Case Report

A Foe Incognito: An Interesting Case of Pleurisy


Abstract

Though pleuritis and pleural effusion are common in lupus patients they are distinctly rare as the initial manifestation of lupus. Diagnosis of lupus pleuritis is also a difficult task and often costly and lengthy immunological panels are employed to diagnose it. We report one case of systemic lupus erythematosus (SLE) presenting with lupus pleuritis as the first manifestation. We propose that demonstration LE cells have a very prominent role in differentiating lupus pleuritis from other causes of pleural effusions in SLE patients. We believe that our case is the first report from India which shows pleuritis may be a first manifestation of lupus.

Background

Systemic lupus erythematosus (SLE) is a common autoimmune disorder which can involve virtually any organ in the body. SLE is associated with pleuropulmonary manifestations in a significant proportion of cases. Pleuritis, with or without pleural effusion, is the most common pulmonary manifestation. On the other hand as an initial presentation of SLE, pleuritis is distinctly uncommon. Early onset pleural effusion can be difficult to diagnose due to nonspecific clinical and routine biochemical and pleural fluid characteristics.

We report one case of SLE presenting with lupus pleuritis as the first manifestation whom we diagnosed with demonstration of LE cells.

Case Presentation

A 36 year old female presented a month–long history of progressive respiratory distress. Initially this shortness of breath was associated with left sided pleuritic chest pain for seven days. She had a history of contact with a case of sputum positive tuberculosis (her father) more than five years back. Initial evaluations revealed exudative pleural effusion with mild anaemia (Hb – 9.8 Gm / dL). Mantoux test was positive (16mm X 13mm). She was empirically started with four drug anti–tubercular therapy (Isoniazid, Rifampicin, Ethambutol, Pyrazinamide) (ATT) with oral steroids (prednisolone 40mg). On follow – up two weeks later her pleural effusion was better though the pallor persisted. She was given oral iron supplementation therapy. She presented to us six weeks later with severe breathlessness. She has been on ATT stringently. Repeat examination revealed moderate pallor with pleural effusion (Figure 1). Peripheral smear now showed pancytopenia. Liver and renal function tests were normal. Direct Coomb’s test (DCT) was positive and absolute reticulocyte count was 5.6% (corrected reticulocyte count of 3.2%).

Pleural fluid was exudative (total protein 5.6 Gm / dL) with ADA level of 22.8. All cultures and malignant cell examination came out to be negative. In the background of exudative pleural effusion (nonresponder to ATT), cytopenia, DCT positive anaemia in a female patient, SLE as the next diagnosis came to our mind.

Paired samples were sent for comparison of pleural fluid to serum ANA determination and the pleural fluid to serum ANA ratio came to be more than one. Pleural fluid ANA was positive at 1:1280 dilutions. To further confirm the diagnosis, pleural fluid LE cells were checked which revealed both LE cells and LE phenomenon (Figure 2).

Samples were then sent for serum Anti–ds DNA which was positive at 1:640 dilutions and C₃ which was found to be depressed. Anti–histone antibodies were negative.

Patient was put off the ATT and put on intravenous methylprednisolone (500 mg X 3 days) followed by oral prednisolone (1 mg / kg body weight) along with hydroxychloroquine (400 mg daily) which resulted significant clinical and radiological resolution (Figure 3). She has been on follow – up for more than six months with no development of any other chest symptoms.

Final Diagnosis: Systemic Lupus Erythematosus with initial presentation as lupus pleuritis

Discussion

Systemic lupus erythematosus (SLE) is a chronic inflammatory autoimmune disorder that commonly presents with arthritis, cutaneous manifestations and renal involvement.

Pleuritis has been defined as “convincing history of pleuritic pain or rubbing heard by a physician or evidence of pleural effusion” by the 1997 update of the 1982 American College of Rheumatology Revised Criteria for Classification for SLE or as “Pleuritic chest pain with pleural rub or effusion, or pleural thickening” in the SLE disease activity index (SLEDAI).

Leechawengwong et al were the first to report that only SLE related pleural effusions showed pleural fluid ANA positivity. Good et al added that high pleural fluid ANA titers (>1:160) and a pleural fluid to serum ANA ratio of >1 was strongly suggestive of lupus pleuritis. Recently a study using the HEP – 2 method of ANA determination by Khareet al agreed with these. This study differed from the two previous studies in that the incidence of positive ANA tests among patients without SLE was noted in 10.8% pleural fluids of which three (~4%) had high ANA titers.
Le cells have been propounded as pathognomonic for systemic lupus. Though said to be obsolete for the diagnosis of lupus, it has a special place for diagnosing two troubling complications of lupus, lupus pleuritis and pericarditis. Wang et al found 8 of their 10 lupus serositis patients to have presence of LE cells in serosal fluids. Though almost 26% of their non-lupus patients had ANA positivity in serosal fluids, none of the SLE patients with serositis from non-lupus etiologies or non-lupus patients with effusions had LE cells in their effusion fluids. The study by Good et al showed even a higher proportion of LE cell positivity in lupus pleuritis patients (87.5%). LE cells can even be found in pleural fluid when serum ANA tests are negative. The generation of LE cells in pleural fluid has been attributed to autoincubation of polymorphonuclear leukocytes with nucleoprotein released from stagnating cells in pleural space and subsequently phagocytised by viable neutrophils.

A recent large Canadian study demonstrated that greater disease duration, higher SLEDAI score, age at SLE diagnosis, and anti-Sm and anti-RNP seropositivity were significant predictors of pleuritis. The effect of the antibodies persist even after adjusting for the clinical variables with a nearly 2-fold greater risk of pleuritis. Also in other studies documentation of lupus pleuritis is being relied upon extensive immunological panel including C₃, ANA, Anti-dS DNA and anti-extractable nuclear antigens.

Pleural disease has traditionally been regarded as the most common intrathoracic manifestations of SLE, with pathologic evidence of pleural involvement in 50 – 83% of patients at autopsy and pleural effusion in up to 35 – 50% during disease course. Pleural abnormalities were relatively uncommon in a recent Indian cohort (18.42%). However, pleuritis associated with or without effusion as an initiate manifestation of SLE is 3% and 1% respectively.

The difficulty in diagnosing lupus pleuritis in that situation gets compounded by the fact that clinical and routine blood biochemistry and pleural fluid study are nonchalantly uninformative about the differential diagnosis.
Our case is interesting as it reports a patient of SLE initiating with unilateral lupus pleuritis, most likely the first report from India. We diagnosed her appropriately with minimal use of costly immunological parameters and use of relatively cheaper and possibly more sensitive pathological examination, i.e., demonstration of LE cells.

Conclusions

A high titre of pleural fluid ANA in a patient with SLE is suggestive of lupus pleuritis. Pleural fluid and serum ANA titre comparisons are necessary for proper diagnosis. A plain haematoxylin and eosin preparation for cytology which may simply demonstrate an LE cell, which is diagnostic for lupus pleuritis, might alleviate many dilemmas for the clinician and many ailments for the patient.

Acknowledgement

We acknowledge the immense help provided by the primary non-medical care providers especially the bed side attendants and the Sisters for their constant watch without which none of this would have been possible.

References