Pulmonary aspergilloma: A 15 years experience in Dar es Salaam, Tanzania.

Mbembati N A A
Senior Lecturer,

Lema L E K
Professor of Surgery,
Thoracic Surgical Unit,
Muhimbili National Hospital, Dar es Salaam, Tanzania.
Correspondence to: Dr. Mbembati N, Muhimbili University College of Health Sciences,P O Box 65001, Dar es Salaam, Tanzania. Email address: <nmbembati@muchs.ac.tz>

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There is a paucity of literature on the prevalence and surgical treatment of pulmonary aspergilloma in African countries. This was a retrospective review of cases managed at the Thoracic Surgical Unit of Muhimbili National Hospital, Dar es Salaam, Tanzania, over a 15-year period from June 1986 to May 2000. Ten patients were operated on for pulmonary aspergilloma out of 345 major thoracic surgical operations performed by the unit during the period of study. There were eight males and two females. The surgical treatment offered included left upper lobectomy in six patients, right upper lobectomy in two, right lower lobectomy in one and extra pleural pneumonectomy in one other patient. There were three deaths. It is recommended that pulmonary aspergilloma should be considered as one of the differential diagnosis in any patient who presents with recurrent episodes of haemoptysis.

Introduction

Pulmonary aspergilloma is an infection of a pre-existing lung cavity by a fungus of the genus aspergillus forming a tumour-like "fungus ball" or "mycetoma"[1]. It is a potentially life threatening disease as it can present with massive haemoptysis[2]. It is a disease, which occurs superimposed on other chronic debilitating diseases such as pulmonary tuberculosis, bronchiectasis, lung abscess, sarcoidosis, bronchopneumonia and others[3]. While pulmonary tuberculosis and bronchiectasis are common diseases in developing countries, there is a paucity of literature on aspergilloma from these countries probably due to underreporting[3,4,5]. A review of literature from Tanzania reveals only one case of pulmonary aspergilloma reported in1982[4] while in Nigeria, only two cases were reported in the same year[3].This paper describes our experience with pulmonary aspergilloma gained over a 15 year period at Muhimbili National Hospital, Dar es Salaam.

Patients and methods

This was a retrospective study based on the work done at the Thoracic Surgical Unit of Muhimbili National Hospital (MNH), Dar es Salaam, Tanzania. The unit was established in 1986. MNH is a national referral and teaching hospital with a bed capacity of 1500. Data was retrieved from the register of thoracic surgical operations

performed from June 1986 to May 2000 inclusive. Information recorded included the age and sex, diagnosis, indications for surgery, intra-operative and postoperative complications and follow up outcome.

Results

A total of 345 patients had major thoracic surgical operations done during the 15-year period of which 10 (2.9%) had surgery performed for pulmonary aspergilloma. Eight of the patients were males and two were females. Table 1 shows their age distribution. The ages ranged between 19 and 55 years. Only two patients were aged less than 30 years. All the ten patients presented with recurrent haemoptysis and a "fungus ball" in a cavity with an air halo on the chest radiographs. The indication for surgery was recurrent haemoptysis. The type of operations performed is shown in table 2. Left upper lobectomy was done in 6 patients. There were three postoperative deaths. One patient died within 10 hours due to soiling of the other lung, the second died in the third week due to severe pulmonary sepsis while the third, whose cause of death was not established, occurred within 6 hours after surgery.

Table 1 Age and sex distribution

Age group	Male	Female	Total
<20	1	0	1
20-29	1	0	1
30-39	2	1	3
40-49	3	0	3
50-59	1	1	2
Total	8	2	10

Table 2 Operative Procedure

Operative procedure	No. of cases
Left upper lobectomy	6
Right upper lobectomy	2
Right lower lobectomy	1
Extrapleral pneumonectomy	1

To give light on the prevalence of other related diseases, during the period under review, 64 (18.6%) of patients had surgery for tuberculous empyema, 40 (11.6%) for tuberculous pericardial disease and 12 (3.5%) were for residual bronchiectasis.

Discussion

Aspergilloma is a rare condition in Tanzania despite the fact that pulmonary tuberculosis is quite common. Ten cases seen over a period of 15 years in a national referral hospital, gives an average of less than one case a year although it is possible that some cases which were asyptomatic may have been missed. This paper discusses only the cases that had surgery. Prior to June 1986, only one case had been reported in Dar es Salaam in 1982. Similarly, in Nigeria, only two cases had been reported in the same year[4]. However, in South Africa, the disease appears to be more common, with 22 cases being reported in one hospital over a two-year period[5].

All our patients presented with recurrent haemoptysis. Eight of them had been treated for pulmonary tuberculosis. In the other two, the underlying disease could not be established. In most series, tuberculosis has been found to be the most common underlying disease[3,5,6,7]. However a study from German revealed that bronchiectasis was the most common underlying disease, accounting for 10 out of 18 cases of aspergilloma seen in a six-year period[2]. None of our patients operated on for residual bronchiectasis over the same period had aspergilloma.

The indication for surgery in the present series was recurrent haemoptysis. This had been the indication in most reported series as it may be life threatening[1,2,5,6,7,8]. The other indications for surgery include chronic cough, minor but recurrent episodes of haemoptysis with radiological evidence of air-crescent lesions or

indeterminate lung mass[2,7]. In general, surgery should be offered for symptomatic disease and not prophylactic for asymptomatic radiological lesions[1,5,8]. Surgery should not be taken lightly in these patients since it is difficult and complication-prone due to chronic infection, fibrosis, longstanding lung infection, poor pulmonary reserve and sometimes there may be associated malnutrition[2,5,7]. Thus, preoperative evaluation and patient selection are very important[2].

In this series, surgical forms of treatment offered were left upper lobectomy in six, right upper lobectomy in two and right lower lobectomy in one patient. One had an extra-pleural pneumonectomy. In a series of 72 patients by Chen[7], lobectomy was also the preferred procedure and he suggested that the extent of resection should be determined by the location of the aspergilloma and the patient's lung reserve.

In extensive lung disease extra pulmonary resection is preferred to transpleural resection because the pleuropulmonary inflammatory disease rarely extends outside the parietal pleura, so that a plane exists between the parietal pleura and the endothoracic fascia; and if this plane is entered, blunt dissection allows mobilization of the lung off the chest wall[5]. This was done in one of our cases.

Surgery for aspergilloma is not without complications. The complications reported in most series include those related to sepsis including empyema, wound sepsis and septicaemia, persistent air-leak and bronchopleural fistula[2,7]. In our series, one patient died due to severe pulmonary sepsis, while the other was due to soiling of the normal lung. This stresses the need for perioperative antibiotic prophylaxis as well as ensuring proper endobronchial intubation during anaesthesia . One also needs to ensure that any underlying active tuberculosis is adequately treated before surgical intervention. The mortality rate after surgery for aspergilloma has been reported to vary between 1.5% and 24%[7,9]. In our series, 3 out of 10 patients died. In conclusion pulmonary aspergilloma does occur in the Tanzanian population and ought to be considered as a differential diagnosis in a patient presenting with repeated episodes of haemoptysis especially if such patient has a past history of treatment for pulmonary tuberculosis. Surgery is the treatment of choice for those patients with pulmonary aspergilloma presenting with recurrent haemoptysis.

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