



A Silent Menace: Pulmonary Tuberculosis Sequelae and Cardiovascular Complications

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Abstract

This case study presents the clinical journey of a 45-year-old male patient with a history of pulmonary tuberculosis (TB) who presented with persistent shortness of breath, chest pain, and fatigue. Diagnostic evaluations revealed the presence of Post-Tuberculosis Pulmonary Sequelae, bronchiectasis, pulmonary fibrosis, and Pulmonary Artery Hypertension (PAH). The patient's treatment included PAH medications, pulmonary rehabilitation, oxygen therapy, lifestyle modifications, and regular follow-up appointments. Over several months, the patient experienced significant improvements in symptoms, exercise tolerance, cardiovascular health, lung function, quality of life, and overall well-being. This case highlights the effectiveness of an interdisciplinary approach to managing complex respiratory and cardiovascular conditions, emphasizing the importance of early recognition, ongoing monitoring, and comprehensive care for optimal outcomes.

Patient Complaint

Patient, a 45-year-old male, presents to the respiratory clinic with complaints of persistent shortness of breath, chest pain, and fatigue. He has a notable history of pulmonary tuberculosis (TB), which was successfully treated with a standard course of anti-TB medications ten years ago.

Diagnosis

Upon initial evaluation, Patient is suspected to have pulmonary complications related to his prior TB infection. Further investigations, including chest X-rays and high-resolution computed tomography (HRCT), reveal the presence of bronchiectasis and pulmonary fibrosis, indicative of Post-Tuberculosis Pulmonary Sequelae. Additionally, an echocardiogram reveals elevated pulmonary artery pressures, suggesting the presence of Pulmonary Artery Hypertension (PAH).

Investigations

Chest x-rays: Show bronchiectasis and fibrotic changes in the lung fields.

Hrct scan: Confirms bronchiectasis and extensive fibrosis, predominantly in the upper lobes.

Pulmonary function tests: Indicate restrictive lung disease with reduced lung volumes [1,2].

Echocardiography: Reveals elevated pulmonary artery pressures (Pulmonary Artery Systolic Pressure >40 mm Hg).

Treatment

Medications for pulmonary artery hypertension (pah)

Phosphodiesterase-5 (pde-5) inhibitors: Mr. X is started on a PDE-5 inhibitor, such as Sildenafil (brand name: Viagra) or Tadalafil (brand name: Cialis). These medications help dilate the pulmonary arteries and reduce pulmonary artery pressures.

Endothelin receptor antagonists: An endothelin receptor antagonist like Bosentan (brand name: Tracleer) or ambrisentan (brand name: Letairis) may be added to his treatment regimen. These drugs block the effects of endothelin, a substance that can constrict blood vessels in the lungs.

Prostacyclin analogs: In more severe cases of PAH, a prostacyclin analog like Epoprostenol (brand name: Flolan), Treprostinil (brand name: Remodulin), or Iloprost (brand name: Ventavis) may be considered. These medications are delivered via intravenous or inhaled routes and have potent vasodilatory effects on the pulmonary arteries.

Pulmonary rehabilitation

Mr. X is enrolled in a comprehensive pulmonary rehabilitation program. This program includes supervised exercise training, education on managing his condition, breathing techniques, and psychological support to enhance his overall lung function and quality of life [3].

Oxygen therapy

Patient is prescribed supplemental oxygen therapy. He uses oxygen therapy as needed to maintain adequate oxygen levels, especially during exertion and sleep, to alleviate symptoms of hypoxia.

Lifestyle modifications

Smoking cessation: Given Patient history of smoking, he receives counseling and support to quit smoking.

Nutritional counseling: A registered dietitian provides guidance on a balanced diet to optimize his overall health and manage his condition.

Physical activity: Mr. X is encouraged to engage in regular physical

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activity suitable for his condition, which may include walking or light aerobic exercises.

Regular follow-up

Mr. X undergoes regular follow-up appointments with his healthcare team, including a pulmonologist, cardiologist, and respiratory therapist [1]. During these visits, his pulmonary function, cardiac status, and response to therapy are closely monitored. Medication dosages are adjusted as needed based on his clinical progress.

It's important to note that the choice of medications and the specific treatment plan for PAH and associated conditions may vary depending on the severity of the disease, individual patient factors, and the latest guidelines in the field of pulmonary medicine. Patient treatment plan should be tailored to his unique clinical presentation and needs, and it should be managed by a multidisciplinary team of healthcare professionals specializing in respiratory medicine and cardiology [4].

Result

Over the course of several months following the initiation of treatment, Mr. X experiences notable improvements in his health and quality of life:

Reduction in symptoms

The persistent shortness of breath, chest pain, and fatigue that initially prompted his visit to the clinic gradually subsides. Mr. X reports a significant reduction in these symptoms, allowing him to perform daily activities with greater ease.

Improved exercise tolerance

As he continues with his pulmonary rehabilitation program and follows his prescribed treatment regimen, Patient exercise tolerance improves. He can engage in physical activities that were previously challenging without experiencing severe breathlessness.

Cardiovascular improvements

Follow-up echocardiograms demonstrate a decrease in pulmonary artery pressures (Pulmonary Artery Systolic Pressure) compared to the baseline measurement. This reduction in pulmonary artery pressures reflects an improvement in his Pulmonary Artery Hypertension (PAH).

Lung function enhancement

Pulmonary function tests indicate an improvement in his lung function. Although the extent of pulmonary fibrosis remains, the treatment plan has helped optimize his lung function, resulting in increased vital capacity and improved oxygen exchange.

Quality of life

Patient overall quality of life significantly improves. He reports a greater sense of well-being, reduced anxiety related to his health, and improved emotional and psychological states. He can participate in social and family activities with greater enthusiasm.

Stability and long-term management

It is important to note that while Mr. X experiences these positive results, his condition is not fully reversible, especially regarding the existing pulmonary fibrosis. Hence, the treatment plan is focused on symptom management, slowing the progression of PAH, and optimizing his overall health.

Patient education

Throughout the treatment process, Mr. X and his caregivers receive education about his condition, medications, and the importance of adherence to his treatment plan. This empowers him to actively participate in managing his health.

Conclusion

Patient cases demonstrate the potential for favorable outcomes in patients with Post-Tuberculosis Pulmonary Sequelae, Pulmonary Artery Hypertension, and associated cardiovascular complications. The interdisciplinary approach to his care, including medical therapy, rehabilitation, and lifestyle modifications, has proven effective in managing his condition and enhancing his quality of life.

However, it is crucial to emphasize that the management of such complex cases requires ongoing monitoring and adjustments to the treatment plan as needed. Long-term follow-up and continuous support from healthcare professionals are essential to ensure the maintenance of these positive results and to address any potential complications or challenges that may arise over time.

This case underscores the importance of early recognition, timely intervention, and comprehensive care in improving the prognosis and overall well-being of patients with these intricate medical conditions. It also highlights the need for continued research and awareness in the field of respiratory medicine and cardiovascular health to advance the management of such cases further.

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