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Bronchiolitis obliterans organizing pneumonia induced by drugs or radiotherapy

GARY R EPLER

INTRODUCTION

Bronchiolitis obliterans organizing pneumonia (BOOP) is generally idiopathic; however, this lesion may be caused by more than 35 medications and from breast radiotherapy. These drugs include the cancer chemotherapeutic agents, antibiotics, cardiovascular drugs and immunosuppressive agents noted in Table 24.1.[1,2] Unproductive cough is a common early symptom and shortness of breath occurs later. Fever is also often seen early. Eosinophila is unusual. The radiograph shows bilateral patchy infiltrates, and the chest CT shows ground-glass opacities, often peripheral and pleural-based (Fig. 24.1).

As this is an inflammatory process, the prognosis is excellent, with almost all patients responding to withdrawal of the medication with or without a brief course of corticosteroid therapy.

DEFINITION AND OVERALL ASSESSMENT OF BOOP

DEFINITION

BOOP is defined as organized granulation tissue in the distal airways extending into the alveolar ducts and alveoli.[3] Sometimes organizing pneumonia is seen without the organized process in the bronchioles, although a thorough search of a sufficiently large size of tissue usually shows the typical BOOP lesion. The term 'cryptogenic organizing pneumonia' (COP)[4] is sometimes used for the idiopathic BOOP, while BOOP is used for known causes such as the drug-induced lesions, or systemic associated conditions such as connective tissue disorders or after organ transplantation. The term 'BOOP' is preferred because this is a distinct simultaneously involved lesion of distal airways and alveoli with internationally well-established causes, clinical course and outcome.

INCIDENCE AND EPIDEMIOLOGY

Drug-induced BOOP may occur as frequently as 15 per cent among individuals taking high-dose amiodarone, but it is generally rare, occurring in less than 0.1 per cent of patients receiving a medication. The process occurs in men and women equally and at all ages. Thus far, there have been no specific risk factors such as genetic pleomorphisms established for the development of the drug-related BOOP lesion.

CLINICAL PRESENTATION

The clinical presentation is usually subacute with a nonspecific cough and gradual onset of shortness of breath. There usually is no sputum production although a small amount of clear sputum may occur. Haemoptysis occurs in rare situations if alveolar haemorrhaging is part of the BOOP process.

Physical examination indicates bilateral end-inspiratory fine crackles, and there is no wheezing, rhonchi or finger clubbing. Pulmonary function tests show a decreased vital capacity and total lung capacity with no airflow obstruction. Virtually all patients have a decreased diffusing capacity.

The chest X-ray shows bilateral patchy infiltrates. Computed tomography is helpful in the diagnosis of drug-induced BOOP because the scans show ground-glass opacities located in all regions, often peripherally and pleural-based. During the early stage of drug-related BOOP, the ground-glass opacities may be subtle and sometimes unilateral. Focal nodular BOOP may occur. Honeycombing and traction bronchiectasis do not occur in drug-induced BOOP, but these findings may occur with agents such as amiodarone that are capable of producing concurrent pulmonary fibrosis. Pleural-based 'triangle' infiltrates are a common and specific chest CT finding for BOOP with the base of the triangle located along the pleura and the tip of the triangle towards the central mediastinum.