Acta Med. Nagasaki 38:247 – 248

Surgery for pulmonary aspergillosis

Masao Tomita, Hiroyoshi Ayabe, Katsunobu Kawahara, Yutaka Tagawa, Seiichirou Ide, Satoshi Yamamoto, Takeshi Nagayasu, Hiroshi Shingu, Nobufumi Sasaki

The First Department of Surgery, Nagasaki University School of Medicine

Surgery for pulmonary aspergillosis was evaluated in 20 patients who underwent surgery. These included pulmonary aspergillosis in 17, bronchial aspergillosis in 2 and pleural aspergillosis in 1, respectively. The operative procedures were mainly lobectomy and segmentectomy except for one in whom fenestration was carried out. With advances in development of drugs such as fluconazole and miconazole, surgical outcome was improved without any operative death related to surgery as far as healthy polmonary tissues are preserved. Nevertheless, it is emphasized that severity of preexisting disorder should be precisely assessed prior to surgery.

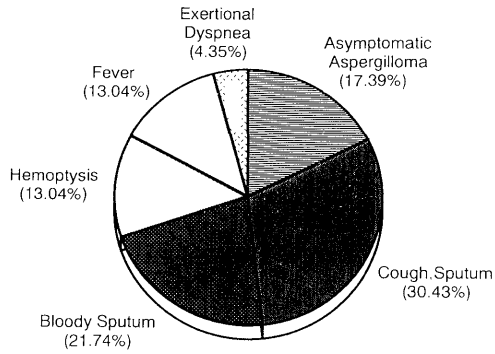

Fig. 1. Symptoms

Introduction

Since pulmonary aspergillosis had been reported in 1842 by Bennet, the treatment of choice is a great item of concern. In particular, surgical decision-making for pulmonary or pleural aspergillosis is one of the major dilemmas shared by the chest physician and the thoracic surgeon. The choice of methods is contentious. The purpose of this study is to analyze the surgical outcome and also to evaluate the validity of surgery for pulmonary aspergillosis on the basis of a result of clinical experience.

Patients

During the past 11 year period from January 1981 to December 1991, twenty-three patients with pulmonary aspergillosis were operated upon at the First Department of Surgery, Nagasaki University School of Medicine. The ages ranged from 19 to 70 with an average of 53. The main symptoms were cough and sputum with hemoptysis in 17 (73.9%). Asymptomatic four patients were included in this series. Another symptoms were fever in three and exertional dyspnea in one (Fig. 1).

Primary aspergilloma was seen in six. Underlying diseases were pulmonary tuberculosis in eight, bronchiectasis in two, and single cases of pneumonia, chronic brnonchitis, lung abscess and chronic empyema, respectively (Fig. 2). Aspergillomas mostly favored bilateral upper lobes, in particular, right upper lobe 65% of patients (Fig. 3).

The air-crescent sign was manifested as a radiological finding of pulmonary aspergillomas in this series. The cavitary shadow was revealed in a few cases. The air-fluid level shadow is characteristic of pleural aspergilloma (Fig. 4).

The surgical procedure of choice was mainly lobectomy. Segmentectomy was also used to preserve pulmonary function, And also fenestration was applied for palliation (Fig. 5). Main drugs preoperatively prescribed were AMPH and fluconazole (Fig. 6). It is indicated that surgery is required

