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Bronchiectasis In Case Of Rheumatoid Arthritis – A Case Report

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Abstract:
Rheumatoid arthritis (RA) is a systemic autoimmune disorder that primarily affects the joint but can also lead to extra articular manifestation including pleuropulmonary involvement. One such rare extra articular manifestation of RA is Bronchiectasis, a condition characterized by permanent dilation and damage to the airways. This case report highlights the co-occurrence of bronchiectasis in a middle age female patient with rheumatoid arthritis. She presented with respiratory symptoms without any prior history of respiratory disease since childhood. Rheumatoid arthritis was confirmed by RA factor and Anti CCP antibody test. On HRCT thorax she was diagnosed as bilateral bronchiectasis. With detailed history and examination, we ruled out other causes of bronchiectasis. Her respiratory symptoms improved with antibiotics and chest physiotherapy and Rheumatoid arthritis was managed as per Rheumatologist opinion. Regular follow up was advised to monitor disease progression.
In this case report, we want to highlight the importance of recognizing pleuropulmonary complications like Interstitial lung disease, pleural disease or Bronchiectasis in patients of rheumatoid arthritis particularly those with persistent respiratory symptoms. Early diagnosis and multidisciplinary approach to treatment are essential for improving outcomes and to prevent progressive pulmonary complications in them.

Keywords: *Rheumatoid arthritis (RA); Bronchiectasis; Lung and Autoimmune disorder.*

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I. Introduction

Rheumatoid arthritis is a chronic, progressive inflammatory, autoimmune disorder primarily affecting the synovial joints, but up to 50% of patients develop extra-articular manifestations, with pulmonary involvement being a significant contributor to morbidity and mortality[1]. Respiratory symptoms in rheumatoid arthritis can be due to a variety of conditions that affect the parenchyma, pleura, airways or vasculature[2]. Complications may arise directly from rheumatoid arthritis involvement or may occur secondary to immune modulating medications used to treat rheumatoid arthritis. The majority of respiratory manifestations occur within the first 5 years of disease[3]. Among these, bronchiectasis is less commonly reported but clinically significant due to irreversible airway dilation, chronic inflammation, recurrent infections[4]. The pathogenesis of RA associated bronchiectasis involves immune mediated airway damage, impaired mucociliary clearance, and recurrent infections due to immunosuppression[5]. This report presents a case of RA complicated by bronchiectasis in a middle-aged female, emphasizing the need for timely diagnosis and intervention.

II. Case Report

A 49 years old female, known case of seropositive rheumatoid arthritis for 5 year and on irregular treatment, presented with progressive dyspnea on exertion (mmRc grade class I) for four years, exacerbated in the past 8 days, along with chronic productive cough with whitish expectoration for 1 month and fever on and off for 15 days. She denied any past history of pneumonia, tuberculosis, childhood infection like measles, chicken pox; smoking or occupational exposure and no significant family history. Patient has no history of respiratory complaints in past. On examination, she has tachypnea and tachycardia. Although she does not exhibit clubbing or cyanosis, she does have metacarpophalangeal and wrists joint tenderness consistent with active rheumatoid arthritis. Respiratory examination reveals bilateral expiratory rhonchi on auscultation.

Chest X-ray show right perihilar and bilateral lower zone cystic changes (figure 1). A high-resolution CT scan of lungs shows moderate fibrobronchiectatic, fibrocystic and cystic bronchiectatic changes involving the medial segment of the right middle lobe, medial basal segment of the right lower lobe, and left lower lobe (figure). A 2 x 1.5 x 3.7 cm size tracheal diverticulum is seen in right paratracheal region. Sputum culture report is positive for Pseudomonas aeruginosa and Klebsiella pneumoniae (non ESBL).

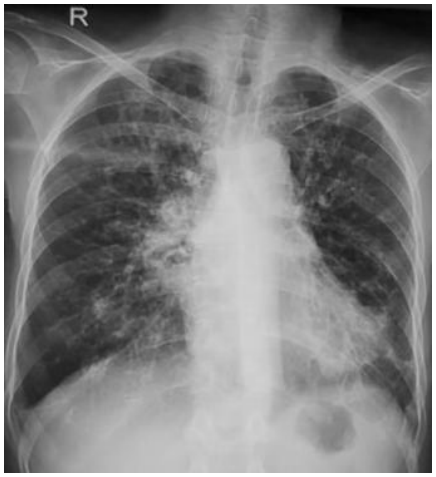

FIGURE 1 CHEST X RAY

Serology tests are positive for CRP: 192 mg/dl, ESR: 36 mm/hr, Rheumatoid factor: 1:16, and Anti-CCP: 295.88 U/mL (strongly positive). Spirometry shows a mixed obstructive-restrictive pattern with FEV1 62% predicted and FEV1/FVC ratio of 68%.

