

## AmBisome<sup>®</sup> treatment of pulmonary aspergillosis in a patient with tuberculosis

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**Abstract.** This case report describes the history of a patient with pulmonary tuberculosis. As part of the diagnostic work-up a transthoracic biopsy was performed which resulted in a lung collapse. After one month of standard therapy for tuberculosis, the patient was admitted to our hospital for a clinical and surgical re-evaluation. Microbiological examination showed the presence of *Aspergillus niger* and *Pseudomonas aeruginosa*. Treatment with AmBisome, ciprofloxacin and imipenem was started: the patient responded well with good clinical improvement. After 5 months of anti-tuberculous therapy, culture of pleural fluid was negative; the right lung remained collapsed but sterilization of the pleura will allow future surgery. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** AmBisome, aspergillosis, immunocompromised patient

### Introduction

The appearance of a mould infection is seen in patients who are immunocompromised as a result of cell-mediated immune responses depressed by HIV infection, leukaemia, lymphoma and immunosuppressive therapy; also diseases that are less aggressive, for example, diabetes, renal failure, COPD, may favourite a mycosis whose progression is enhanced by organ alteration. Currently used antifungal agents have significant side effects; interactions and contra-indications with other drugs restrict their effectiveness.

Liposomal amphotericin B (L-AMB) is an innovative formulation of amphotericin B deoxycholate where the insertion of phospholipids into liposomes reduces the toxicity of amphotericin B and has strengthened the therapeutic efficacy allowing the use of high doses which appear to be reasonably well tolerated.

### Case report

A 65-year old man, smoker, diabetic undergoing treatment with oral therapy, was admitted to our cli-

nic for a medical and surgical re-evaluation of his tuberculosis in his right lung, complicated and worsened by a pneumothorax, with open drainage. The diagnosis was confirmed by a transthoracic biopsy which, however, resulted in collapse of the lung (Figure 1). The patient at that time had been treated with rifampicin, isoniazide and pyrazinamide over a 1 month period.

Blood examinations showed: creatinine 1.9 mg/dL, urea 68 mg/dL, PCR 59 mg/L, moderate proteinuria, as well as the well-known parameters associated with diabetes. Video assisted thoracoscopic surgery (VATS) showed a coarctate lung with pleural thickening, coated with a layer of fibrinous tissue on both sides and a clear fistula in the upper lobe.

A partial pleurectomy and decortication were carried out but only resulting in poor enlargement of the lung (Figure 2). Bronchoalveola lavage and pleural washings were negative for acid-fast bacilli (AFB). A biopsy was culture-positive for *Aspergillus niger*. However, this was not treated. The patient was discharged and a treatment plan to include rifampin and isoniazid, pleural washings with povidone-iodine 5% was formulated with a view to undertake a new surgical evaluation to resolve the collapsed condition of the lung.



Figure 1 - Collapse of the lung

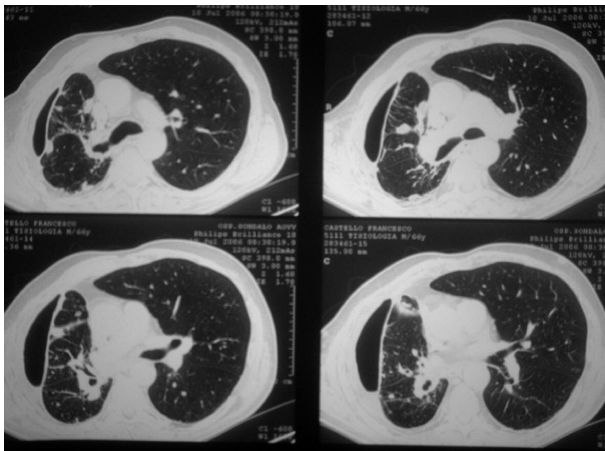


Figure 2 - Poor enlargement of the lung

The patient was admitted again to the Department of Respiratory Medicine because of the appearance of fever for the previous 10 days, lack of appetite and weight loss. Pleural washings appeared to be purulent with traces of blood and contained coarse fibrinous fragments. Cultures were positive for AFB, *Pseudomonas aeruginosa* and *Aspergillus niger*. Treatment was started with imipenem iv and ciprofloxacin instilled directly into the pleural cavity. However, there was poor clinical improvement. A new microbiological examination showed the persistence of a high

