



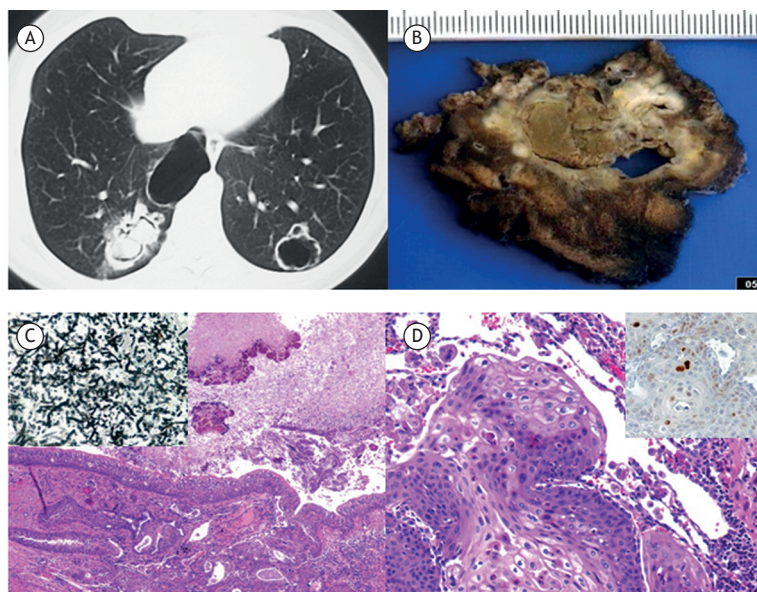
## Hemoptysis in recurrent respiratory papillomatosis: also think about aspergillosis

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### TO THE EDITOR:

A 24-year-old immunocompetent woman was admitted to the emergency room with sudden-onset pleuritic chest pain and hemoptysis. She had been diagnosed at birth with laryngeal and tracheal papillomatosis, having subsequently received treatment with antiviral agents and laser therapy until undergoing tracheal autotransplantation. CT revealed multiple nodular lesions of various sizes in both lungs. Most of the lesions were cavitated. In the right lower lobe, two adjacent cavities with central soft-tissue masses were surrounded by an air crescent sign, a finding that is consistent with mycetoma (Figure 1A). The patient was referred to our department for a bronchoscopy, a BAL, and a lung biopsy. The bronchoscopy showed no evidence of papillomatosis, and the BAL fluid was negative for neoplastic cells. The lung biopsy showed desquamative interstitial pneumonia with septate

hyphae. After being diagnosed with fungal infection, the patient received antifungal therapy, but neither her clinical condition nor her radiological features improved. Therefore, she underwent right lower lobectomy. Gross examination of resected specimens revealed multiple cystic lesions filled with soft, greenish brown material (Figure 1B). Histological examination revealed that the cavities contained a conglomerate of septate hyphae, fibrin, and inflammatory cells (Figure 1C). Fungal staining (Grocott methenamine silver staining) confirmed the morphological diagnosis of respiratory aspergillosis (inset in Figure 1C). Numerous papillary structures filled the alveolar spaces (Figure 1D). These features were consistent with a diagnosis of respiratory papillomatosis with aspergillosis. In situ hybridization revealed that the squamous cells contained HPV-11 genome (inset in Figure 1D). The patient died 15 months later, of disease-related respiratory failure.



**Figure 1.** In A, axial CT scan of the chest showing two adjacent cavities with central soft-tissue masses surrounded by an air crescent sign in the right lower lobe, a finding that is consistent with mycetoma; a cystic lesion with thick, irregular walls is also present in the left lung. In B, right lower lobe specimen showing that the main cystic lesion was filled with soft, greenish brown material. In C, histopathology (H&E staining; magnification,  $\times 40$ ) showing that the cavity was filled with numerous septate hyphae displaying morphological features consistent with a colonizing form of respiratory aspergillosis (fungus ball). Fungal staining (Grocott methenamine silver staining; magnification,  $\times 100$ ; inset in C) confirmed the diagnosis of respiratory aspergillosis. In D, note papillary structures filling the alveolar spaces. In situ hybridization revealed that the squamous cells contained HPV-11 genome (inset in D).

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Recurrent respiratory papillomatosis (RRP) is a rare benign condition characterized by the growth of multiple papillomas in the upper respiratory tract. Dissemination to the lower airways is uncommon. The trachea and proximal bronchi are involved in 5% of cases, and less than 1% of cases show lung involvement. RRP is more common in children (juvenile-onset RRP) and in adults in the fourth decade of life (adult-onset RRP). It is caused by HPV, particularly HPV-6 and HPV-11. HPV-11 is more often associated with an aggressive course, ultimately leading to pulmonary dissemination, malignant transformation, or both. Various hypotheses have been proposed to explain the distal spread of laryngeal papillomatosis, including contiguous tumor

spread, diffuse viral infection, and iatrogenic factors (e.g., those related to laryngoscopy, bronchoscopy, tracheostomy, and surgical manipulation). Clinically, RRP usually presents as nonspecific symptoms of airway involvement, including chronic cough, hoarseness, wheezing, voice change, stridor, and chronic dyspnea.<sup>(1,2)</sup>

Hemoptysis is common in cases of RRP complicated by recurrent pneumonia, obstructive atelectasis, tuberculosis, or malignant degeneration.<sup>(3)</sup> To our knowledge, there is only one reported case of RRP with hemoptysis due to aspergillosis.<sup>(4)</sup> In patients with RRP and hemoptysis, the air crescent sign on CT scans is suggestive of aspergillosis.

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## REFERENCES

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