CASE STUDIES

Acute lung involvement in RA is not always ILD

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Abstract

Rheumatoid arthritis is a systemic inflammatory disorder with diverse extra-articular manifestations including vasculitis, lung disease, inflammatory eye disease and subcutaneous nodule formation. Among these manifestations, lung disease has been identified as a primary contributor of morbidity and mortality. The predominance of non-specific interstitial pneumonia pattern has been observed in most forms of connective tissue-associated ILD. Studies have demonstrated that the usual interstitial pneumonia (UIP) pattern is more prevalent among patients with RA-associated ILD. The extra-articular manifestations have been noted in nearly 50% of the patients, and the lung involvement in majority of the cases.8, 9 This study details the occurrence of lung involvement of viral etiology in RA, which could be misdiagnosed as RA-associated ILD.

Keywords: ILD, rheumatoid arthritis, interstitial lung disease

Case report

A 56-year-old housewife who had been diagnosed with RA around 8 years ago, presented with cough with expectoration, intermittent fever and dyspnea. These symptoms persisted, despite taking antibiotics for 5 days. There was no history of vomiting, loose stools, burning micturition, and any other co-morbidities. Physical examination showed that she was febrile, and had tachypnea and tachycardia. Examination of the respiratory system revealed crepitations in the left basal area. Other system examinations were within the normal limits. Clinical and lab investigations revealed: Hb 11.5%, TLC 2990 cc mm, platelet count 2.63 lakhs, ESR 55 mm/ hr, procalcitonin <0.25 ng/mL, and CRP 26.9 mg/dL. Liver and renal functions tests and urine routine were normal.

The arterial blood gas (ABG) test measures (pH-7.4, pCo2-19.6, pO2-17& HCO3-17.9) indicated metabolic acidosis with compensation. Sputum examination was negative, while H1N1 PCR carried out for throat swab was positive. Chest X-ray showed non-homogenous opacity in the left lower zone. High-resolution computed tomography (HRCT, Fig.1) revealed patchy consolidation in right upper and left lower lobes suggestive of interstitial lung disease (ILD). However, there was no evidence of honeycombing and bronchiectasis. All the disease-modifying antirheumatic drugs (DMARD) medications were discontinued. Based on these findings, the diagnosis was concluded as interstitial pneumonia due to H1N1. The patient was initiated with oseltamivir 75 mg for 7 days, bronchodilators and antipyretics.

The follow-up visit conducted after 7 days showed that the patient had improved symptomatically and her vitals were stable. Lab results were normal. HRCT conducted after 3 weeks, as a part of review, demonstrated total resolution of patchy consolidation, but non- specific interstitial pneumonia in left lower lobe (Fig.2). The patient was asked to restart all the prescribed DMARDs.

Discussion

ILD is a frequently noted extraarticular manifestation of RA. The predominance of non-specific interstitial pneumonia pattern has been observed in most forms of connective tissue-associated ILD. However, studies have demonstrated that the usual interstitial pneumonia (UIP) pattern is more prevalent among patients with RA-associated ILD.[1] Conventional DMARDs and biological agents may induce or worsen ILD in RA patients. Moreover, infections may increase the risk of mortality in such patients.[2]

During the global flu epidemic 2009-10, several swine flu pneumonia cases were reported from various parts of the world. The commonly noted histopathologic changes observed in this type of pneumonia include focal squamous