burden of *Aspergillus niger*. Due to the presence of renal failure the patient was started on L-AMB at a dose of 3 mg/kg/day for 12 days. During therapy the patient exhibited only modest shivers and transitory hypokalemia. The patient responded well with good clinical improvement and the disappearance of fever, reduction of inflammatory signs and clearing of the pleural fluid. Cultures were negative.

## Discussion

This case report shows a double peculiarity. First of all we have not considered the possibility of mould infections in the pleural cavity caused by saprophytic fungi for some considerable time, especially in the setting of a persisting pneumothorax and the presence of a drainage tube. It is well known that partial immunological suppression, induced by the well-known diseases such as tuberculosis, renal failure and diabetes can predispose, in association with the local unit situation, the development of bacterial and fungal infections.

Secondly, the choice of antifungal treatment must consider the side effects regarding renal function, a well-known consequence during therapy with conventional amphotericin B, the main drug of choice for the treatment of Aspergillosis.

Alternative choices such as itraconazole solution may be more useful for maintenance treatment where a good improvement after initial iv therapy (1) has been showed.

Compared to voriconazole, liposomal amphotericin B, in accordance with an analysis of the literature, shows an equivalent or superior efficacy in the treatment of invasive fungal infections (2, 3). In its liposomal formulation, amphotericin B exhibits prolonged stability in the plasma with high serum levels and a high concentration in infection foci.

The use of amphotericin B is indicated in patients with a variety of renal diseases (renal failure due to, or not due to previous therapy with conventional amphotericin B or a renal transplant), in patients who have had side effects despite premedication, in patient with hypokalemia not responding to substitution therapy and in patients with bronchospasm in the course

of amphotericin B deoxycholate therapy. In this case report a slight increase in the creatinine level, falling to normal values after the end of treatment was shown. Continuation of pleural washings as above described, alternating with sodium hypochlorite solution, and good glycometabolic status being maintained with insulin, prevented after 5 months of treatment any relapses of infection in the pleural cavity. The patient's good clinical and microbiological conditions may allow a possible future surgical approach.

## References

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## Errata corrigere

*Disseminated invasive aspergillosis in a patient with acute leukaemia*  
Magnús Gottfredsson, Hlíf Steingrimsdóttir

Acta Biomed 2006; 77 Suppl 2: 10-3

Please find the list of corrections below.

- Abstract, p. 10, line 7 from above: delete "(three samples)"
- Introduction, p. 10, left column, line 6 from above: replace "candidiaosis" with "candidiasis"
- Introduction, p. 10, right column, line 3 from above: delete "toxicity"
- Case report, p. 11, left column, line 17 from above: replace "cCulture" with "culture"
- Case report, p. 11, left column, line 19 from above: delete "At this time point"
- Case report, p. 11, left column, line 21-22 from above: put period after "infiltrates". Delete "and a downward trend in C reactive protein (CRP) was seen"
- Case report, p. 11, left column, line 23 from above: add the following after "developed": "after only two days after initiation of therapy."
- Case report, p. 11, left column, line 24 from above: delete "(only two days)"
- Case report, p. 11, left column, line 39 from above: delete the entire sentence "The patient was... and CVVHF"
- Discussion, p. 12, left column, line 13 from above: delete: "U, but"
- Discussion, p. 12, left column, line 13 from above: replace "updated" with "Updated"
- Discussion, p. 12, left column, line 14 from above: delete "clinical" and delete "complied"
- Discussion, p. 12, left column, line 16 from above: delete "are expected to"



PRINTED IN DECEMBER 2006  
BY MATTIOLI 1885 SPA  
FIDENZA (PR) - ITALY