Esophagomediastinal Fistula as a Complication of Tuberculous Mediastinal Lymphadenitis

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In a 44-year-old female esophagomediastinal fistula was found secondary to tuberculous mediastinal lymphadenitis. Chest computed tomography revealed amorphous air collection in the subcarinal region of the mediastinum with mediastinal lymphadenopathy. Esophagography with gastrografin confirmed esophagomediastinal fistula. The patient was treated with antituberculous therapy with rifampicin, isoniazid, pyrazinamide and ethambutol, resulting in resolution of the esophagomediastinal fistula and mediastinal lymphadenopathy.

Key words: computed tomography, bronchoscopy, esophagography, esophagoscopy

Introduction

Tuberculous mediastinal lymphadenitis is a relatively rare form of tuberculosis in adult patients in Japan. The major complication of tuberculous mediastinal lymphadenitis is contiguous extension to adjacent organs including the esophagus, trachea, bronchus and aorta with a fistulous communication. We herein report a case of esophagomediastinal fistula secondary to tuberculous mediastinal lymphadenitis.

Case Report

A 44-year-old female was initially admitted to another hospital with a two-week history of fever, anorexia, and body weight loss. Chest roentgenogram showed mediastinal widening with atelectasis of the right middle lobe. Chest computed tomography (CT) revealed enlarged mediastinal lymphadenopathy. The smears of sputum and gastric aspirate were negative for acid fast bacilli. The patient underwent fiberoptic bronchoscopy, which revealed narrowing of the right middle lobe bronchus. Bronchial biopsy specimens were negative for malignancy or tuberculosis. She also underwent fiberoptic esophagoscopy, which showed ulcerative changes in the esophagus. However, biopsy specimens revealed nonspecific inflammation. Thereafter, the patient was referred to our hospital for further evaluation in July 1994. Physical examination on admission was unremarkable. Hemoglobin was 8.6 g/dl and hematocrit was 28.4%. Leukocyte count was 2,400/mm³ with a differential of 78% neutrophils, 17% lymphocytes, 4% monocytes and 1% basophils. Erythrocyte sedimentation rate was 79 mm/h. Tuberculin skin test was positive (25 x 20 mm). She was seronegative for human immunodeficiency virus and human T cell leukemia virus type 1. Chest roentgenogram on admission demonstrated mediastinal widening with atelectasis of the right middle lobe (Fig. 1). Chest CT showed increased densities in right middle lobe with mediastinal and right hilar lymphadenopathy with internal low density area and amorphous air collection in the subcarinal region of the mediastinum (Fig. 2). Fiberoptic bronchoscopy revealed widening of the carina and narrowing of the right middle lobe bronchus. Bronchial biopsy specimens were negative for malignancy or tuberculosis. However, Mycobacterium (M.) tuberculosis in bronchial aspirate was detected by polymerase chain reaction (PCR). Bronchial aspirate culture later grew five colonies of M. tuberculosis, which was susceptible to all antituberculous agents. Esophagography revealed fistulous communication between the esophagus and mediastinum (Fig. 3). Antituberculous therapy with rifampicin, isoniazid, pyrazinamide and ethambutol was started. The patient became afebrile two days after the beginning of the therapy. After 8 months of antituberculous therapy, chest CT showed improvement of mediastinal lymphadenopathy with no visible air collection in the mediastinum (Fig. 4).

Discussion

Esophageal involvement is very rare in tuberculosis. In an autopsy series, the incidence of esophageal tuberculosis was reported as 0.15% in patients dying of tuberculosis (1). More recently, Damtew et al reviewed 20 cases of esophageal tuberculosis reported in the English language literature (2). Mokoena...
et al reported 11 cases seen at their institution over a period of 18 years (3). Although primary esophageal tuberculosis is possible, contiguous extension from caseous mediastinal lymphadenopathy is the cause in most cases (4). Differential diagnosis for the mediastinal lymphadenopathy includes sarcoidosis, malignant lymphoma, metastasis of other malignancies. Thoracotomy or mediastinoscopy has been advocated to obtain tissue specimens for histologic diagnosis and culture. Bronchoscopy with transbronchial needle aspiration and CT-guided fine needle aspiration also have been reported to be useful in diagnosing tuberculous mediastinal lymphadenitis (5, 6). However, endobronchial involvement was found in 20% of the patients in one series (6). In the present case, tuberculosis was diagnosed by PCR technique and culture of bronchial aspirate.

Esophagomediastinal fistula has been rarely reported even
in patients with tuberculous esophagitis. In two reviews including 31 patients with tuberculous esophagitis, only two had fistulous communication between the esophagus and mediastinum (2, 3). Because of the anatomic proximity of involved mediastinal lymph nodes to the esophagus, esophagomediastinal fistula is mostly observed in the subcarinal area of mediastinum. The diagnosis of esophagomediastinal fistula may be difficult. Recently, Im et al reported air collection in the mediastinum by chest CT in five patients with tuberculous esophagomediastinal fistula (7). We also observed air collection in the subcarinal region of the mediastinum by chest CT in the present patient and confirmed their observation. Although we performed esophagoscopy and observed ulceration of the esophagus, we failed to find the opening of the fistula. Thereafter, we performed esophagography and found fistulous communication between the esophagus and the mediastinum. Medical treatment with antituberculous agents is usually sufficient for the treatment of tuberculous esophagomediastinal fistula (7). We treated the present case with a combination of isoniazid, rifampicin, pyrazinamide and ethambutol. Tuberculous tracheoesophageal fistula is also successfully treated with antituberculous therapy (8).

References