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Post Covid Tubercular Pleural Effusion and Diverticula in Sigmoid Colon with Dextrocardia and Situs Inversus- A Case Report

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ABSTRACT: Covid 19 virus has been identified as one of the most contagious virus which affects the respiratory system. Patient presents with acute symptoms and subsequently develops respiratory failure. It alters the host immune responses makes the patients vulnerable to the other invasive pathogens. Patients have encountered post covid complications like bronchiectasis, fibrosis, pleural effusions ,pneumothorax and pericardial effusions. Here we present a case of post covid tubercular pleural effusion and diverticula in sigmoid colin with dextrocardia and situs inversus.

I. INTRODUCTION

Covid -19 pandemic has affected the lives globally. It is caused by single stranded RNA virus which affects lungs, neurological system and liver. Corona virus has presents as wide spectrum of symptoms which include cough, fever, dyspnea, myalgia, fatigue, diarrhea ,hemopytsis,etc. Real time reverse transcription polymerase chain reaction from nasopharyngeal swab collections is used to make diagnosis. Chest imaging plays a major role for visualizing lung pathologies and subsequently sequelae of covid pneumonia. Chest radiograph shows bilateral peripheral opacities involving the lung bases. CT chest shows ground glass opacities, consolidations, pneumatoceles, vascular enlargement with traction bronchiectasis. Isolated pleural effusion, lung cavitation, lymphadenopathy, calcifications are rarely seen however post covid lung fibrosis is predominant feature.Recent study found that severe/critical patients showed more lymph node enlargement, pericardial effusion, and pleural effusion, which suggesting these extrapulmonary lesions may indicate the occurrence of severe inflammation, However, the sample size of that research was relatively small (1).

Tuberculosis is an endemic disease in India. It presents as various forms in the patients which could be pulmonary and extra pulmonary. Covid causes severe immunosuppression in the patients, therefore patients become prone to opportunistic infections like fungal infections, tuberculosis, etc.

Sigmoid colon diverticulum usually range from range from 2–3mm to 2cm in size, can enlarge to more than 10 times. Patient presents with chronic abdominal pain,weight loss, altered bowel habits, abdominal distention,fistula formation, bleeding, perforation, or bowel obstruction. Small diverticulum may be asymptomatic. Imaging including CT and abdominal x-ray is used to make diagnosis. Surgical resection is the treatment of choice in symptomatic patients.

Dextrocardia with situs inversus is a rare congenital anomaly and is characterized by inversely rotated visceral organs of the abdomenand right-sided heart apex. The exact cause for dextrocardia is unknown.Individuals with situs inversus are unaware of their unusual congenital anomaly until they seek medical attention for totally unrelated conditions(2). It may be asymptomatic and an incidental finding or maybe associated with other congenital abnormalities.

II. CASE REPORT

51 year old female presented with chief complaint ofbreathlessness(MMRC grade II) ,decrease appetite, nausea, vomiting , restlessness for past 10 days and severe pain abdomen since 1 day which was acute in onset and non radiating in nature. There was no history of cough, wheeze,

chest pain and hemoptysis . There was no occupational exposure to dust, chemicals and smoke.

Personal history of patient showed that patient was non alcoholic, non smoker and there was no history of drug abuse neither orally nor intravenously. Patient had no history of Type 2 diabetes mellitus, hypertension or any other chronic illness.

Past history of the patient revealed that patient was known case of covid 19 pneumonia. Patient had symptoms of breathlessness, fever, dry cough, myalgia, headache 30 days back which was acute in onset. Patient RT-PCR for covid 19 was done for which she was positive. Gradually patient's symptoms improved with adequate treatment and on 20th day of illness RT-PCR was repeated which came out to be negative and patient was discharged under satisfactory condition.

On examination, patient was moderately built. There was no pallor, cyanosis, clubbing, pedal oedema and lymphadenopathy. Chest was bilaterally symmetrical, chest expansion was normal and there was no scar mark. On auscultation, there was diminished breadth sounds over right infrascapular region.

Patient's serological investigations revealed normal Hb- 14gm%, elevated TLC (12,800/cumm), DLC (polymorphs-81%(raised),lymphocytes-14%,monocytes-05%,eosinophils-00,basophils-00) with decreased platelet count of 1,25,000/cumm. Patient had elevated CRP that is 80.8 mg/l. Blood urea elevated that is 69.8. Rest renal and liver function tests were within normal limits. Patient's ESR was of 55mm. HIV serology was non reactive.

