

# Rheumatoid Arthritis-Related Lung Disease-- A Case Report

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**Key words :** Arthritis, Rheumatoid. Lung, interstitial disease.

## INTRODUCTION:

Rheumatoid lung is a frequent extra-articular manifestation found in 2 - 54% of patients with rheumatoid arthritis [1], occasionally being apparent before joint disease [2]. Pulmonary disease presents more commonly in males than in females in the ratio of 5:1 although RA is much more common in females (1). The Onset is most frequent during the 4th -5th decades of life [3].

We report a case of rheumatoid lung in a 30 year old man and discuss the plain radiograph and CT features of the condition. Collagen vascular disease. Pulmonary nodule.

## CASE REPORT:

A 30 year old man, a known case of rheumatoid arthritis, presented with cough with expectoration, haemoptysis and Grade III breathlessness. On examination, harsh vesicular breath sounds were heard. Ronchi and basal crepitations were heard bilaterally.

## Serological Investigations:

Anti Nuclear Antibodies against deoxyribonucleoprotein was 'POSITIVE'. Rheumatoid factor: 56.1 U/L [Normal 0-20 U/L]. "POSITIVE". Pleural Fluid aspiration analysis:

20ml of hemorrhagic fluid

Protein: 2.84 grams / dl.

Glucose: 75.0 mg / dl.

Plain Frontal Chest Radiograph showed bilateral, multiple, well defined rounded opacities of varying sizes and bilateral pleural effusion (Fig 1).

CT scan of the thorax showed multiple well defined nodular lesions of varying sizes, distributed predominantly in peribronchovascular and sub-pleural locations in both lung fields with surrounding reticulations. Few nodules showed

central low attenuation areas suggestive of necrosis (Figs. 2-4).



Fig.1: Plain frontal chest radiograph shows multiple, well defined opacities of varying sizes in the right middle and lower zones and in the left upper zone with evidence of bilateral pleural effusion.

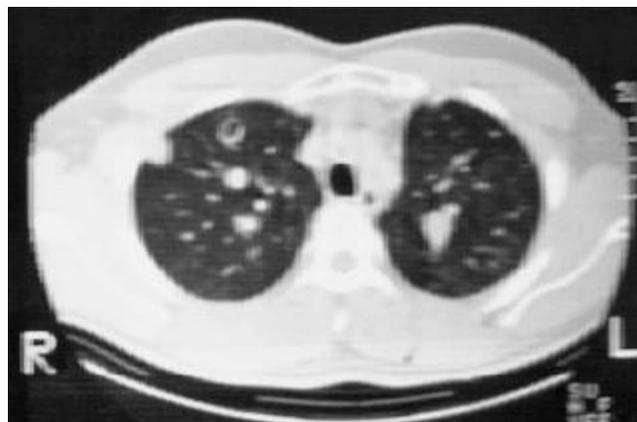


Fig.2: Transverse thin section CT scan obtained at the level of aortic arch shows multiple, well defined nodular lesions of varying sizes, distributed in peribroncho-vascular and sub-pleural locations in both upper lobes.

## DISCUSSION:

Rheumatoid arthritis is a chronic multi-system disease of unknown etiology probably resulting from the exposure of a genetically predisposed individual to some infectious

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agents. HLA-DR4 and related alleles are known major genetic risk factors for RA [3]. It usually manifests as chronic inflammatory arthritis of multiple joints and associated with a wide variety of pleuro-pulmonary abnormalities like pleural effusion / pleuritis, rheumatoid lung nodules, diffuse interstitial pneumonia, lymphoid hyperplasia, pulmonary vasculitis and airway disease (bronchiectasis, bronchiolitis obliterans and follicular bronchiolitis) [4].

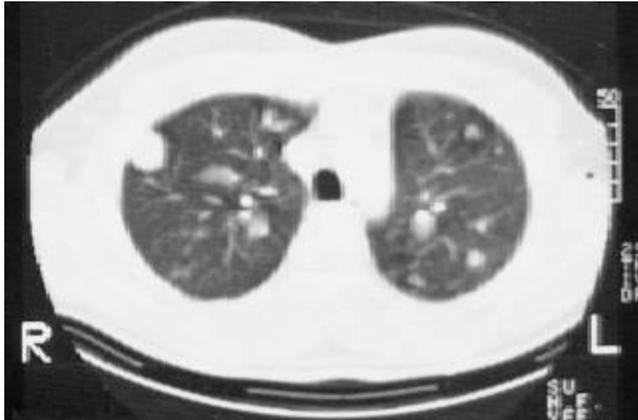


Fig.3: Transverse thin section CT scan obtained at the level below aortic arch shows multiple, well defined nodular lesions of varying sizes, distributed in peribroncho-vascular and sub-pleural locations in both upper lobes and one of the nodule on right side shows central low attenuation area suggestive of necrosis.

