

Scedosporium Colonization in Surgically Treated Bronchiectasis: Case Report

Cerrahi Olarak Tedavi Edilen Bronşektazide Scedosporium Kolonizasyonu

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ABSTRACT Cystic bronchiectasis was detected in right lower lobe on chest radiogram in the forty-year old woman with complaints of cough, sputum and haemoptysis for five years. On thorax tomography, polypoid lesions were detected in some areas of cystic bronchiectasis. Right lower lobectomy was performed due to cystic bronchiectasis. The cystic lesions in the resected lobe were filled with a black-green colored and semi-solid material. Hyphae and spores were observed in pathological examination, and *Scedosporium apiospermum* colonization was detected during traditional fungal examination. Although *Scedosporium* genus causes mycetoma frequently in immunocompromised patient, colonization of the bronchiectatic cysts of non-immunocompromised patient is rarely mentioned in the literature.

Key Words: Scedosporium; bronchiectasis; thoracic surgery

ÖZET Beş yıldır öksürük, balgam çıkarma ve hemoptizi şikayeti olan kırk yaşındaki kadın olgunun göğüs radyografisinde sağ akciğer alt lobda kistik bronşektazi tespit edildi. Toraks tomografisinde bronşektazik bölgedeki bazı kistlerin içerisinde polipoid lezyonlar saptandı. Olguya kistik bronşektazi nedeniyle sağ alt lobektomi uygulandı. Lobektomi materyalindeki kistik lezyonların içerişi yeşil-siyah yarı solid materyal ile dolu idi. Patolojik incelemede hif ve sporlar gözlemlendi ve geleneksel mantar incelemesinde *Scedosporium apiospermum* kolonizasyonu saptandı. Scedosporium ailesine ait mantarlar sıklıkla immünkompromize hastalarda miçetomlara sebep olurken, immünkompromize olmayan hastaların bronşektazik kistlerindeki kolonizasyonu gibi olgulardan literatürde ender söz edilmiştir.

Anahtar Kelimeler: Scedosporium; bronşektazi; torasik cerrahi

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The most effective treatment of bronchiectasis, known as irreversible destruction of bronchi, is resection. Follow-up with medical therapy may be considered, if bronchiectasis is localized in a small area in which bronchial secretion can be drained, or if there are bronchiectatic areas in both lungs that could not be surgically resected. When localized bronchiectasis is not controlled with medical treatment, there is need for resection of the affected area in order to prevent haemoptysis and to decrease the incidence of sputum and acute infections.

CASE REPORT

The case was a forty-year-old woman who had complaints of cough, sputum and haemoptysis for five years. She had never smoked and had no history

of accompanying lung or systemic disease. Whole blood counts, electrolytes, liver and lung function tests, alpha-1 antitrypsin and immunoglobulin levels were normal.

On the chest radiogram, there was cystic bronchiectasis in right lower lobe confirmed with chest tomographic scan (Figure 1). The biggest cyst diameter was 2 cm, and there were polypoid lesions in some cysts. Bronchial tree was found normal by fiberoptic bronchoscopy.

In operation it was observed that inferior pulmonary artery had given all segmentary branches at middle lobe bronchus level which caused compression on the lower lobe bronchus. Lobectomy of right lower lobe was performed for bronchiectasis. Cystic dilatation was seen in the whole lower right lobe in operation and some cysts were filled with green- black fragile material.

In pathological examination, bronchiectasis, inflammation, necrosis and fungus ball formation with hyphae and spores were detected. The tissue samples were inoculated on Sabouraud dextrose agar and brain heart infusion agar and were incubated at 30°C. After seven days of incubation, fungal colonies were cultured. Initially at the surface, a white cottony aerial mycelium was seen and then became light brown; the reverse side of the culture plate was also white and then became gray. A lactophenol cotton blue staining showed septate hyphae with short, slender conidiophores, bearing single conidia. The conidia were unicellular and oval, with the larger end toward the apex, and appeared flat cut off at the base. Colonial and microscopic morphology of the fungus was consistent with *Scedosporium apiospermum* (Figure 2).

Usually, surgical intervention with adjuvant antifungal therapy is recommended, however, the case was consulted with a pulmonologist and a clinical microbiologist and no further treatment was given. There was no complication or relapse during the postoperative and five-year follow-up period.

