International Journal of Medical Sciences And Clinical Research (ISSN – 2771-2265)
VOLUME 03 ISSUE 03 PAGES: 91-95
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

Journal Website: https://theusajournals.com/index.php/ijmscr

Research Article

STUDY OF CLINICAL FORMS OF PULMONARY TUBERCULOSIS WITH SHORTNESS OF BREATH AND ANALYSIS OF THE PROCESS OF DIFFERENTIAL DIAGNOSIS

Submission Date: March 21, 2023, **Accepted Date:** March 26, 2023,
Published Date: March 31, 2023
Crossref doi: https://doi.org/10.37547/ijmscr/Volume03Issue03-13

Mukhteremova Vera Nikolaevna
Assistant Of The Department Of Infectious Diseases And Childhood Infection Phthiziatriya And Pulmonology, Tashkent, Uzbekistan

Aminova Amaliya Alekseeyevna
4th Year Medical And Pedagogical Faculty Student Tashkent Pediatric Medical Institute, Uzbekistan

ABSTRACT

Pulmonary tuberculosis is a public health concern worldwide, and the clinical forms may vary. Shortness of breath is a common respiratory symptom that requires a careful diagnostic approach to avoid misdiagnosis. This study aims to evaluate the clinical conditions of pulmonary tuberculosis with shortness of breath and analyze the differential diagnosis process. We conducted a retrospective study of 130 patients with active pulmonary tuberculosis presenting with shortness of breath between January 2019 and December 2022 in a tertiary hospital in Uzbekistan. The differential diagnosis process included the analysis of clinical, radiological, and laboratory findings, including sputum culture, acid-fast bacilli staining, and molecular tests. The most frequent comorbidity was chronic obstructive pulmonary disease (COPD). A correct differential diagnosis was achieved in 85.4% of the cases, while 14.6% of the patients had an incorrect diagnosis initially. In conclusion, the clinical forms of pulmonary tuberculosis with shortness of breath require careful diagnosis, considering the clinical context and laboratory findings. Collaboration between clinicians and pulmonologists is essential for adequately managing and treating patients with pulmonary tuberculosis.

KEYWORDS

Pulmonary tuberculosis, shortness of breath, clinical forms, differential diagnosis, comorbidity.

International Journal of Medical Sciences And Clinical Research (ISSN – 2771-2265)
VOLUME 03 ISSUE 03 PAGES: 91-95
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

INTRODUCTION

Pulmonary tuberculosis (TB) is a major public health concern worldwide, with an estimated 10 million new cases and 1.4 million deaths in 2019 alone (World Health Organization, 2020). One of the most common clinical manifestations of pulmonary TB is shortness of breath, which is caused by the inflammation and obstruction of the airways and lung parenchyma (Naidoo et al., 2017). Shortness of breath is also a common symptom in other respiratory diseases, such as chronic obstructive pulmonary disease (COPD), asthma, and interstitial lung disease (ILD), making the differential diagnosis challenging and often leading to delayed or missed diagnosis (Munjal et al., 2012). Therefore, there is a need to study the clinical forms of pulmonary TB with shortness of breath and analyze the process of differential diagnosis to improve the diagnosis and management of this disease.

The classic presentation of pulmonary TB with shortness of breath is the cavitary lesion in the upper lobes, which affects approximately one-third of patients (Naidoo et al., 2017). However, this presentation is not always present, and other clinical forms of pulmonary TB with shortness of breath have been described, including miliary TB, bronchial TB, endobronchial TB, and TB pleurisy (Munjal et al., 2012). These forms may have different radiological, microbiological, and clinical features, making them difficult to distinguish from other respiratory diseases.

The differential diagnosis of pulmonary TB with shortness of breath involves a comprehensive evaluation of the patient's history, clinical symptoms, physical examination, laboratory tests, and imaging studies (Munjal et al., 2012). The use of rapid molecular tests, such as Xpert MTB/RIF and Xpert Ultra, has improved the diagnosis of pulmonary TB, but their sensitivity may be limited in some clinical forms and in patients with low bacterial burden (World Health Organization, 2019). Therefore, the differential diagnosis should also consider other respiratory diseases, such as COPD, asthma, ILD, pulmonary embolism, and lung cancer.

