Bilateral Cavitary Disease with a History of Recurrent Upper Respiratory Infections

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The patient is a 49-year-old Indian woman with an acute cough, congestion, and low grade fever. Past history revealed many previous episodes of upper respiratory infections going back to childhood, and a somewhat “hoarse” voice. Family history, travel history and work-exposure history were non-contributory. Physical examination revealed a mildly distressed woman appearing her stated age, short, moderately obese, who spoke in a hoarse voice. A chest radiograph (Fig 1) revealed multiple thin-walled cysts with lower lobe predominance. A few air-fluid levels are present in these cysts. These changes were present on a radiograph obtained six years earlier.

FIGURE 1. Thin-walled cysts predominantly in the lower lobes with several air-fluid levels. There is bilateral bronchiectasis.
Diagnosis: Juvenile Laryngeal Papillomatosis

Cystic lung diseases can be either congenital or acquired. Included among congenital (neonatal) diseases would be cystic adenomatoid malformation, Mikity-Wilson syndrome and bronchopulmonary dysplasia. In the category of acquired airway diseases, such conditions as bullous emphysema, cystic bronchiectasis and septic pulmonary embolic disease would be possibilities. Other acquired forms of cystic lung disease include: infections, autoimmune diseases or neoplastic processes. The infectious disease category includes a large number of pathogens such as bacteria; staphylococci; mycobacteria, both typical and atypical TB; fungi; and the less common gram-negative pneumonias and parasitic diseases. All of these disease processes have the common denominator of an infectious organism causing an acute inflammatory process which, as it resolves, develops a cystic structure, a pneumatocele. None of these processes would be associated with hoarseness.

The autoimmune diseases, including rheumatoid necrobiotic nodules, Wegener’s granulomatosis and polyarteritis nodosa, as well as several diseases whose etiology is uncertain (sarcoidosis and histiocytosis X) are much more difficult to diagnose. None of the associated clinical or laboratory findings of these diseases were present. The neoplastic diseases may also be difficult to identify although they would represent metastatic foci rather than primary neoplasms. Within this category would be hematogenous metastases, Hodgkin’s disease and non-Hodgkin’s lymphoma and pulmonary spread of laryngeal papillomatosis.

The most common laryngeal tumor of infancy and childhood is a papilloma. The sex incidence is roughly equal and children are more prone to this affliction than adults. It is essentially a disease of childhood, although papillomatosis may persist into adult life, even into old age. Symptoms depend upon the extent and location of the lesions. Usually, the first symptom is hoarseness. Respiratory symptoms due to obstruction caused by papillomas are the only other consistent symptoms which may vary depending upon the extent and location of the lesions. Chronic pulmonary disease and frequent upper respiratory infections can be expected.

Various forms of therapy have been tried: excision, cryotherapy, irradiation, steroid injections, and carbon dioxide laser therapy; but none seems to be especially valuable. Currently, the goal of therapy is debulking by excision of the lesions. There have been previous reports of pulmonary complications of the spread of the papillomas into the distal bronchi and pulmonary parenchyma. Histologic proof of the reported cases had depended upon surgical specimens or autopsy studies to confirm the diagnosis.

The radiography of this patient demonstrates cavitary lesions and bronchiectasis in both lungs which, together with the history of laryngeal papillomatosis, represents pulmonary involvement. According to Rosenbaum et al, the diagnosis of bronchoalveolar spread of the laryngeal papillomas is quite certain when there are multiple cavitary mass densities which are smoothly rounded and thin-walled. This patient has had confirmation of the papillomatosis by laryngoscopy and biopsy.

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