DISCUSSION

Scedosporium species are fungal pathogens capable of causing a wide range of infections from simple colonization to dissemination.^{1,2} The infection may



FIGURE 1: Thoracic scan demonstrates bronchiectatic area as well as masses within the cavities suspected of mycetomas.

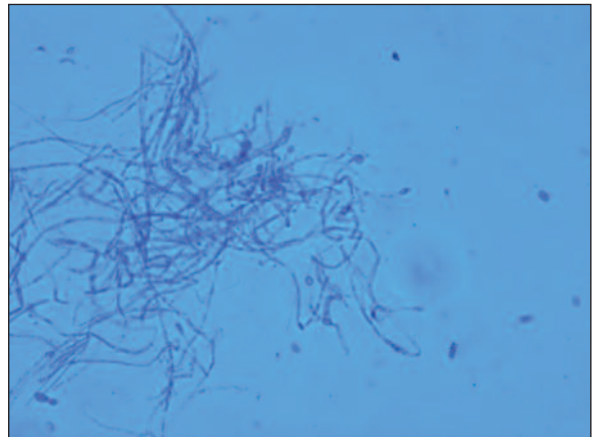


FIGURE 2: Thin walled, septate, branched hyphae with conidias of *Scedosporium apiospermum* is shown in culture sample from right lower lobectomy material (400X lactophenol cotton blue stain).

(See for colored form <http://akcigerarsivi.turkiyeklinikleri.com/>)

disseminate usually in immunocompromised individuals such as prolonged, severe granulocytopenia and those with T-cell-mediated immune dysfunction following cytotoxic therapy for lymphoreticular malignancy or after receiving a cytoablative pretransplant conditioning regimen.^{3,4} *Scedosporium* species infections were reported in few immunocompetent subjects who were infected directly due to subcutaneous implantation and surgical wound infection. Otomycosis, sinusitis, ophthalmologic diseases, arthritis, osteomyelitis, prosthetic vascular graft infections, endocarditis and chronic prostatitis were also reported previously.⁵

Colonization (84%) rather than invasive disease (16%) has been described in a recent Australian

study.⁶ Long-term colonization with these fungi has been reported in patients with structurally abnormal respiratory airways such as cystic fibrosis, pre-existing tuberculosis cavities, bronchiectasis or pathological air spaces of diverse etiologies. Although polypoid lesions of *Scedosporium* arising in the bronchiectasis are very rare, prior infections which resulted with a cavity were reported as predisposing causes of bronchial colonization.^{5,7,8} In our case, we assumed that the colonization developed as a complication of bronchiectasis secondary to abnormal and early bifurcation of arteries making compression on the right lower lobe bronchus. Dilatation of the bronchi due to chronic infection may impair the local host defenses and enable the fungus to colonize and proliferate.⁷ Isolation of saphrophytic molds from pulmonary specimens indicates a need for further investigation to identify pathological or anatomical predisposition to infection.³

Conventional mycological methods for detection and identification of *Scedosporium* spp. in clinical specimens, however, are insensitive and time-consuming, as culture samples may require up to 14 days to producing fungal growth adequate for morphological identification.⁹

Clinical and histopathological aspects of *Scedosporium apiospermum* infection were mostly similar to those of *Aspergillus* spp. The septate mycelia of fungi resemble to those of *Aspergillus*, *Fusarium*, *Paecilomyces* or other hyphomycete opportunists.

Medical treatment of *Scedosporium* infections can be difficult. They are usually resistant to antifungals such as fluconazole and flucytosine with only variable susceptibility to amphotericin B, itraconazole and ketoconazole, as well as to second generation azoles such as voriconazole and posaconazole.^{4,10,11}

None of the antifungal agents available today is fungicidal when tested against *Scedosporium apiospermum*.¹²

Surgery remains to be the effective treatment procedure of *Scedosporium* infections.^{7,12} It has been reported that early surgical debridement is effective although some authors suggest local and systemic antifungal therapy for bone and soft tissue involvement.³ It has been reported that the most potent method is surgical resection of the fungus ball for the treatment of intracavitary colonization in the lung.¹³ There are also cases curable by surgery alone as in our case.⁵

Persistent pulmonary cavities such as bronchiectasis might include mold colonization-not only aspergilloma-and lung resection remains only and effective treatment option because chemotherapy regimen doesn't affect these molds.

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