Further, radiological investigations were done including chest radiograph, CT chest and CT abdomen which revealed surprising results. Chest radiograph shows bilateral blunting of costophrenic angles and prominence of broncho vascular markings with right sided heart border. CT chest (figure2) showed dextrocardia with situs inversus. There was minimal degree of right sided pleural effusion with pericardial thickening. There was prominence of bronchovascular bundles in both lung fields with air trapping in basal segments of the left lower lobe with associated mediastinal lymph nodes at the porta were visualised . CT abdomenrevealed multiple enlarged lymph nodes at the porta showing hypodense attenuation. Few diverticula in relation to the sigmoid colon were also seen.

In view of CT chest, USG guided aspiration of pleural fluid from right 6th intercoastal space was performed and fluid was sent for investigations. Pleural fluid analysis showed that fluid was turbid in appearance, glucose was 76gm%, proteins was elevated (4.91 gm%),and lymphocytes were raised (80%) in cytological picture. Adenosine deaminase of pleural fluid was 78(raised). Interferon gamma assay of pleural fluid was found to be positive for mycobacterium tuberculosis. Therefore, final diagnosis of extrapulmonary tuberculosis was made and patient was put on anti tubercular therapy along with intravenous antibiotics, antacids, intravenous fluids, anti-platelets and supportive medications.

Surgical opinion was taken for the diverticula in sigmoid colon. Patient was treated conservatively and was put on follow up if any further surgical assistant needed.

III. DISCUSSION

Pleural effusion is defined as accumulation of fluid in the pleural space which can be transudative or exudative in nature. There are various causes of pleural effusion which include bacterial pneumonitis, viral pneumonitis, congestive cardiac failure, malignancy, etc.Patients with a non-malignant pleural effusion have a one-year mortality in the range of 25 to 57% (3). A recent study found that pleural effusion occurred in 10.3% COVID-19 patients and those refractory patients had a higher incidence of pleural effusion than general COVID-19 patients, suggesting a more obviously inflammatory response in the lung (4).Isolated pleural effusion post covid infection is rarely seen. However, due to sustained immunosuppression caused by covid 19 virus cause inflammation of the pleura and in country like India where tuberculosis is endemic, it is very likely patient can be superimposed with tubercular infection.

Extrapulmonary TB is the presenting issue in approximately 25% of adults globally, with lymph nodes and the pleura being the most common sites of disease (5). Patient presents with pleuritic chest pain, cough, fever, loss of appetite with weight loss.TB pleural effusions often spontaneously resolve, leaving a thickened pleura(6); however, up approximately two-third of patients will go on to develop active TB(7).Diagnosis is made on basis of chest imaging which shows blunting of costophrenic angle with rising curve mainly on chest radiograph. To differentiate, whether the cause is exudative or transudative pleural fluid analysis is done after aspiration. In the above case, proteins are more than three and glucose is slightly raised with ADA more than 40 therefore, diagnosis of exudative pleural effusion was made.The gold standard for

diagnosis remains identification of MTB in the pleural fluid, sputum or pleura(8). However, pleural TB often presents a diagnostic challenge, with positive pleural fluid culture in only 40% of cases(9).

Diverticular disease of the colon mainly affects the sigmoid colon. Symptoms can be mild to acute bouts of diverticulitis complicated by abscess or frank perforation. Our patient presented with acute pain abdomen and diverticula on CT abdomen were found incidentally.Sigmoidoscopy is helpful to rule out a distal colonic carcinoma.The treatment of choice for a diverticula is complete resection of the diverticulum and/or the adjacent sigmoid colon. This can be performed with a primary anastomosis or a double-stage procedure.
Dextrocardia with situs inversus can be a considerable danger because it remains asymptomatic and normally remains undiagnosed unless it is diagnosed incidentally while investigating for another ailment.The common congenital cardiac anomalies associated with dextrocardia with situs inversus are atrial situs solitus (93%), discordant AV connection (44%), and discordant Ventriculo-Atrial (VA) connection (30%). Congenitally corrected Transposition of Great Arteries (TGA) occurs in less than 1% of all forms of congenital heart disease(10).About 25% of individuals with situs inversus have an association with primary ciliary dyskinesia. Situs inversus totalis with primary ciliary dyskinesia together known as Kartagener`s syndrome characterized by the triad of situs inversus, chronic sinusitis, and bronchiectasis (11). However, in our patient history of chronic sinusitis was ruled out. CT remains the best imaging modality for dextrocardia with situs inversus.Electrocardiogram can however, confirm the medical diagnosis of the two forms of dextrocardia and also can show inversion of the electrical waves. This is considered one of the best diagnostic test options (12). In the presented case, it was an incidental finding and the patient was asymptomatic and there were no evidence of other congenital abnormalities.

