distinguished. Thus, biopsy is required before beginning chemotherapy in order to identify high grade malignancies, as performed by Chapelier et al[2] in 71.9% of cases. Whenever possible, surgery is the best therapeutic option even if in some cases other treatments such as radiation and/or chemotherapy may be used pre- or postoperatively. In non-Hodgkin lymphoma, there is no consensus about the various management strategies available. In a case described by Faries et al,[3] the patient was treated for an immunoblastic B-cell lymphoma by partial sternectomy followed by 6 cycles of chemotherapy with no evidence of active disease 2 years later. Ishizawa et al[5] described an anaplastic large cell Ki-1–positive mass treated by radiotherapy and chemotherapy without surgery in a 14-year-old girl who died 7 months after diagnosis. We decided to treat our patient with chemotherapy because of the high grade of malignancy and the sensitivity of these tumors to this treatment. The outcome was good, without recurrence for 24 months.

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Tracheal Mucormycosis

Mucormicosis traqueal

To the Editor:

Mucormycosis is an opportunistic infection caused by fungi from the order Mucorales (class Zygomycetes), which are saprophytes found on the ground or in degraded organic matter. They cause a fungal infection that presents in various clinical forms and affects immunocompromised patients, often with a fatal outcome.[1] The main infections in humans are rhinocerebral sinusitis, pulmonary, cutaneous, and gastrointestinal involvement, and disseminated zygomycosis. Few cases of respiratory tract infection have been described in the literature.

We report a case of tracheal involvement in a 28-year-old woman with insulin-dependent diabetes and frequent episodes of ketoacidosis. The patient presented with fever, cough, dysphonia, and throat irritation that had persisted for 1 week. She experienced progressively worsening symptoms, with intense labored breathing and inspiratory stridor. Computed tomography revealed extensive thickening of the tracheal mucosa and a thick membrane in the tracheal lumen starting at the subglottis and extending to the distal third of the trachea. The lung parenchyma showed bilateral alveolar nodular involvement, nodules surrounded by a halo sign, interlobular septal thickening, and an area of condensation in the lateral segment of the middle lobe. Fiberoptic bronchoscopy revealed left vocal cord paralysis and highly inflamed whitish pseudomembranes in the tracheal lumen and mucosa (Figure). Bacteriologic examination of the tracheal pseudomembranes, performed with methenamine silver stain (modified Grocott's), revealed right-angled branching and broad aseptate hyphae characteristic of *Mucor*. Rigid bronchoscopy was recommended to clear the trachea, and the tracheal membranes were completely removed. The tracheal lumen remained clear and of good caliber, the mucosa was completely eroded, and there was an intense inflammatory response.

A complication of a severe pneumothorax occurred during bronchoscopy and was resolved with chest tube drainage. After histological diagnosis, treatment was initiated with amphotericin B, at a dose of 5 mg/kg/d (total dose, 275 mg/d). Although the clinical course was initially favorable, unilateral vocal cord paralysis persisted, and after 2 months the patient developed laryngotracheal stenosis from scarring as a late-onset sequela, requiring surgical treatment. Partial resection was performed on the cricoid cartilage and the first 2 tracheal rings with end-to-end anastomosis. The patient remained free of symptoms and in the 24-month follow-up period there were no signs of fungal infection recurrence.

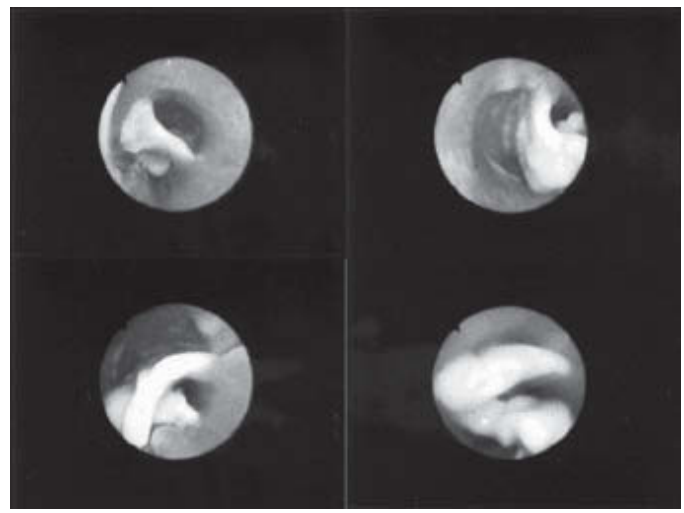

Figure 1. Endoscopic image of a tracheal pseudomembrane.

A search of MEDLINE revealed only 6 cases[2-6] of tracheal involvement (isolated or associated with lung involvement) reported in the literature since 1970, all in patients with diabetes aged between 20 and 79 years and with a predominant clinical picture of tracheal obstruction. Computed tomography findings are circular thickening of peritracheal soft tissues (with small gas bubbles) and irregular narrowing of the lumen. The most common bronchoscopic findings are edema and vocal cord paralysis, necrotic ulcers, nodular granulomas, and pseudomembranes in the tracheal lumen. Most of the circumstances described concurred in the case we report.

Diagnosis is confirmed with a culture of a biopsy sample when clinical and radiological findings suggest tracheal mucormycosis. Treatment with amphotericin B must be instituted as soon as possible and the tracheal membranes removed by rigid bronchoscopy, possibly eliminating the need for endotracheal intubation or tracheostomy. The added risk of barotrauma should be considered during rigid bronchoscopy with jet ventilation because of the possible valvular effect of the tracheal pseudomembranes. Mortality is very high: in the cases reviewed in the literature, 5 patients died. The only surviving patient showed no symptoms of tracheal obstruction. The outcome depends on the extent of lesions and on early diagnosis, treatment, and appropriate management of airway obstruction.

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