

Treatment of Simple Pulmonary Aspergilloma

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CLINICAL SCENARIO

A 66-year-old woman with chronic obstructive pulmonary disease with bullae is found to have a right upper-lobe 1.4-cm spiculated cavitary lesion with an asymmetric nodule. Lung wedge resection pathology demonstrates aspergilloma, confirming a diagnosis of simple pulmonary aspergilloma.

THE CHALLENGE

Pulmonary aspergillosis (PA) causes a broad spectrum of diseases that can be categorized into three main groups depending on the patient's immune status (1). In invasive PA, *Aspergillus* invades the lung tissue as a result of an inadequate immune response. Invasive PA is therefore seen in immunocompromised hosts, with mortality rates exceeding 50%. Allergic bronchopulmonary aspergillosis occurs as a result of a hyperreactive immune response. Finally, chronic PA (CPA) involves *Aspergillus* colonization due to an adequate immune response. CPA tends to be a disease of the immunocompetent, though not exclusively (1). Simple PA (SPA), a solitary conglomerate of fungal hyphae within a pulmonary cavity, falls within the CPA category (2). An underlying pulmonary condition (e.g., cavitary tuberculosis [TB], non-TB mycobacterial disease, chronic obstructive pulmonary disease, bullous emphysema, sarcoidosis) results in

a cavity in which the aspergilloma colonizes. Because of its mobile nature, the fungal ball moves to gravity-dependent locations within the cavity on imaging, known as the Monod sign (3). In other diseases such as TB or pulmonary abscess, separation of the mass from the cavity wall creates a crescent-shaped airspace known as the air crescent sign. SPA is diagnosed if there is a fungal ball, microbiological or serological evidence of *Aspergillus*, minimal or no symptoms, and ≥ 3 months without radiographic progression. Currently, there is only weak to moderate evidence to guide SPA treatment (4).

TREATMENT PATHWAYS FOR SPA

1. If SPA is asymptomatic (i.e., cough, constitutional symptoms, hemoptysis) without progression of cavity size on imaging over a period of 6–24 months, the patient can be observed (4).
2. If symptomatic, the SPA should be surgically resected (4). If surgery cannot be tolerated, instillation of antifungal agents within the cavity can be considered (5).
3. Preoperative and perioperative antifungal therapy are not routinely recommended. However, if there is a risk of spillage during surgery, preoperative antifungal therapy with an azole

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ON THE FLY

- PA can be organized into invasive PA, allergic bronchopulmonary PA, and CPA.
- SPA, a type of chronic PA, is caused by *Aspergillus* colonizing an already present pulmonary cavity as a result of an adequate immune response.
- If it is asymptomatic without radiographic progression, the SPA can be monitored.
- If the SPA is symptomatic, surgical resection provides the most definitive and effective treatment.
- The use of preoperative and postoperative antifungal therapy is determined by the risk or occurrence of spillage during surgical resection.

ON THE FLY

A collection of concise, mobile-friendly resources to help create quick teachable moments.

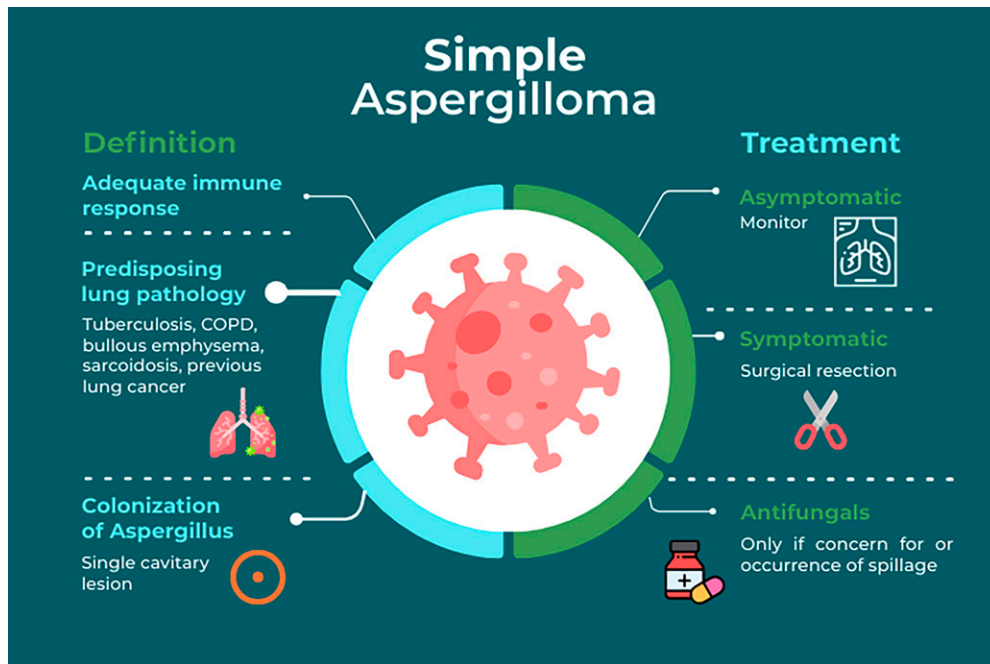


Figure 1. Definition and treatment of simple pulmonary aspergilloma. Simple pulmonary aspergilloma occurs when there is an adequate immune response to *Aspergillus* leading to colonization into a pulmonary cavity already present as a result of a previous pulmonary condition such as tuberculosis, chronic obstructive pulmonary disease, bullous emphysema, sarcoidosis, or lung cancer. Although monitoring is recommended for asymptomatic patients, surgical resection is the most effective treatment for those who are symptomatic. The use of antifungal agents is determined by the possibility or occurrence of spillage during surgery. Image designed using WePik (www.wepik.com). COPD = chronic obstructive pulmonary disease.

or echinocandin regimen can be started. If there is ultimately no spillage, the antifungal agent can be discontinued. If there is

spillage, postoperative therapy with an azole regimen should be continued for ≥ 4 weeks (4) (Figure 1).

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