Tracheoesophageal fistula (TEF) in adult patients has been reported to mainly occur in patients with carcinoma of the lung and esophagus. TEF is an uncommon complication of leukemia and lymphoma. Aspergillus has newly emerged at a leading cause of death due to infectious fungal organisms in the immunocompromised host (1). Aspergillus bronchitis is a relatively indolent process that is typically diagnosed only on autopsy (2).

We report here on a case of TEF that evolved in a patient during chemotherapy for acute lymphoblastic leukemia (ALL).

**Case Report**

A 46-year-old woman presented with a 2-month history of a palpable, non-tender mass in her right lower neck. On admission, the laboratory studies were remarkable for the blast form cells; her white blood cell count was 26,200/mm³, the Hb was 4.1 g/dL and the platelet count was 28,000/mm³. The bone marrow biopsy revealed ALL. We started induction chemotherapy with cyclophosphamide, daunolubicin, vincristine, prednisone and L-asperginase. During chemotherapy, she had a trouble swallowing, a productive coughing and excessive secretions. Chest X-ray films showed relapsing bronchopneumonia, collapse of the left lower lobe and a 4 cm×2 cm sized, ovoid soft tissue mass plugging the left main bronchus (Fig. 1). Chest CT demonstrated an irregular soft tissue mass that was plugging left main bronchus (Figs. 2A and 2B). Bronchoscopy revealed a large TEF together with a white mass-like lesion that filled the lower trachea and left main bronchus to the distal 1/3 level (Fig. 3). The operative findings were TEF around the left carina, a 7 cm×2 cm sized oval-shaped defect of the tracheal cartilage and membranous part and a 7 cm×2 cm sized esophageal defect. The white soft tissue mass plugging the left main bronchus was a flap-like detachment of the tracheal and esophageal wall. We performed TEF division, primary repair of the esophagus and repair of the tracheal defect via patch closure with bovine pericardium. Tissue of tracheal biopsy and the white mass-like lesion in the lower trachea and left main bronchus re-
Revealed aspergillosis with infarction (Fig. 4). The patient displayed persistent leakage of secretions at the operation site and an increasing right pleural effusion. Esophagogram showed leakage of water soluble contrast media at the primary repaired site of the esophageal defect. So, we performed a second operation of cervical esophagogastrostomy and feeding jejunostomy. Thereafter, her general condition was improved without leakage of secretions at the operation site, and the right pleural effusion was gradually decreased. She was gradually administered a regular diet.

Discussion

The term TEF is used to refer any fistula formation between the esophagus and the trachea or lung, regardless of the origin of the lesion, including bronchoesophageal fistula. The development of TEF in the setting of malignancy is generally a poor prognostic event [3], and aspiration pneumonia is the immediate cause of death in the greater proportion of patients. Medical, surgical and endoscopic methods have been described to treat TEF. The only effective treatment is to exclude the fistula from the alimentary tract. Self-expanding metal stents are used for palliative reasons to seal the TEF and allow the patient to resume an oral food intake [4]. The patients with a large fistula who are in a poor medical condition or who suffer from repeated bouts of aspiration pneumonia require more urgent treatment. Our case also had a large fistula and relapsing aspiration pneumonia. Since long survival following treatment for leukemia is common, the early recognition and repair of TEF can be lifesaving.

Aspergillus is a ubiquitous air-borne fungal agent that is frequently found to colonize the paranasal sinuses of patients with chronic sinusitis, and it may form aspergillomata [5]. Aspergillus infections are on the increase as the number of immunocompromised patients continuous to grow. The most frequent underlying conditions in the patients with invasive pulmonary aspergillosis are leukemia and lymphoma, and prolonged granulocytopenia is a major risk factor. The increased use of immunosuppressive agents for organ transplantation...
tion and autoimmune disorders is partly responsible for this increasing incidence of patients with Aspergillus infections, and the growing number of patients infected with HIV likewise contributes to this population. The chemotherapeutic regimens used for the treatment of hematologic malignancies and solid tumors and for induction therapy for bone marrow transplantation also render a significant number of patients susceptible to opportunistic infections [5-7]. The pathophysiology of invasive aspergillus infection includes soft tissue extension, vascular invasion and infection [6]. This process can result in the transmural necrosis of a viscus (trachea, bronchus or the gastrointestinal tract). Vascular invasion may also result in hemorrhage severe enough to cause death [8]. Massive hemoptysis, bronchopleural fistula and TEF are possible with pulmonary involvement. The early recognition of aspergillosis is critical to achieve an optimal therapeutic result for immunocompromised patients. Delayed diagnosis and treatment may lead to the progression of infection and usually to a fatal outcome. Treatment of aspergillus infections in the immunocompromised population includes correcting the immunodeficiency, high dose intravenous amphotericin B, resection of the necrotic tissue and reconstruction of any involved structures when it is feasible (esophagus, trachea, vessels, etc) [9]. Invasive aspergillosis is being seen with increasing frequency as the population of immunocompromised patients continuous to grow. This is a report on TEF that resulted from invasive aspergillus infection in an immunocompromised host. Early recognition and intervention may be life saving for patients with this infection, which frequently portends a fatal outcome.

References


Fig. 3. Bronchoscopy revealed a large tracheoesophageal fistula with a white mass like lesion that filled the lower trachea and left main bronchus.

Fig. 4. Microphoto-image shows the aspergillus colony with septate hyphae. (Gomori-methanamine silver stain, X 200)
시원 강: 호흡기-소장 통로성 틈으로 미생물의 침입 

한국 Pathol 2006;54:269-272

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3. 결과

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