



POSTPARTUM INVASIVE PULMONARY ASPERGILLOSIS CAUSED BY ASPERGILLUS FLAVUS: A RARE CASE REPORT

Pulmonary Medicine

**Mummaneni
Rashmika**

Junior Resident.

Ulhas Jadhav

Professor, Dept Of Respiratory Medicine.

Pankaj Wagh

Associate Professor, Dept Of Respiratory Med.

Poonam Patil

Junior Resident.

Harshith Reddy

Junior Resident.

ABSTRACT

Background: Invasive pulmonary aspergillosis (IPA) is a rare fungal infection that predominantly affects individuals with compromised immunity. Its occurrence in otherwise healthy women during the peripartum or postpartum period is exceptionally uncommon. Physiological immune modulation during pregnancy may transiently increase susceptibility to opportunistic fungal pathogens such as *Aspergillus* species. **Case Presentation:** A 25-year-old woman, one month following cesarean delivery, presented with productive cough lasting 20 days and progressive exertional dyspnea for 10 days. She had no prior history of asthma or chronic respiratory illness. HRCT thorax showed collapse-consolidation with air bronchograms in the left inferior lingular segment and an abrupt cut-off of the segmental bronchus, suggesting a mucus plug or obstruction. Bronchoscopy revealed thick mucoid secretions and a mucous plug occluding the left lingular lobe bronchus. Bronchoalveolar lavage (BAL) analysis demonstrated septate fungal hyphae on KOH mount, with culture confirming growth of *Aspergillus flavus*. The BAL galactomannan index was significantly elevated (2.3178; normal <0.25), whereas serum total IgE and *Aspergillus*-specific IgE levels were within normal limits. The patient was started on voriconazole 200 mg twice daily for six weeks, resulting in complete clinical and radiological recovery. **Conclusion:** This case highlights the importance of recognizing invasive aspergillosis even in immunocompetent postpartum women presenting with non-resolving pneumonia. Bronchoscopy and galactomannan testing are essential for early diagnosis, and timely antifungal therapy can ensure favourable outcomes.

KEYWORDS

Invasive pulmonary aspergillosis, *Aspergillus flavus*, postpartum infection, galactomannan, voriconazole, pregnancy-related fungal infection

INTRODUCTION

Invasive pulmonary aspergillosis (IPA) is an aggressive fungal infection caused primarily by *Aspergillus fumigatus* and *Aspergillus flavus*. It is most often encountered in individuals with compromised immune function, such as those receiving chemotherapy, corticosteroids, or post-transplant immunosuppression [1].

Although pregnancy is not typically considered an immunodeficient state, it induces a temporary shift in immune balance favoring Th2-type immunity and suppression of cell-mediated responses to allow fetal tolerance [2]. This altered immune status, combined with the physiological stress of surgery or exposure to broad-spectrum antibiotics during delivery, can predispose to opportunistic infections.

Reports of IPA in pregnant or postpartum women are extremely rare, but the condition carries significant morbidity and diagnostic challenges [3]. This report describes an uncommon case of *Aspergillus flavus*-induced invasive pulmonary aspergillosis in an otherwise healthy postpartum woman, successfully managed with voriconazole.

METHODOLOGY

This report describes a prospective single case study conducted in the Department of Pulmonology at a tertiary care hospital.

Clinical Evaluation:

A detailed medical and obstetric history was obtained, followed by a complete clinical examination focusing on respiratory symptoms, onset, and duration.

Radiological Assessment:

A high-resolution computed tomography (HRCT) scan of the chest was performed to identify parenchymal lesions and airway abnormalities.

Bronchoscopy And Sample Collection:

Fiberoptic bronchoscopy was performed under local anesthesia. The left bronchial tree was visualized, and bronchoalveolar lavage (BAL) samples were collected from the lingular segment for microbiological and serological evaluation.

Laboratory Investigations:

- Direct microscopy (KOH mount) to detect fungal elements.

- Culture on Sabouraud Dextrose Agar to identify fungal growth.
- BAL galactomannan assay (enzyme immunoassay) to confirm invasive infection.
- Serum total IgE and *Aspergillus*-specific IgE levels were assessed to exclude allergic bronchopulmonary aspergillosis.

Treatment Protocol:

The patient was started on oral voriconazole 200 mg twice daily for six weeks as per established IDSA recommendations [4]. Regular clinical and radiological follow-up was performed to monitor treatment response.

