

Disseminated Invasive Aspergillosis in a Patient with Chronic Lymphocytic Leukemia

Kronik Lenfositik Lösemide Gelişen Yaygın İnvaziv Aspergilloz: Olgu Sunumu

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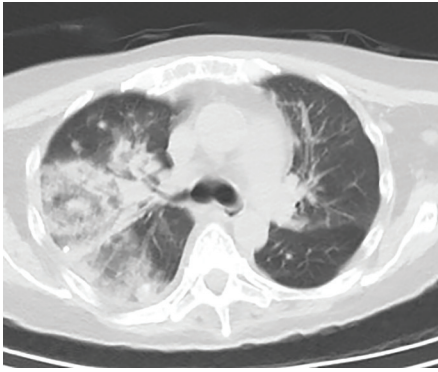


Figure 1. Chest computed tomography revealed patchy, nodular consolidations predominantly in the right upper and middle lung zones, consistent with invasive fungal pneumonia. These findings, in the context of profound neutropenia, raised strong suspicion for pulmonary aspergillosis.

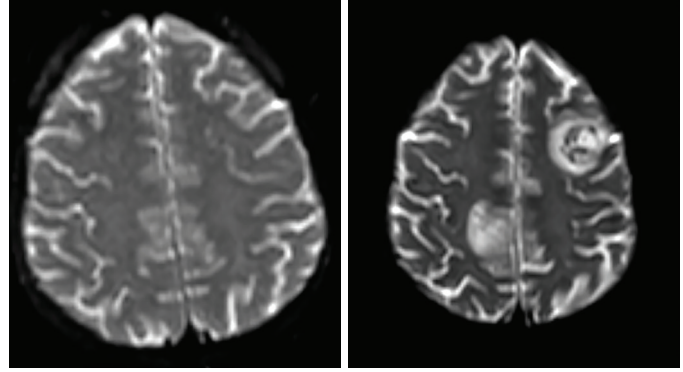


Figure 2. Comparative axial diffusion-weighted magnetic resonance imaging (MRI) images of the brain. Left: Initial MRI showed no abnormal signal intensity or structural lesions. Right: Follow-up MRI 17 days later demonstrated new well-defined ring-enhancing lesions in both cerebral hemispheres, consistent with evolving cerebral fungal abscesses. The interval of the development of these lesions correlated with the patient's neurological decline and supported the diagnosis of disseminated invasive aspergillosis.

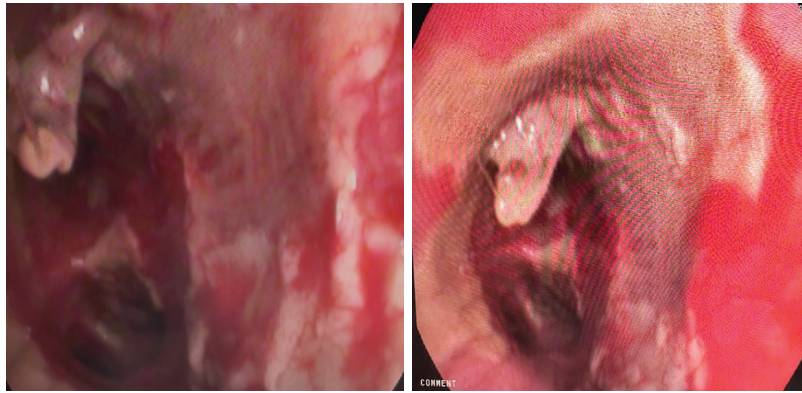


Figure 3. Bronchoscopic images demonstrating widespread white-grayish fungal plaques adhering to the mucosal surface of the main bronchi, more prominent on the left side. These findings are characteristic of invasive tracheobronchial aspergillosis and were supported by subsequent *Aspergillus fumigatus* isolation from bronchoalveolar lavage culture.



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Received/Geliş tarihi: May 14, 2025
Accepted/Kabul tarihi: June 11, 2025
Epub: June 11, 2025



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A 43-year-old man with relapsed chronic lymphocytic leukemia (CLL) was admitted for hypercalcemia. He had a prior history of B-cell non-Hodgkin lymphoma treated with rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone and rituximab, etoposide, methylprednisolone, cytarabine, and cisplatin, followed by autologous stem cell transplantation. Due to disease progression, the patient was diagnosed with CLL and started on rituximab-bendamustine. On day 3 of chemotherapy, he developed neutropenia (absolute neutrophil count: 820/ μ L). By day 9, he became febrile and hypotensive, and broad-spectrum antibiotics were initiated. Chest computed tomography showed patchy consolidations in the right upper and middle lung zones (Figure 1), raising suspicion of fungal infection. Antifungal therapy with voriconazole was initiated and later changed to liposomal amphotericin B due to QT prolongation.

Initial cranial magnetic resonance imaging results were unremarkable; however, the patient developed progressive confusion and ataxia, prompting repeat imaging on day 17, which revealed new ring-enhancing lesions in both cerebellar hemispheres, suggestive of fungal abscesses (Figure 2). Bronchoscopy revealed widespread fungal plaques in the central airways (Figure 3). Bronchoalveolar lavage culture confirmed *Aspergillus fumigatus* and the galactomannan index was markedly elevated (index value: 10.4). Despite targeted antifungal therapy, the patient's condition worsened and he died of septic shock in the intensive care unit.

Patients with CLL are prone to neutropenia from marrow infiltration and chemotherapy, increasing their susceptibility to invasive aspergillosis. Recent reports have also highlighted the increased incidence of invasive aspergillosis in CLL patients receiving Bruton tyrosine kinase inhibitors such as ibrutinib.

While *Aspergillus* species are harmless in healthy hosts, they can cause severe infections in immunocompromised patients [1,2].

Keywords: Chronic lymphocytic leukemia, Febrile neutropenia, Fungal infections, Stem cell transplantation

Anahtar Sözcükler: Kronik lenfositik lösemi, Febril nötrojeni, Fungal enfeksiyonlar, Kök hücre nakli

Ethics

Informed Consent: Informed consent for publication was obtained from the patient's next of kin.

Footnotes

Authorship Contributions

Surgical and Medical Practices: E.Y., U.S.K.; Concept: E.Ö., H.A., S.K.; Design: E.Y., H.A., S.K.; Data Collection or Processing: E.Ö., U.S.K.; Analysis or Interpretation: E.Y., U.S.K., H.A., S.K.; Literature Search: E.Ö., U.S.K., H.A.; Writing: E.Ö., E.Y., U.S.K., S.K.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

References

1. Bedier H, Lin J, Frenette C, Routy JP. Cerebral aspergillosis and facial acneiform lesions following initiation of ibrutinib in a patient with chronic lymphocytic leukemia. *IDCases*. 2021;26:e01263.
2. Ghez D, Calleja A, Protin C, Baron M, Ledoux MP, Damaj G, Dupont M, Dreyfus B, Ferrant E, Herbaux C, Laribi K, Le Calloch R, Malphettes M, Paul F, Souchet L, Truchan-Graczyk M, Delavigne K, Dartigeas C, Ysebaert L; French Innovative Leukemia Organization (FILO) CLL group. Early-onset invasive aspergillosis and other fungal infections in patients treated with ibrutinib. *Blood*. 2018;131:1955-1959.