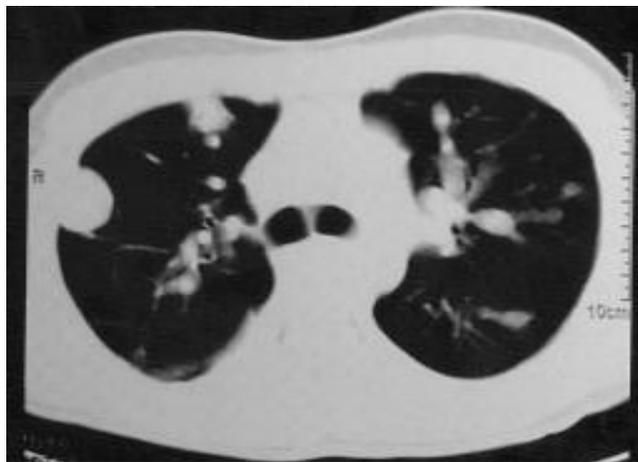


Fig.4: Transverse thin section CT scan obtained at the level of carina again shows well defined, subpleural, rounded, pulmonary parenchymal density in the right middle lobe.

Pathologically 5 different groups were identified on the basis of histological pattern namely -

- " Rheumatoid pulmonary nodules
- " Usual interstitial pneumonia.
- " BOOP(Bronchiolitis obliterans, organizing pneumonia)
- " Lymphoid hyperplasia
- " Cellular interstitial infiltrates [4].

In rheumatoid necrobiotic nodule a central zone of

eosinophilic fibrinoid necrosis is surrounded by palisading fibroblasts, the nodule often being centered on necrotic inflamed blood vessel [1].

Clinically presents with cough with expectoration, hemoptysis, exertional dyspnea and nocturnal wheezing.

Laboratory analysis shows rheumatoid factors, which are auto antibodies reactive with the Fc portion of Ig, found in more than 2/3rds of adults with the disease, however it is non-specific [3].

Pulmonary function tests show airway obstruction (decreased FEV1/VC) or small airway disease (decreased FEF25-75) [5].

Plain radiograph of chest is non specific and shows pleural effusion / thickening, necrobiotic nodules, diffuse interstitial fibrosis, caplans syndrome and pulmonary hypertension [6].

CT helps in identifying the lesions (Reticulations, ground glass opacity, honey combing, lung nodules, consolidation, bronchiectasis, air trapping, pleural effusion/thickening, lymph node enlargement, pulmonary artery enlargement) and categorizing the findings into major CT patterns, namely- usual interstitial pneumonia, non specific interstitial pneumonia, bronchiolitis and organizing pneumonia [7].

However the nature of the nodules cannot be determined from clinical or radiographic findings alone. A lung biopsy is needed to establish the diagnosis [8].

Differential diagnosis of pulmonary nodules and underlying lung disorders in a patient with RA include- mycobacterial infections, non-mycobacterial infections (Nocardia, Cryptococcus, histoplasma, aspergillus), neoplasms (bronchoalveolar carcinoma, multiple myeloma, lymphoma) and other collagen vascular diseases like SLE, systemic sclerosis, multiple connective tissue diseases, polyarteritis nodosa, dermatomyositis / polymyositis [8].

Treatment remains largely empirical to reduce inflammation, relieve pain and to control systemic involvement [3].

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Diseases related to Rheumatoid Arthritis Interstitial Lung Disease via text searches within MalaCards or GeneCards Suite gene sharing: (show top 50) (show all 208). # Related Disease.Â Rheumatoid nodule and combined pulmonary carcinoma: topographic correlations; a case report and review of the literature. 61. Spina D...Tosi P. Treatment of Rheumatoid Arthritis-Associated Interstitial Lung Disease: Lights and Shadows. by Giulia Cassone 1,2 , Andreina Manfredi 3, Caterina Vacchi 4, Fabrizio Luppi 5 , Francesca Coppi 6, Carlo Salvarani 3 and Marco Sebastiani 3,\* 1.Â Case reports, case series, and data from registries or retrospective studies demonstrated a wide spectrum of pulmonary effects (Table 1; drug toxicity), including improvement, but also the development and worsening of ILD [34,46,65,66]. Only a few reports describe the use of cDMARDs as a treatment for ILD in patients with RA (Table 3).Â Predicting outcomes in rheumatoid arthritis related interstitial lung disease. Eur. Respir. Methotrexate-related lymphomatoid granulomatosis: a case report of spontaneous regression of large tumours in multiple organs after cessation of methotrexate therapy in rheumatoid arthritis. Scand J Rheumatol. (2007) 36:64â€“7. doi: 10.1080/03009740600902403.Â Rheumatoid arthritis-related interstitial lung disease: associations, prognostic factors and physiological and radiological characteristicsâ€“a large multicentre UK study. Rheumatology. (2014) 53:1676â€“82. doi: 10.1093/rheumatology/keu165.Â Leflunomide use and risk of lung disease in rheumatoid arthritis: a systematic literature review and metaanalysis of randomized controlled trials. J Rheumatol. (2016) 43:855â€“60. doi: 10.3899/jrheum.150674.