

# Surgical Treatment of Invasive Pulmonary Fungal Infections in Immunocompromised Pediatric Patients: *Aspergillus* spp and other emerging fungi

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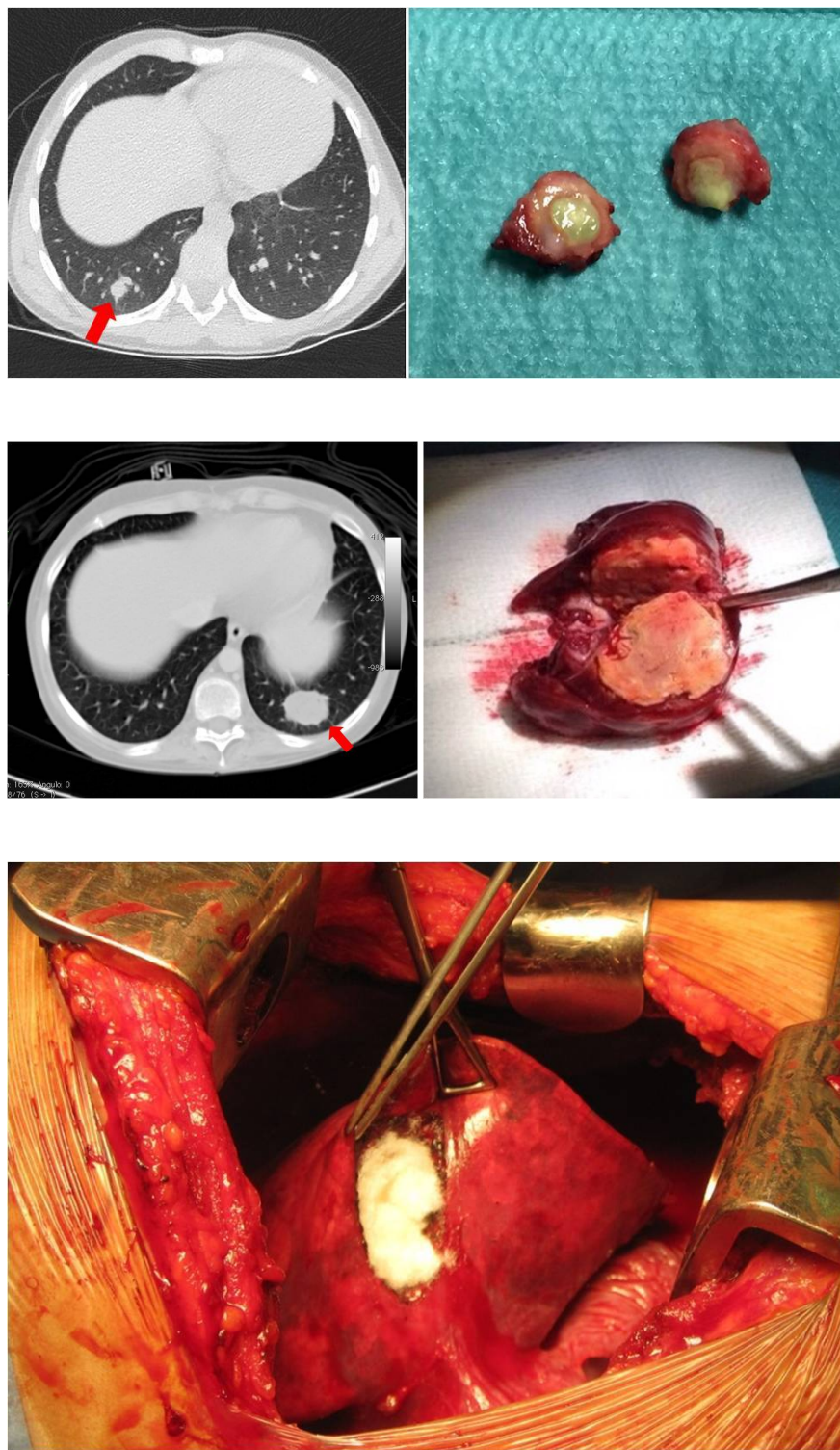
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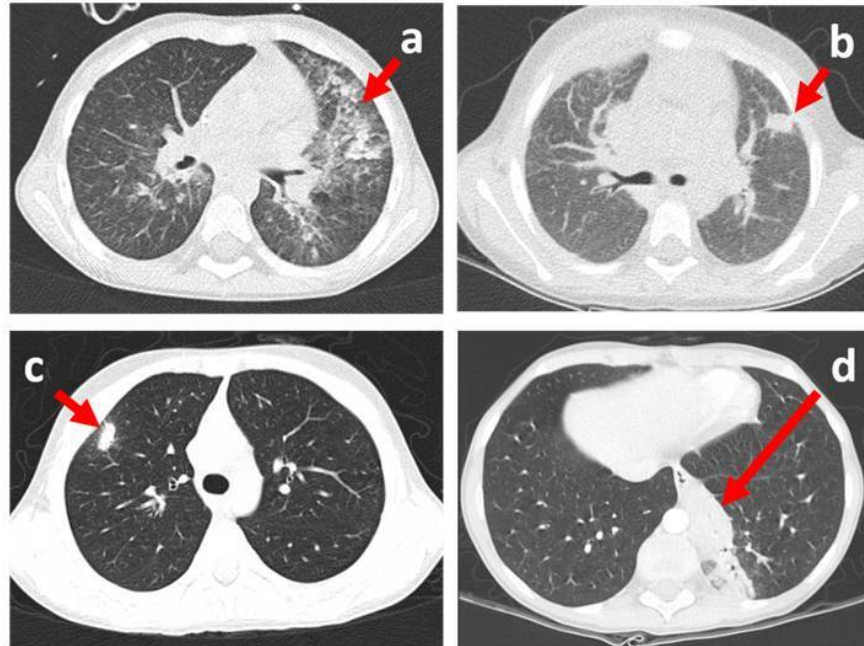
## Abstract

