestosis Desquamative interstitial pneumonitis (DIP) Sarcoidosis Restrictive pathophysiology— neuromuscular weakness Amyotrophic lateral sclerosis (ALS) Guillain-Barré syndrome Myasthenia gravis Restrictive pathophysiology— chest wall/pleural disease Kyphoscoliosis Ankylosing spondylitis Chronic pleural effusions Pulmonary vascular disease Pulmonary embolism Pulmonary arterial hypertension (PAH) Pulmonary venoocclusive disease Vasculitis Malignancy Bronchogenic carcinoma (non-small-cell and small-cell lung cancer) Metastatic disease Infectious diseases Pneumonia Bronchitis Tracheitis

Disorders of the Respiratory System PART 7 and a focused physical examination. Many patients will subsequently undergo pulmonary function testing, chest imaging, blood and sputum analysis, a variety of serologic or microbiologic studies, and diagnostic procedures, such as bronchoscopy. This stepwise approach is discussed in detail below. ■ ■HISTORY Dyspnea and Cough The cardinal symptoms of respiratory dis ease are dyspnea and cough (Chaps. 39 and 40). Dyspnea has many causes, some of which are not predominantly due to lung pathology. The words a patient uses to describe shortness of breath can suggest certain etiologies for dyspnea. Patients with obstructive lung disease often complain of “chest tightness” or “inability to get a deep breath,” whereas patients with congestive heart failure more commonly report “air hunger” or a sense of suffocation. The tempo of onset and the duration of a patient’s dyspnea are likewise helpful in determining the etiology. Acute shortness of breath is usually associated with sudden physiologic changes, such as acute airway narrowing (e.g., laryngeal edema, bronchospasm, or mucus plugging), acute hypoxemia (e.g., pulmonary edema, pneumonia, or pulmonary embolism), or sudden changes in the work of breathing (e.g., pneumothorax). Patients with COPD and idiopathic pulmonary fibrosis (IPF) experience a gradual progression of dyspnea on exertion, punctuated by acute exacerbations of shortness of breath. In contrast, most asthmatics do not have daily symptoms, but experience intermit tent episodes of dyspnea, cough, and chest tightness that are usually associated with specific triggers, such as an upper respiratory tract infection or exposure to allergens. Specific questioning should focus on factors that incite dyspnea as well as on any intervention that helps resolve the patient’s shortness of breath. Asthma is commonly exacerbated by specific triggers, although this can also be true of COPD. Many patients with lung disease report dyspnea on exertion. Determining the degree of activity that results in shortness of breath gives the clinician a gauge of the patient’s degree of disability. Many patients adapt their level of activity to accommodate progressive limitation. For this reason, it is important, particularly in older patients, to delineate the activities in which they engage and how these activities have changed over time. Dyspnea on exertion is often an early symptom of underlying lung or heart disease and warrants a thorough evaluation. For cough, the clinician should inquire about the duration of the cough, whether or not it is associated with sputum production, and any specific triggers that induce it. Acute cough productive of phlegm is often a symptom of infection of the respiratory system, including processes affecting the upper airway (e.g., sinusitis, tracheitis), the lower airways (e.g., bronchitis, bronchiectasis), and the lung paren chyma (e.g., pneumonia). Both the quantity and quality of the sputum, including whether it is blood-streaked or frankly bloody, should be determined. Hemoptysis warrants urgent evaluation as delineated in Chap. 41. Chronic cough (defined as that persisting for >8 weeks) is com monly associated with obstructive lung diseases, particularly asthma, COPD, and chronic bronchiectasis, as well as “nonrespiratory” dis eases, such as gastroesophageal reflux and postnasal drip. Diffuse parenchymal lung diseases, including IPF, frequently present as a per sistent, nonproductive cough. All causes of cough are not respiratory in origin, and assessment should encompass a broad differential, includ ing cardiac and gastrointestinal diseases as well as psychogenic causes. Additional Symptoms Patients with respiratory disease may report wheezing, which is suggestive of airways disease, particularly asthma. Hemoptysis can be a symptom of a variety of lung diseases, including infections of the respiratory tract, bronchogenic carcinoma, and pulmonary embolism. In addition, chest pain or discomfort can be respiratory in origin. As the lung parenchyma is not innervated with pain fibers, pain in the chest from respiratory disorders usually results

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