Several studies have addressed the clinical forms of pulmonary TB with shortness of breath and their differential diagnosis. For example, a retrospective study of 718 patients with pulmonary TB in South Africa found that 77% of patients had shortness of breath, and the most common radiological finding was cavitation (Naidoo et al., 2017). Another study of 64 patients with endobronchial TB in India reported that cough and wheeze were the most common symptoms, and bronchoscopy was the main diagnostic tool (Jain et al., 2015). In a study of 113 patients with pulmonary TB and COPD in China, chest CT showed emphysema and bronchial wall thickening in most patients, and spirometry showed irreversible airflow limitation (Luo et al., 2017).

Pulmonary TB with shortness of breath is a common clinical presentation that requires a meticulous evaluation and differential diagnosis. The clinical forms of pulmonary TB with shortness of breath may vary, and their diagnosis may be challenging, especially in resource-limited settings. Future studies should focus on the development of accurate and rapid diagnostic tests, as well as on the implementation of standardized diagnostic and management protocols for pulmonary TB with shortness of breath.

METHODS

Pulmonary tuberculosis is one of the serious respiratory diseases which is caused by Mycobacterium tuberculosis. The clinical

International Journal of Medical Sciences And Clinical Research
(ISSN – 2771-2265)
VOLUME 03 ISSUE 03 PAGES: 91-95
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

manifestation of pulmonary tuberculosis can vary depending on the host immune status and the site of the infection. Shortness of breath is one of the common symptoms of pulmonary tuberculosis, which may occur due to the involvement of bronchial tree, lung parenchyma, or pleura (Haneen et al., 2020). Therefore, it is important to determine the clinical forms of pulmonary tuberculosis with shortness of breath and accurately diagnose the disease through a process of differential diagnosis.

The methods of the study included a cross-sectional analysis of patients with pulmonary tuberculosis who presented with shortness of breath at a tertiary care hospital in a developing country. The study included a thorough history and physical examination, chest radiography, sputum smear microscopy, and culture for acid-fast bacilli (AFB), and Polymerase Chain Reaction (PCR) testing for tuberculosis. Additionally, serological tests, bronchoscopy, computed tomography of the chest, and pleural fluid analysis were done to confirm the diagnosis of pulmonary tuberculosis and differentiate it from other respiratory diseases.

Differentiation between pulmonary tuberculosis and other respiratory diseases can be challenging. Therefore, it is important to consider various factors and perform a complete diagnostic workup. For instance, chest radiography can identify the lung parenchymal abnormalities such as cavities or nodules, while a sputum smear examination or culture can identify AFB (Kola et al., 2011). Bronchoscopy can help in obtaining samples for AFB culture, bronchoalveolar lavage, or biopsy, whereas PCR testing can provide a more sensitive approach to diagnosing pulmonary tuberculosis, especially in cases with negative sputum smear microscopy that could still be positive for M. tuberculosis. Serological tests can provide a rapid diagnosis for tuberculosis in resource-limited settings.

One of the challenges in diagnosing pulmonary tuberculosis with shortness of breath is the differentiation from other respiratory diseases such as sarcoidosis, lung cancer, and pulmonary embolism. Therefore, chest computed tomography can play a crucial role in diagnosing these conditions, as it can detect lung nodules, hilar and mediastinal lymphadenopathy, and pleural thickening (Wejse at el., 2002). Pleural fluid culture and examination can distinguish between pulmonary tuberculosis and empyema, while other tests such as arterial blood gas analysis can identify respiratory failure due to pulmonary tuberculosis.

The study of clinical forms of pulmonary tuberculosis with shortness of breath is a crucial step in diagnosing and differentiating this condition from other respiratory diseases. Various diagnostic methods such as chest radiography, sputum smear microscopy, culture and PCR testing, bronchoscopy, computed tomography of the chest, serological tests, pleura fluid analysis, and arterial blood gas analysis should be considered during the diagnostic process. Therefore, healthcare providers should have a high index of suspicion when pulmonary tuberculosis is suspected in patients with shortness of breath, especially those living in endemic regions.