**INTRODUCTION:** Invasive Pulmonary Fungal Infections (IPFI) represent a diagnostic and therapeutic challenge. The exact role of surgery is not well defined. This study aims to analyze our experience with surgical treatment of IPFI in immunocompromised pediatric patients and, secondarily, to compare the IPFI caused by *Aspergillus* spp. with other fungal infections. **METHODS:** retrospective review (2000-2019) of patients with IPFI surgically treated at our pediatric institution. Statistical analysis was used to compare data between *Aspergillus* spp. and non-*Aspergillus* IPFI. **RESULTS:** twenty-five patients (64% females) underwent 29 surgical lung resections. Median age at surgery was 7.19 years (1.63-19.14). The most frequent underlying condition (64%) was acute leukemia. Surgical indications included persistence or worsening of symptoms and pathological image findings (52%) or asymptomatic suspicious lesions in patients scheduled for intensive cytotoxic treatments or HSCT (48%). All patients underwent atypical lung resections, except one lobectomy. *Aspergillus* spp. was the most frequently isolated pathogen (68%). Follow up was 4.07 years (0.07-18.07). Surgery-related mortality was 0% but 4 patients died in the 100 days following surgery (2 due to disseminated fungal infection); the remaining 21 didn't show signs of IPFI recurrence. Non-specific consolidations on CT scan were more frequent in non-*Aspergillus* IPFI ( $p<0.05$ ). **CONCLUSIONS:** surgical treatment of IPFI should be considered as part of the treatment in selected pediatric immunocompromised patients, and it may have both diagnostic and therapeutic advantages over non-surgical management. When there is clinical suspicion of IPFI but CT scan shows unspecific alterations, the possibility of a non-*Aspergillus* IPFI should be considered.

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