PULMONARY CRYPTOCOCCOSIS: CURRENT UNDERSTANDING OF ETIOLOGY, DIAGNOSIS, MANAGEMENT AND PRESENTATION OF THE CLINICAL CASE IN IMMUNOCOMPETENT PATIENT

V. K. Gavrysyuk, O. V. Strafun, O. V. Bychenko, O. Y. Dziublyk, O. V. Tereshkovych, I. V. Liskina, N. M. Musiienko

Abstract

Pulmonary cryptococcosis is an invasive pulmonary mycosis, caused by Cryptococcus neoformans or Cryptococcus gattii complex. This disease is characterized by unfavorable outcomes both in immunocompromised and immunocompetent groups of population. It could erroneously be diagnosed as lung malignancy, causing a delay in therapy initiation. The pathogen invades respiratory tract through the inhalation of dried candida cells or basidiospores, resulting in primary lung infection. In addition to localized respiratory disease, Cryptococcus spp. due to its neurotropism often cause meningoencephalitis with long-term sequalae.

In immunocompetent patients solitary cryptococcoma (nodule, mass) is a prevalent respiratory manifestation. In those without comorbidities the cough (22,3 %), chest pain (10,4 %), sputum production (6,0 %) and fever (23 %) are the most common symptoms. In 22-55 % of patient pulmonary cryptococcosis may be asymptomatic, being an accidental finding at chest visualization examination, arranged for other reasons. In severe or untreated HIV-infection or AIDS cryptococcosis may have fulminant course accompanied by lung infiltrates. Acute respiratory failure strongly predicts high mortality, reaching 100 % in one small case series. It should be noted that the clinical presentation of cryptococcosis may be indistinguishable from other causes of opportunistic pneumonia.

Radiological data are crucial for understanding the nature and grade of disease. Diagnosis is based on histopathology, cultural methods, cryptococcal antigen test (CrAg), providing high specificity and, at least, moderate sensitivity in pulmonary disease.

Fluconazole is considered a first-line drug for pulmonary cryptococcosis. Alternative therapy may be required when fluconazole is contraindicated. Options include itraconazole, voriconazole or posaconazole, while the experience of the use of mentioned medications is limited by case series only. Severe lung disease, defined by the presence of multiple pulmonary cryptococcomas, diffused pulmonary infiltrates and/or involvement of other organs, including CNS, should be treated same way as cryptococcal meningitis. A remission induction phase, achieved by intravenous amphotericin B and 5-flucytosine, to be followed by consolidation and maintenance phases of therapy with oral fluconazole for minimum of 1 year.

The case of pulmonary cryptococcosis is presented in current report, which clearly demonstrates the difficulties of etiological diagnosis, based only on clinical examination, radiology, and histopathology data in patients with non-differentiated pulmonary mycosis. For reliable diagnosis of pulmonary cryptococcosis at least CrAg test is required. It is specifically attributable to the regions with low prevalence of cryptococcosis where a vigilance of chest physicians regarding this condition is low.

Key words: pulmonary cryptococcosis, etiology, diagnostics, treatment, clinical case in immunocompetent patient.

Ukr. Pulmonol. J. 2025;33(2):37–46.

Volodymyr Gavrysyuk
SO "National scientific center of phthisiology,
pulmonology and allergology named after F. G. Yanovsky
of the National academy of medical sciences of Ukraine"
Chief of Department of Interstitial Lung Diseases
Corresponding member of NAMS of Ukraine
Doctor of medicine, professor
10, M. Amosova str., 03680, Kyiv, Ukraine
Tel./fax: 38 044270-35-59, gavrysyuk@ukr.ne
ORCID: 0000-0001-6242-4504