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Missed Diagnosis

Superadded aspergillosis on carcinoid bronchial adenoma leading to delayed diagnosis

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Summary: A review of aspergillosis in neoplastic disease revealed that most cases occur in association with malignant disorders. Amongst solid tumours it is mostly adenocarcinomas which are invaded by the fungus due to necrotic cavity formation. We here record the first reported association of aspergillosis with a benign carcinoid bronchial adenoma which was hidden by the fungal growth with a delay in diagnosis.

Introduction

Bronchial adenomas are known to be missed for long periods of time.[1] We report an association of aspergillosis over a carcinoid bronchial adenoma in an 11 year old girl leading to an initial diagnosis of intrabronchial aspergilloma.

Case report

An 11 year old girl was admitted with complaints of recurrent haemoptysis, cough and breathlessness after exertion, of 2 years duration. She had already received adequate anti-tubercular treatment with streptomycin, isoniazid and rifampicin from the referring hospital along with several courses of antibiotics and steroids. Serial chest X-rays showed persistent collapse of right middle and lower lobes.

Physical examination revealed a malnourished child with signs of right middle and lower lobar collapse. Other investigations did not reveal any abnormality. A working diagnosis of an intrabronchial space-occupying lesion, probably a bronchial adenoma, was made. Bronchoscopy revealed a velvety vascular intrabronchial mass in the right bronchus very close to bifurcation of trachea which bled with ease. Sputum and the tracheal aspirate culture grew *Aspergillus flavus*. A bronchial biopsy revealed chronic inflammation and *Aspergillus flavus* invading the bronchial tissue. On the tenth day of hospitalization she developed erythema multiforme on the face and dorsum of hands. Skin tests done with purified antigen of *A. niger*, *A. flavus* and *A. fumigatus*, however, failed to react. Precipitins to *A. flavus* were also negative. Tests done to study the immune status of the child were within normal limits.

Aerosolized amphotericin B, starting with 1 mg/kg/day and increasing gradually to 50 mg/day was continued for 3 months along with postural drainage. Haematological profile, renal and liver functions monitored during the therapy remained normal.

The child responded by expectorating out large amounts of brownish material which was positive for the fungus, on smear and culture, becoming sterile 20 days after initiation of treatment. Chest X-ray done after 2 months showed partial re-aeration of the right lung. Bronchoscopy revealed that the velvety vascular appearance was now replaced by a glistening white tumour in the right bronchus near the carina, almost blocking its lumen. An attempt at bronchography was not successful. As sleeve resection was not possible, pneumonectomy was done on the right side. The resected specimen revealed a large well circumscribed tumour 2.5 cm in diameter occupying the entire right main bronchus with ulceration of overlying mucosa. Extensive bronchiectasis was present in the right lung. Histopathology of the tumour confirmed the diagnosis of carcinoid adenoma. There was glandular differentiation with mucus production and focal osteoid metaplasia. There was no evidence of metastasis to the regional lymph nodes.

Recovery was uneventful. She is asymptomatic 2 years and 6 months following surgery.

Discussion

Pulmonary aspergillosis is known to be associated with underlying neoplastic disorders.[2] It may occur

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in generalized invasive form in immunosuppressed patients or localized over tumours. Malignant pulmonary tumours due to accompanying necrosis act as a nidus for growth of this fungus.[3] In gross appearance aspergillomas may mimic bronchial carcinomas so closely as to lead to the wrong planning of surgical resections.[4] A ball-like growth with velvety surface yielding aspergillus on histopathology, as well as culture, initially led us towards the diagnosis of aspergilloma. However, repeat bronchoscopy after the eradication of fungus by aerosolized amphotericin B revealed the underlying encapsulated tumour producing collapse of the right lung. Pneumonectomy, a major resection performed due to strategic location of the tumour near to the carina, was justified due to extensive bronchiectasis in the resected lung.

Pseudotumour obstruction of bronchus due to aspergillus in the absence of underlying tumour has been described.[5] Allergic reaction to the presence of fungus in the bronchus leads to production of an exudate comprising of mycelium, mucus, fibrin and cellular elements to produce bronchial blockage.[4] The over growth of fungal elements in our patient, who was neither immune compromised nor hypersensitive, could have had a similar effect. However, after eradicating the fungus it was found that the obstruction was due largely to the tumour.

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