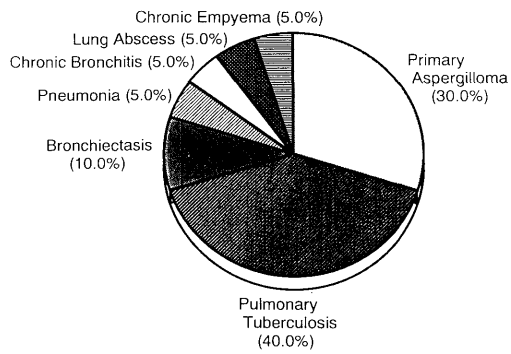

Fig. 2. Underlying Diseases

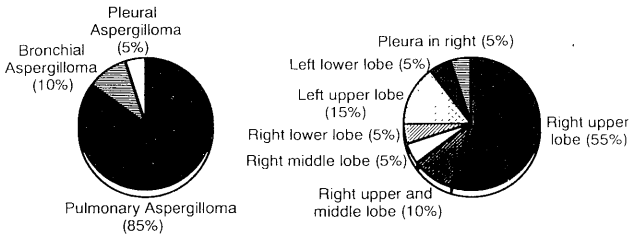

Fig. 3. Location of Aspergilloma

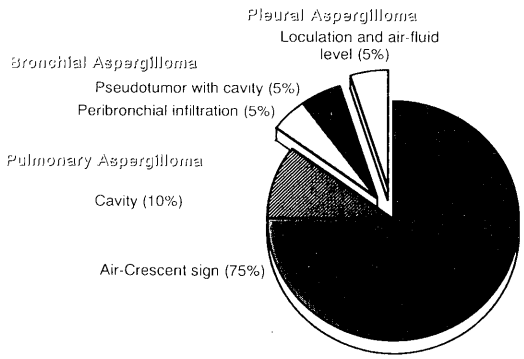

Fig. 4. Radiological Findings

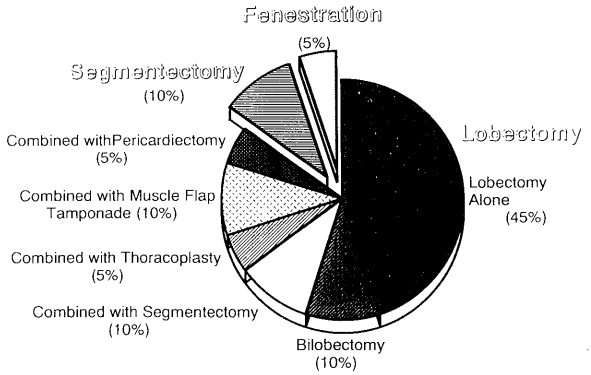

Fig. 5. Surgical Procedure

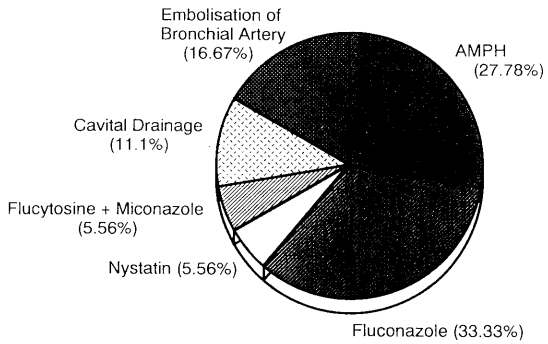

Fig. 6. Preoperative Treatment

for patients treated with miconazole and flucytosine recently developed. The surgical outcome was satisfactory except for one case of postoperative complication of empyema. Recent advances in new drugs promise a better surgical result and promote the improvement of surgical outcome.

Discussion

The first operative resection of an aspergilloma was carried out by Gerstl, Wideman and Newmann in 1948 (1). This rare disease continues to present as a major therapeutic challenge. It is accepted that pulmonary aspergillosis is represented as a complication of preexisting pulmonary diseases with invasion of damaged parenchym. In Japan, lung tuberculosis is a common preexisting disease of pulmonary aspergillosis. The clinical manifestation is progressive pulmonary infection and massive hemoptysis. Difficulty in determination of surgical indication exists in high mortality rate in the particular patients if surgery is undertaken. In fact, surgical strategy has been extended for the treatment of this disease by the development of potent drugs.

Established method of diagnosis in application of the molecular genetics serves as early detection and realization of disease progression in addition to serology (2). With development of new drugs, the treatment of this disease has progressed. Approach to the lesions by direct drug instillation was devised to avoid the side-effect of drugs (3) and also to anticipate the effectiveness of drugs. However, drug therapy has not proved to be of great value. Surgery is mandated for those who have no effect of drugs. It is now possible to precisely assess radiologic features of alteration in appearance of central mass and movement of the fungus ball by changing the position of the patient.

In general, surgical resection has been reserved for progressive aspergillosis and for those in whom the complications of this disease are life-threatening (4). In this series, the surgical outcome was satisfactory as far as healthy pulmonary tissues are preserved. On the contrary, surgeons should be aware of a poor result which is related to the severity of preexisting disorder including the defensive immunity of a host at the time of operation (5).

References

1) Gerstl, B Wideman WH and Newmann AV: Pulmonary aspergillosis; report of 2 cases. Ann Int Med 28:662, 1984.
2) Longbottom JL and Pepys J: Pulmonary aspergillosis: Diagnostic and C-Substance in aspergillosis fumigatus, J. Patho; Bacteriol. 88:141, 1964.
3) Peer ET: Case of aspergillosis treated with amphotericin B Dis. Chest. 38:692, 1961
4) Davies D: Pulmonary aspergillosis, Can. Med. Assoc. J. 89:392, 1962.
5) Schwartz J., Baum GL and Straub, M: Cavitary histoplasmosis complicated by fungus ball, Am. J. Med. 31:369, 1961.