Fig 1. Patchy consolidation in right upper and left lower lobes

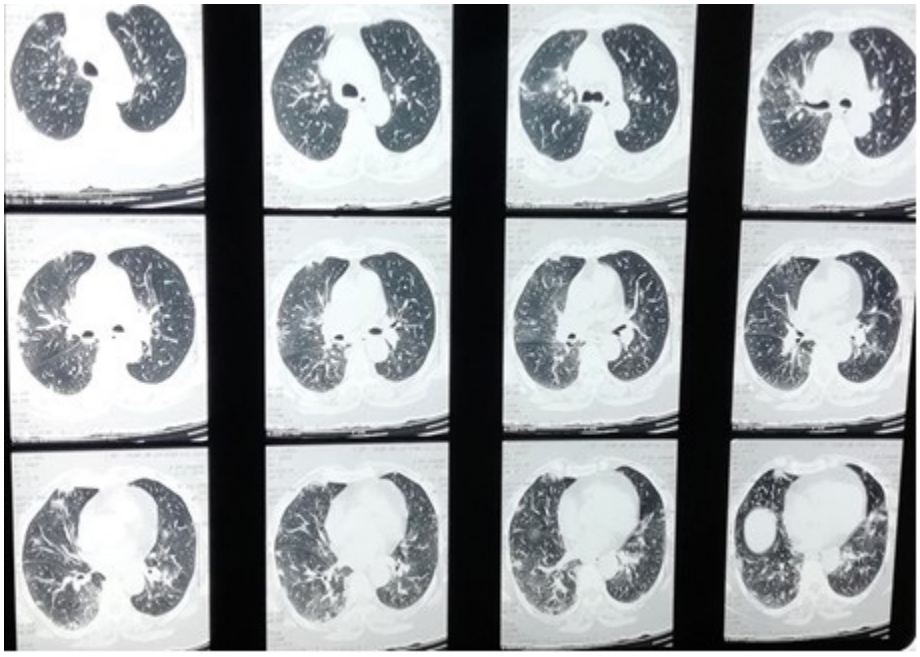
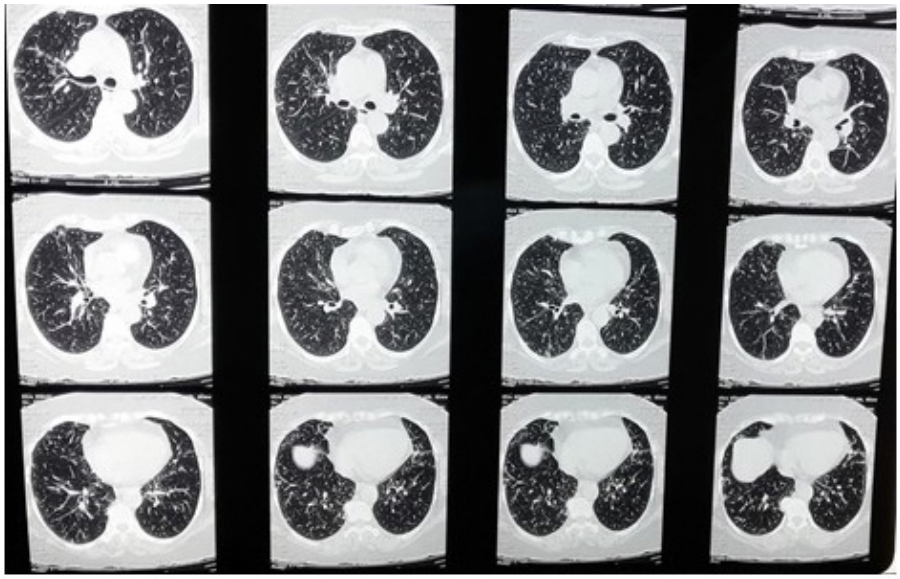


Fig. 2. Total resolution of consolidation, non-specific interstitial pneumonia in left lower lobe



metaplasia, consolidation, diffuse alveolar damage, pulmonary edema, and acute pulmonary hemorrhage.[3] Bai *et al.* have evaluated the clinical features of pneumonia caused by H1N1 virus in Beijing, China. The 3-months follow-up survivors demonstrated ground-glass opacities (GGOs) in HRCT imaging and reduced diffusion capacity for carbon monoxide (DLCO).[4] Most patients diagnosed with RA are on DMARD or immunosuppressant therapy to treat the joint manifestations. Theoretically, these medications should confer protection to the lungs by reducing levels of inflammatory cytokines, which are generally found to be elevated in RA patients.[5] However, there are several published reports on induced or exacerbated ILD in RA patients treated with non-biologic DMARDs and biologics. Methotrexate is the most common first line agent used to treat RA to prevent or reduce joint destruction. A possible link between this medication and ILD-induced toxicity was first reported in 1983.[6]

The incidence rate of acute/subacute hypersensitivity

pneumonitis in treated patients ranges between 0.86% to 6.9% and it is more predominant in women than men (3:1). Studies have reported the association between pulmonary toxicity and higher doses of methotrexate.[7] The extra-articular manifestations are noted in nearly 50% of the patients, and the lung involvement has been noted in majority of the cases.[8, 9] Early initiation of antiviral treatment is paramount in patients at high risk of complications and maximum treatment benefits are obtained on administration of antivirals within the first 48 hours of onset of symptoms. However, the treatment is initiated after 3 to 8 days in most of the patients with primary viral pneumonia.[10] Both oseltamivir and zanamivir are effective in treating the H1N1 2009 pandemic influenza A strain. Oseltamivir is considered as the first-line therapy and the recommended adult dose is 75 mg orally twice a day for 5 days.

Conclusion

Acute lung involvement due to viral etiology should be suspected in RA patients presenting with severe hypoxia on arterial blood gas (ABG) and abnormal chest imaging findings. It is imperative to differentiate RA- associated ILD from lung involvement due to viral etiology in RA patients for deciding the appropriate treatment strategies.

Competing interests

The authors declare that they have no competing interests.

Citation

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