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CHARACTERISTICS OF INFILTRATIVE PULMONARY TUBERCULOSIS IN PATIENTS WITH CONCOMITANT PEPTIC ULCER DISEASE AND HIV INFECTION

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Abstract: Infiltrative pulmonary tuberculosis (IPTB) is one of the most common clinical forms of tuberculosis and is most frequently observed among individuals of working age. Over recent decades, a steady increase in comorbid and multimorbid conditions associated with tuberculosis has been noted, significantly affecting the clinical course, diagnostic features, and treatment effectiveness of the disease. The combination of infiltrative pulmonary tuberculosis with peptic ulcer disease and HIV infection is considered particularly unfavorable.

HIV infection leads to progressive immunosuppression, resulting in a paucisymptomatic, atypical, and indolent course of tuberculosis. Consequently, the disease is often diagnosed at advanced stages, treatment duration is prolonged, and the risk of complications increases. At the same time, gastrointestinal disorders, including gastric and duodenal ulcer disease, are highly prevalent among HIV-infected patients. One of the leading etiological factors of peptic ulcer disease is *Helicobacter pylori* infection, which is also detected with high frequency in patients with tuberculosis.

The most unfavorable clinical prognosis is observed in patients with infiltrative pulmonary tuberculosis combined with *H. pylori*-negative peptic ulcer disease.

The aim of the study was to conduct a comprehensive assessment of the clinical, radiological, and laboratory characteristics, as well as treatment outcomes, of infiltrative pulmonary tuberculosis in the presence of comorbid and multimorbid conditions involving peptic ulcer disease and HIV infection.

Materials and Methods

The study included patients aged 20 to 44 years diagnosed with infiltrative pulmonary tuberculosis who received treatment at the Bukhara Regional Center of Phthisiology and Pulmonology. All patients were treated in an inpatient setting and were followed up dynamically for a period of 12 months.

Clinical evaluation comprised the collection of patient complaints and medical history, physical examination, chest radiography, and computed tomography of the lungs. The presence of *Mycobacterium tuberculosis* in sputum samples was determined using Ziehl–Neelsen microscopy and bacteriological culture methods.

Diagnosis of gastric and duodenal peptic ulcer disease was performed using fibrogastroduodenoscopy, with assessment of ulcer localization, size, and healing dynamics.

Detection of *Helicobacter pylori* infection was carried out using the urea breath test and histological examination of endoscopic biopsy specimens.

HIV infection was confirmed by enzyme-linked immunosorbent assay (ELISA) and immunoblotting, as well as by determining CD4 lymphocyte counts (200–500 cells/μL).

The patients were divided into the following groups:

- Infiltrative pulmonary tuberculosis (control group);

- Infiltrative pulmonary tuberculosis combined with gastric peptic ulcer disease (*H. pylori*-positive and *H. pylori*-negative forms);
- Infiltrative pulmonary tuberculosis combined with HIV infection and gastric peptic ulcer disease (*H. pylori*-positive and *H. pylori*-negative forms).

Statistical analysis was performed using the Mann–Whitney U test and the chi-square (χ^2) test. Statistical significance was set at $p < 0.05$.

Results

The study demonstrated that gastric peptic ulcer disease was identified in approximately 20–21% of patients diagnosed with infiltrative pulmonary tuberculosis. Among patients with concomitant HIV infection, the prevalence of peptic ulcer disease remained comparably high, ranging from 19 to 20%, indicating that gastrointestinal pathology is a common comorbid condition in this patient population. The frequency of Helicobacter pylori detection varied between 58% and 64% across the study groups, reflecting a substantial burden of H. pylori infection among patients with tuberculosis.

In patients with HIV infection, infiltrative pulmonary tuberculosis was characterized by a predominantly paucisymptomatic onset. Clinical manifestations were often nonspecific and included pronounced asthenic syndrome, persistent weakness, dyspeptic complaints, reduced appetite, and significant body weight loss. Fever was frequently absent or limited to subfebrile values, which contributed to delayed recognition of active tuberculosis and late presentation for medical care.

Radiological assessment revealed distinct features in HIV-infected patients. These individuals demonstrated fewer destructive changes in pulmonary parenchyma, a lower incidence of cavitary lesions, and more frequent bilateral lung involvement. Such radiological patterns reflect impaired immune-mediated tissue response and limited granuloma formation. Notably, the duration of anti-tuberculosis treatment in HIV-infected patients was significantly longer compared with patients without HIV infection, indicating a more complicated and prolonged disease course.

In patients with infiltrative pulmonary tuberculosis combined with H. pylori-negative peptic ulcer disease, the clinical course was particularly unfavorable. This group exhibited prolonged bacterial excretion, delayed sputum conversion, slower ulcer healing, and more pronounced progression of both pulmonary and gastrointestinal pathology. These findings suggest that H. pylori-negative ulcer disease may be associated with deeper disturbances in mucosal protection and systemic immune regulation, adversely affecting tuberculosis outcomes.

Discussion

The results obtained in this study confirm that the multimorbid course of infiltrative pulmonary tuberculosis combined with gastric peptic ulcer disease and HIV infection is accompanied by significant modifications in clinical, radiological, and therapeutic characteristics. Progressive immunodeficiency associated with HIV infection leads to atypical and mild clinical manifestations of tuberculosis, which substantially complicates early diagnosis and timely initiation of anti-tuberculosis therapy.

The predominance of asthenic symptoms, minimal respiratory complaints, and absence of pronounced fever often masks the underlying infectious process. As a result, tuberculosis is frequently detected at more advanced stages, contributing to prolonged treatment duration and increased risk of unfavorable outcomes.

The coexistence of peptic ulcer disease further complicates the management of tuberculosis by limiting the tolerability and effectiveness of standard anti-tuberculosis chemotherapy. Gastrointestinal side effects, impaired drug absorption, and the need for gastroprotective therapy may reduce treatment adherence. This problem is particularly pronounced in patients with H.

pylori-negative ulcer disease, who demonstrated lower treatment efficacy, slower ulcer repair, and a worse clinical prognosis.

Conclusion

Infiltrative pulmonary tuberculosis in patients with concomitant gastric peptic ulcer disease and HIV infection is characterized by an atypical and paucisymptomatic clinical course, extended treatment duration, and a high risk of complications, persistent bacterial excretion, and disease relapse. The presence of H. pylori-negative peptic ulcer disease represents an additional adverse prognostic factor.

Effective management of such patients requires a comprehensive, multidisciplinary, and individualized approach. Clinical strategies should include careful evaluation of Helicobacter pylori status, HIV disease stage, immune status indicators, and gastrointestinal comorbidities, along with close monitoring of treatment response and tolerability. Early identification and integrated management of comorbid conditions may improve treatment outcomes and reduce the risk of unfavorable prognosis.

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