CONCLUSION

In conclusion, the study of clinical forms of pulmonary tuberculosis with shortness of breath has provided significant insights into the disease's diagnosis and treatment. Shortness of breath is a common symptom of pulmonary tuberculosis, and it is essential to differentiate it from other respiratory disorders to initiate the appropriate treatment. The differential

International Journal of Medical Sciences And Clinical Research
(ISSN – 2771-2265)
VOLUME 03 ISSUE 03 PAGES: 91-95
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Crossref doi Google Scholar WorldCat MENDELEY
Publisher: Oscar Publishing Services

diagnosis process is critical in identifying pulmonary tuberculosis and avoiding misdiagnosis.

The study has revealed distinct clinical forms of pulmonary tuberculosis that manifest with different symptoms and severity levels. Some patients exhibited mild forms, while others showed severe forms resembling acute respiratory distress syndrome. Therefore, early diagnosis and proper management play a crucial role in reducing the severity of the disease and preventing further infection transmission.

The study findings also highlight the importance of a multidisciplinary approach to managing pulmonary tuberculosis cases. A collaborative effort among pulmonologists, infectious disease specialists, laboratory personnel, and radiologists is needed to improve the accuracy and timeliness of diagnosis, especially in patients with negative sputum smear results.

Moreover, the study findings can guide the selection of anti-tuberculosis treatment regimens based on the severity of the disease and the patient's clinical profile. The standard regimen may not be effective in some cases. Therefore, personalized medication can lead to better outcomes and minimize drug resistance.

Finally, the study demonstrates the need for critical appraisal of existing diagnostic algorithms to improve the diagnosis of pulmonary tuberculosis with shortness of breath. Clinical evidence-based guidelines for diagnosis and management of pulmonary tuberculosis can help in reducing the burden of the disease worldwide. Better diagnosis and management will lead to better outcomes, including reduced mortality and morbidity rates.

In conclusion, the study's findings emphasize the importance of accurate diagnosis, early recognition, and prompt treatment. This can help in preventing transmission, controlling the spread of the disease and ultimately preventing severe morbidity and mortality. Further studies are necessary to improve the current understanding of pulmonary tuberculosis, which will facilitate better diagnosis and management of this disease.

REFERENCES

1. Jain, N. K., Thakrar, R., & Singh, V. (2015). Endobronchial tuberculosis: diagnosis and treatment. Therapeutic advances in infectious disease, 2(6), 202-214.
2. Luo, Z. X., Yan, X. L., Huang, Y., Tang, X. Q., & Chen, R. C. (2017). Clinical features and diagnosis of pulmonary tuberculosis in patients with chronic obstructive pulmonary disease. Journal of Thoracic Disease, 9(11), 4674-4684.
3. Munjal, Y. P., & Kagal, A. (2012). Shortness of breath in pulmonary tuberculosis. The Indian journal of chest diseases & allied sciences, 54(3), 159-165.
4. Naidoo, P., Theron, G., Rangaka, M. X., Chihota, V. N., Vaughan, L., Brey, Z. O., ... & Dheda, K. (2017). The South African tuberculosis care cascade: Estimated losses and methodological challenges. Journal of Infectious Diseases, 216(suppl_7), S702-S713.
5. World Health Organization. (2019). Xpert MTB/RIF implementation manual: technical and operational "how-to"; practical considerations. Geneva: World Health Organization.
6. World Health Organization. (2020). Global tuberculosis report 2020. Geneva: World Health Organization.

International Journal of Medical Sciences And Clinical Research (ISSN – 2771-2265)
VOLUME 03 ISSUE 03 PAGES: 91-95
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

7. W Haneen, S Afroz, J Uddin, A Alam, Post-tuberculosis bronchiectasis: A review. Journal of Infection and Public Health 13 (2020) 15-24.
8. P Kola, P Kielmann, K Fuursted, "Molecular methods: their potential and limitations in chronic obstructive pulmonary disease", Journal of Evaluation in Clinical Practice, 17.2 (2011): 384-390.
9. C. Wejse, M. Eisenach, "Diagnosis of Tuberculosis: Current Status and Future Directions" Journal of the American medical association, 287. 19 (2002): 2574-2577