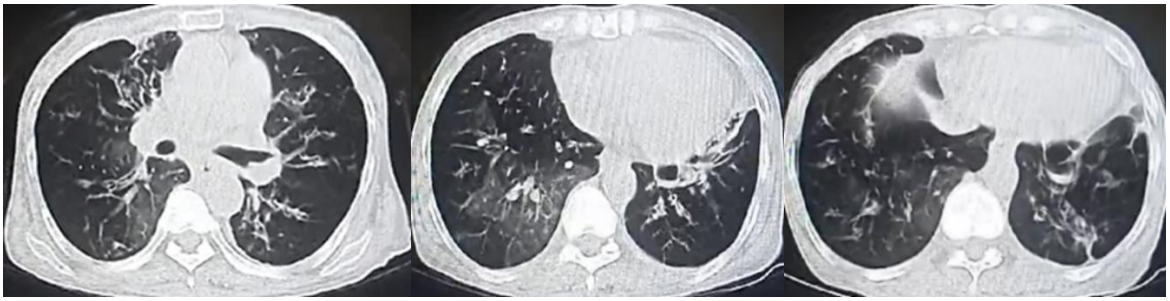

FIGURE 2: High-resolution computed tomography of the lungs showing bilateral bronchiectasis in lower lobes of lung.

Patient was treated with antibiotics based on sputum culture sensitivity and started on chest physiotherapy for airway clearance. Respiratory symptoms improve significantly over the following weeks. Rheumatoid arthritis was managed with oral Prednisolone 5 mg/day and Etoricoxib 60 mg/day. She was advised for regular follow-up to monitor for lung function and RA activity.

III. Discussion

Pulmonary involvement is one of the most significant extra-articular manifestations of RA, contributing to both morbidity and mortality. It is reported that 10–20% of patients with RA develop clinically significant pulmonary disease, although subclinical involvement is found in 30–50% of cases when investigated with high-resolution computed tomography (HRCT)[6]. Bronchiectasis usually follow the development of RA[7]. Development of bronchiectasis usually not related to severity of rheumatoid arthritis. The incidence of bronchiectasis in RA patients is estimated to be 2% to 5% clinically, but up to 30% on HRCT-based studies[8]. A recent study shows that, Individual with RA had approximately twice the risk of developing bronchiectasis than matched control individuals. The increase risk was more evident in individuals with seropositive RA than in those with seronegative RA[9].

In India, bronchiectasis is often linked to post-infectious etiologies like tuberculosis, but non-infectious causes such as autoimmune diseases are increasingly being recognized[10]. Our patient had no history of childhood infection like persistent pneumonia, measles, cystic fibrosis, pertussis, tuberculosis, smoking or environmental exposure, ruling out common causes of bronchiectasis. In this case, autoimmune mechanisms, immunosuppressive therapy (e.g., corticosteroids), and recurrent lower respiratory tract infections can weaken bronchial structural integrity, leading to focal or multifocal airway dilatation. Patient HRCT thorax also revealed a tracheal diverticulum, a rare airway anomaly, usually asymptomatic but significant in patients with chronic cough. In the context of RA, such findings may result from chronic airway inflammation or increased intraluminal pressure due to cough and can contribute to the development or worsening of bronchiectasis[11].

In a study by Mori et al., high levels of anti-CCP antibodies were associated strongly with airway disease in RA patients[12]. High seropositivity (RF and anti-CCP) and elevated CRP or ESR correlates with severe pulmonary outcomes and warrant proactive HRCT screening. The isolation of microorganism emphasizes the need for prompt culture-directed therapy to prevent exacerbations. Early radiological imaging, targeted antibiotics therapy with chest physiotherapy and airway clearance techniques can prevent progression of disease and enhance the quality of life in long term management of bronchiectasis with RA.

IV. Conclusion

Bronchiectasis is one of the extra articular lung manifestation of rheumatoid arthritis. As having bronchiectasis in rheumatoid arthritis significantly impacts the health of patient with rheumatoid arthritis, increasing infective exacerbations, poor quality of life and leading to significant morbidity shortening lifespan. Early suspicion and multidisciplinary care will significantly give better outcome.

Patient with rheumatoid arthritis and bronchiectasis have advance obstructive airway disease, increase tendency for recurrent pulmonary infections, tendency of rapid lung function decline and higher morbidity with mortality. These patients needs regular follow up visits. The patients with RA diagnosed before bronchiectasis had a considerably higher cumulative incidence of mortality within a 3 year of follow-up period than those with RA diagnosed after bronchiectasis[13].

Team of Rheumatologist, Pulmonologist and physiotherapist needs to work together for these rheumatoid arthritis related bronchiectasis patients to give better quality of life to them. We have insufficient data to link probable risk factors for association of rheumatoid arthritis and bronchiectasis. Further studies are required to explore this association between rheumatoid arthritis and bronchiectasis.