IV. CONCLUSION

Extrapulmonary tuberculosis occurs in various forms. Pleural effusion is one the most important manifestation of tuberculosis. Mycobacterium tuberculosis is one the leading cause of infections in the immunosuppressed individuals. This case highlights the association of post covid complications a patient can suffer which can present in any form. Any endemic infection like tuberculosis in our case can infect the patient who is covid recovered irrelevant to the past history of the patient. Awareness of association between the two pathologies with high index of suspicion based on clinical and radiological findings will help in early diagnosis and subsequently reducing the morbidity and mortality

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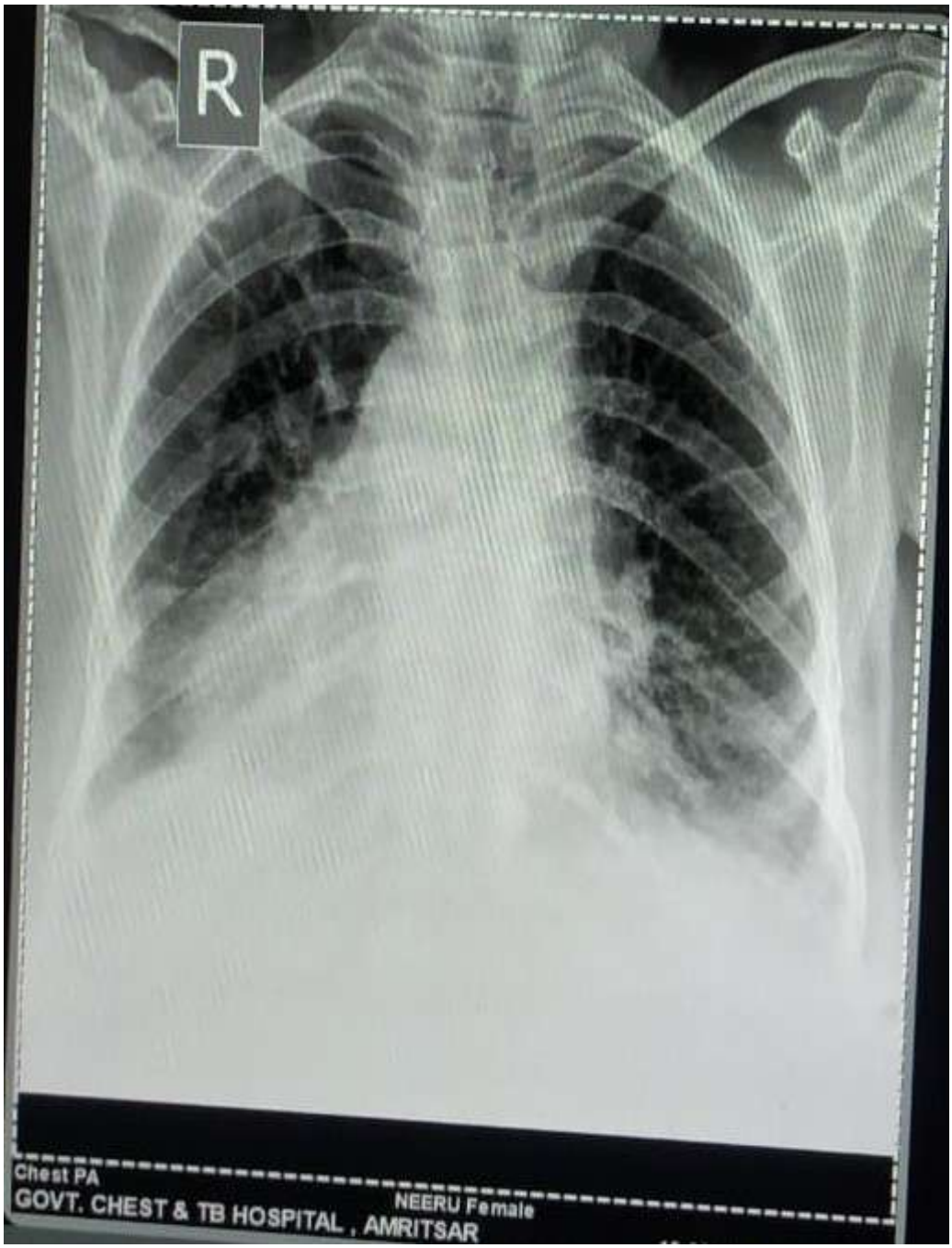

