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Diffuse Alveolar Haemorrhage A Rare Presentation of Infective Endocarditis: A Challenging Case

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Abstract

Infective endocarditis (IE) is a life-threatening condition that can lead to systemic complications, including diffuse alveolar haemorrhage (DAH), an uncommon but serious pulmonary manifestation. I present a case of a 37-year-old male with a history of smoking, alcohol consumption and prolonged occupational exposure to cotton dust, who presented with prolonged fever, cough, haemoptysis, and dyspnea. Examination revealed clubbing, pedal edema, raised JVP, and coarse crepitations in both lungs. Cardiovascular examination revealed a holosystolic murmur. Blood cultures confirmed the presence of a typical endocarditis-associated microorganism Streptococcus viridans and echocardiography demonstrated vegetations consistent with IE. Bronchoalveolar lavage was sequentially haemorrhagic which showed hemosiderin-laden macrophages, confirming diffuse alveolar haemorrhage. The patient was managed with intravenous antibiotics, supportive therapy and close hemodynamic monitoring. This case highlights the importance of early recognition and aggressive management of infective endocarditis to prevent rare but life-threatening complications.

Keywords: Alcoholism, Infective Endocarditis, Haemoptysis, Pedal Edema

Case History

A 37-year-old male, a chronic smoker 10 pack years and alcoholic for past 10 years with a 10-year occupational history in the cotton industry, presented with high-grade fever with chills since last two months, resolving intermittently with antipyretics and antibiotics. He remained afebrile for two weeks before admission. He reported dry cough for 1.5 months and progressive dyspnoea with orthopnoea. Haemoptysis (30ml of fresh blood) developed five days prior to admission and he had a history of smoking, alcoholism, and tobacco chewing.

Investigations

General Examination: Pallor, clubbing (++), bilateral pedal edema, raised JVP, tattoos over multiple sites in body.

Vitals: SpO2 90% on room air

Respiratory Examination: Bilateral coarse crepitations

Cardiovascular Examination: Holosystolic murmur at aortic area and left 4th ICS parasternal Area

Laboratory Findings

CBC: revealed anaemia and leucocytosis

Positive blood cultures for a typical IE-associated organism (positive for Streptococcus viridians)

BAL findings: shows sequential BAL more haemorragic

Perl's staining: confirmed the presence of hemosiderin-laden macrophages Elevated inflammatory markers (CRP, ESR)

Imaging and Cardiac Workup: Echocardiography: Vegetation on aortic valves, consistent with IE

Chest X-ray: Bilateral diffuse infiltrates

CT Chest: Showed bilateral Ground-glass opacities consistent with alveolar haemorrhage.

Results and Treatment

The patient was diagnosed with infective endocarditis complicated by diffuse alveolar haemorrhage. He was initiated on targeted intravenous antibiotics per culture sensitivity, supplemental oxygen, and supportive therapy. Hemodynamic monitoring was closely performed to prevent worsening respiratory failure. Anticoagulation was avoided due to the risk of worsening haemorrhage.

Conclusions

This case highlights infective endocarditis as a rare but significant cause of diffuse alveolar haemorrhage. Early suspicion, prompt microbiological diagnosis, and a multidisciplinary approach are critical in managing such complex cases. Identifying high-risk individuals, including those with smoking, alcohol or occupational exposure histories, is essential for timely intervention.

Discussion

Diffuse alveolar haemorrhage is a rare but severe manifestation of infective endocarditis with a high mortality rate, often secondary to immune-mediated capillaritis or septic emboli-induced pulmonary damage. Bronchial haemorrhage typically originates from large airways, whereas DAH arises from alveolar capillaries, as evidenced by hemosiderin-laden macrophages. The presence of hemosiderin-laden macrophages on Perl's staining is a key diagnostic feature. This report underscores the necessity of a comprehensive diagnostic approach, including echocardiography, microbiology and pulmonary assessment to improve outcomes in such patients.

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