References

[1]. Shaw M, Et Al *Thorax.* 2015;70(8):771-777
[2]. Megan Shaw, Bridget F. Collins, Laweence A. Ho And Ganesh Raghu Et Al. Comphrenesive, Up To Date Review Of RA Associated Lung Diseases Including Pathogenesis And Management.
[3]. Marigliano B, Soriano A, Margiotta D, Et Al. Lung Involvement In Connective Tissue Disease: A Comprehensive Review And A Focus On Rheumatoid Arthritis. Autoimmune Rev 2013; 12: 1076-1084.
[4]. Perry E, Et Al. *Eur Respir J.* 2019; 54(3): 1900047
[5]. Mcdonough JE, Et Al. Ann Rheum Dis. 2017;76(4):688-695
[6]. Wilczynska MM, Condliffe AM , Mckeon DJ. Coexistence Of Bronchiectasis And Rheumatoid Arthritis: Revisited. Respir Care 2013; 58:8.
[7]. Cohen M, Sahn SA. Bronchiectasis In Systemic Disease. Chest 1999; 116: 1063-1074.
[8]. Coret B, Flipo RM, Remy Jardin M, Et Al. Use Of High Resolution Computed Tomography Of The Lungs In Patients With Rheumatoid Arthritis. Ann Rheum Dis 1995; 54:5.
[9]. Hayoung Choi, Kyungdo Han, Jin Hyung Jung, Junhee Park, Bo-Guen Kim, Bumhee Yang, Yeonghee Eun, Hyungjin Kim, Dong Wook Shin, Hyun Lee. Impact Of Rheumatoid Arthritis And Seropositivity On The Risk Of Non-Cystic Fibrosis Bronchiectasis, CHEST, Volume 165, Issue 6,2024, Pages 1330-1340,
[10]. American College Of Rheumatology Arthritis Care Res. 2022. (Global Guidelines)
[11]. Gupta D, Et Al. Lung India. 2020; 37(3): 245-250.
[12]. Mori S, Koga Y, Sugimoto M. Different Risk Factors Between Interstitial Lung Disease And Airway Disease In Rheumatoid Arthritis. Respir Med. 2012 Nov;106(11):1591-9
[13]. Lin H-C, Huang H-Y, Lin C-Y, Fang Y-F, Lin C-H, Huang Y-T, Chang C-H, Wang C-H, Huang J-L, Liao T-W And Hsieh M-H (2022) Clinical Outcomes And Prognostic Factors Of Bronchiectasis Rheumatoid Overlap Syndrome: A Multi-Institution Cohort Study. Front. Med. 9:1004550. Doi: 10.3389/Fmed.2022.1004550
[14]. Lin H-C Huang H_Y, LIN C-Y, Fang Y-F,: Clinical Outcomes And Prognostic Factors Of Bronchiectasis Rheumatoid Overlap Syndrome: A Multi-Institution Cohort Study.
[15]. Kelly CA, Gardiner PV, Pal B, Griffiths ID. Rheumatoid Arthritis And Bronchiectasis. Thorax. 1994;49(9):915-919.
[16]. Mcmahon MJ, Mcdermott M, Greally P, Casserly LF, Fitzgerald MX. Bronchiectasis In Rheumatoid Arthritis: A Clinical And Radiological Study. Q J Med. 1993;86(11):745-749.
[17]. Perry E, Kelly C. Bronchiectasis And Rheumatoid Arthritis: A Systematic Review. Rheumatology (Oxford). 2014;53(9):1608-1613.
[18]. Walker WC. Pulmonary Infections And Rheumatoid Arthritis. Rheumatolgy. 1977;16(3):162-169.
[19]. Bilgici A, Ulusoy H, Kuru O, Et Al. Pulmonary Involvement In Rheumatoid Arthritis. Rheumatology Int. 2005;25(6):429-435.
[20]. Gabbay E, Tarala R, Will R, Et Al. Interstitial Lung Disease And Bronchiectasis In Rheumatoid Arthritis: HRCT Study. Chest. 1999;116(4):1036-1042.
[21]. Demoruelle MK, Mittoo S, Solomon JJ. Connective Tissue Disease–Related Lung Disease: RA-Associated Bronchiectasis. Clin Chest Med. 2019;40(3):545-560.
[22]. Quint JK, Millett ER, Joshi M, Et Al. Changes In The Incidence, Prevalence And Mortality Of Bronchiectasis In The UK. Thorax. 2016;71(7):596-602.
[23]. Lai R, Kremer JM. Pulmonary Complications Of Rheumatoid Arthritis. Semin Respir Crit Care Med. 2007;28(4): 430-437
[24]. Pasteur MC, Helliwell SM, Houghton SJ, Et Al. An Investigation Into Causative Factors In Patients With Bronchiectasis. Am J Respir Crit Care Med. 2000;162(4):1277-1284.
[25]. Kang JY, Jo KW, Lee CK, Et Al. Clinical Characteristics Of Rheumatoid Arthritis-Associated Bronchiectasis. Rheumatol Int. 2015;35(12):2029-2036.
[26]. King TE Jr, Pardo A, Selman M. Rheumatoid Arthritis–Associated Lung Disease. Fishman's Pulmonary Diseases And Disorders. 6th Ed. New York: Mcgraw-Hill; 2023.
[27]. Cottin V, Cordier JF. Rheumatoid Arthritis–Associated Lung Disease. Murray & Nadel's Textbook Of Respiratory Medicine. 7th Ed. Philadelphia: Elsevier; 2022.