FIGURE 1

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FIGURE 2

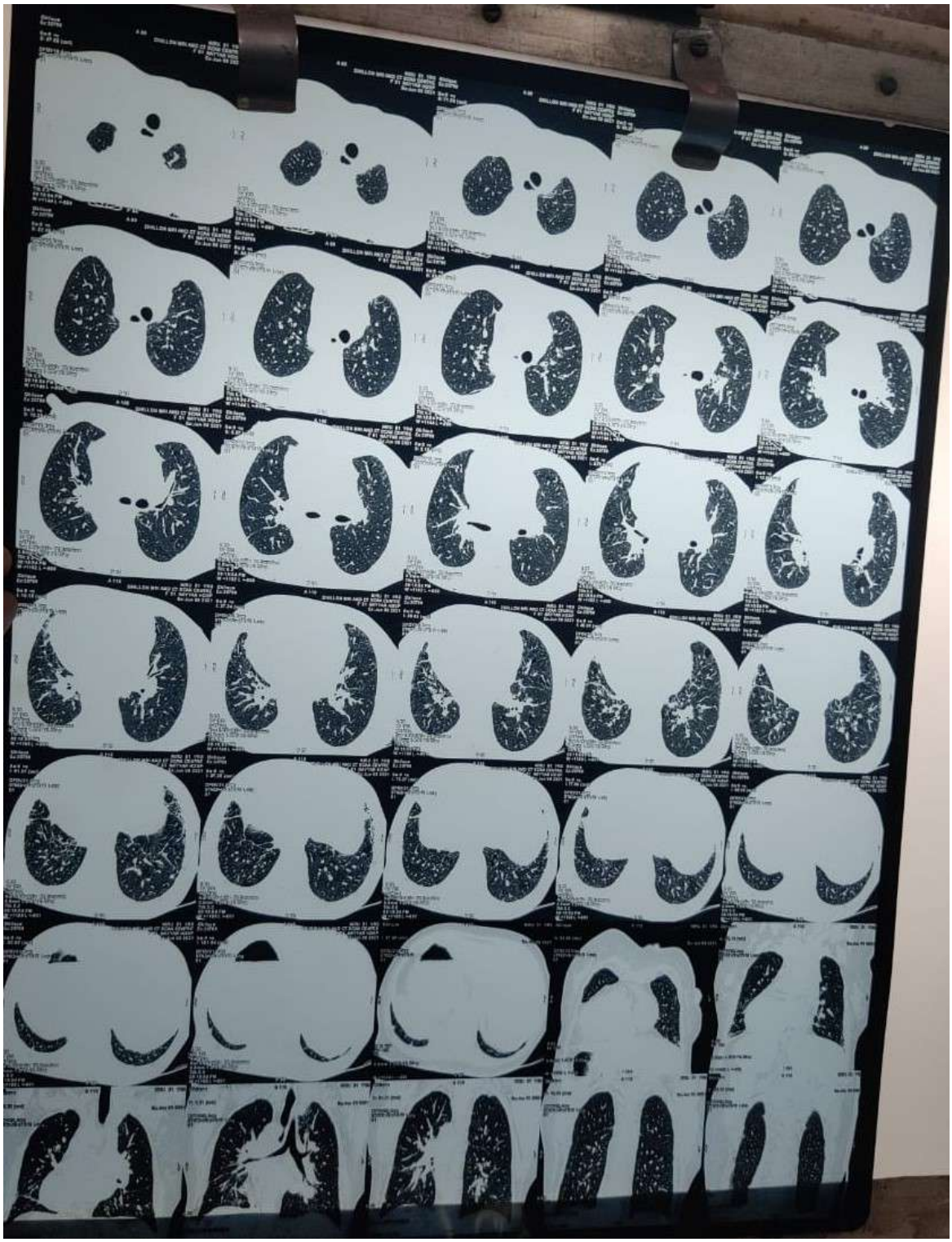

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FIGURE 2