RESULTS

The patient, a 25-year-old woman one month after cesarean section, complained of productive cough for 20 days and breathlessness on exertion for 10 days. She had no prior history of asthma, tuberculosis, or immunosuppressive therapy.

Radiological Findings:

HRCT thorax showed collapse-consolidation with air bronchograms involving the left inferior lingular segment and sudden cut-off of the bronchus, suggesting obstruction due to mucus plugging.

Bronchoscopic Findings:

Flexible bronchoscopy revealed thick mucoid secretions and a mucous plug occluding the lingular bronchus. BAL was collected from the affected segment.

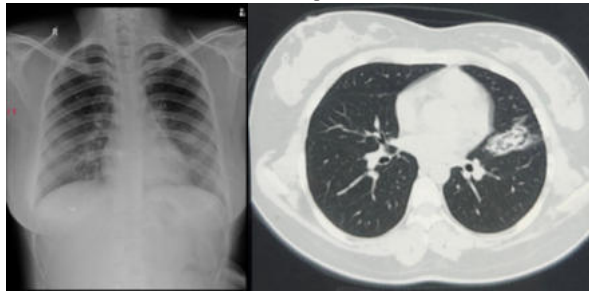
Microbiological And Serological Findings:

- KOH Mount: Demonstrated septate, acute-angle branching fungal hyphae.
- Culture: Grew *Aspergillus flavus*, confirming the diagnosis.
- BAL Galactomannan: Positive, with an index of 2.3178 (normal <0.25).
- Serum IgE and *Aspergillus*-specific IgE: Both within normal limits.

Treatment And Outcome:

The patient was treated with voriconazole 200 mg twice daily for six weeks. She reported gradual relief in symptoms, and repeat HRCT after completion of therapy showed complete resolution of consolidation and re-expansion of the left lingular segment. No

recurrence was observed on follow-up.



Chest x-ray

CT-Chest

DISCUSSION

Invasive pulmonary aspergillosis is most commonly reported in individuals with profound immunosuppression, but cases have occasionally been documented in immunocompetent postpartum women [5]. During pregnancy and the postpartum period, immune adaptations-such as decreased T-cell-mediated activity and altered neutrophil function-can predispose to opportunistic fungal infections [6]. The stress of surgery and transient immunosuppression following cesarean section may further heighten this vulnerability.

In the present case, *Aspergillus flavus* was isolated, which is known to be the second most frequent *Aspergillus* species implicated in invasive infections, especially in tropical regions. BAL galactomannan proved crucial in establishing the diagnosis, as it is a highly sensitive marker of invasive aspergillosis [7]. The absence of elevated IgE levels helped rule out allergic bronchopulmonary aspergillosis, confirming invasive disease.

Voriconazole is currently considered the preferred antifungal for invasive aspergillosis because of its high efficacy and excellent lung tissue penetration [8]. Although contraindicated during pregnancy due to potential teratogenicity, it is safe for use in the postpartum period, as in this case, where the patient responded favorably with no adverse events.

This case demonstrates that invasive aspergillosis should be suspected in postpartum women presenting with non-resolving pneumonia or lobar collapse unresponsive to antibacterial therapy. Early use of diagnostic tools such as bronchoscopy and galactomannan testing facilitates timely treatment and can be lifesaving.

REFERENCES

1. Denning DW. Invasive aspergillosis. *Clin Infect Dis*. 1998;26(4):781–803.
2. Mor G, Cardenas I. The immune system in pregnancy: a unique complexity. *Am J Reprod Immunol*. 2010;63(6):425–433.
3. Kousha M, Tadi R, Soubani AO. Pulmonary aspergillosis: a clinical review. *Eur Respir Rev*. 2011;20(121):156–174.
4. Patterson TF, Thompson GR, et al. Practice guidelines for diagnosis and management of aspergillosis. *Clin Infect Dis*. 2016;63(4):e1–e60.
5. Prasad M, et al. Fatal invasive aspergillosis in pregnancy: a case report. *Indian J Med Microbiol*. 2019;37(2):278–280.
6. Kousha M, et al. Aspergillosis in pregnancy: literature review. *Eur Respir Rev*. 2011;20(121):156–174.
7. Mennink-Kersten MA, Donnelly JP, Verweij PE. Detection of circulating galactomannan for diagnosis of invasive aspergillosis. *Lancet Infect Dis*. 2004;4(6):349–357.
8. Herbrecht R, et al. Voriconazole versus amphotericin B for primary therapy of invasive aspergillosis. *N Engl J Med*. 2002;347(6):408–415.