

COPD patient with a classical radiological sign

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A 55 years old smoker was admitted with chief complaints of progressive dyspnea, dry cough, fever, loss of appetite and loss of weight. On examination, patient was febrile and his physical examination showed reduced breath sounds and crepts in left axillary and mammary area in association with bilateral diffuse polyphonic rhonchi. Laboratory investigations showed hemoglobin 12.4g/dL, white blood cell count ($\geq 13200/\text{mm}^3$), increased proportion of neutrophils on differential analysis (77% neutrophils), blood urea 86 mg/dL and serum creatinine 1.8 mg/dL. Conventional chest radiograph was done and patient also underwent computed tomography (CT) chest. Flexible bronchoscopy guided bronchoalveolar lavage revealed growth of streptococcus pneumoniae.

Questions: Can u name the radiological sign demonstrated in CT chest? Can u explain its occurrence?

Answer: Swiss cheese sign COPD with superadded infection, pulmonary edema or hemorrhage Pulmonary lacerations with pneumatocele

Here we present an interesting case of a patient who presented in our outpatient department with acute exacerbation of COPD. Patient was initially suspected on lines of pulmonary tuberculosis as cause of exacerbation of COPD but later found to be case of bacterial infection giving typical appearance of 'Swiss Cheese Sign' in background of emphysema.

The COPD patients are prone for infective exacerbation and these infections can present as lung consolidation. The consolidation in background of emphysematous changes of COPD may look inhomogeneous and mimic multiple cavities because of underlying low attenuation areas. Hence in this situation, lung may appear

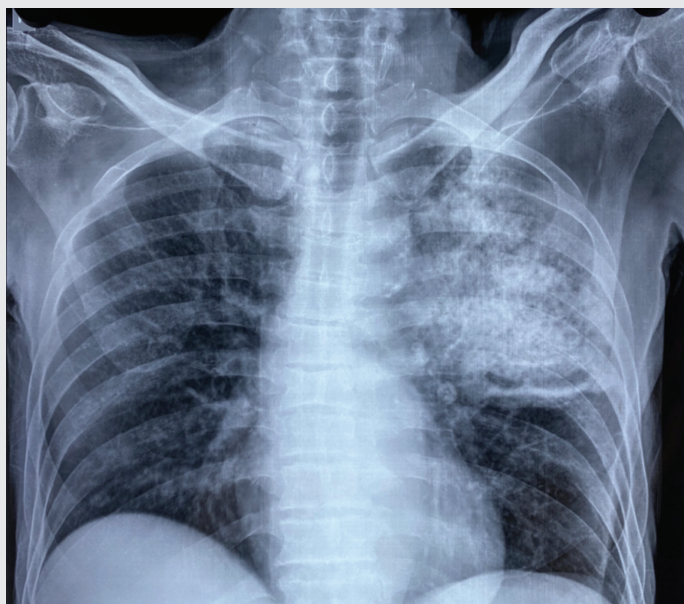


Figure 1. Chest X-ray posteroanterior view showing air space consolidation with central tiny air lucencies

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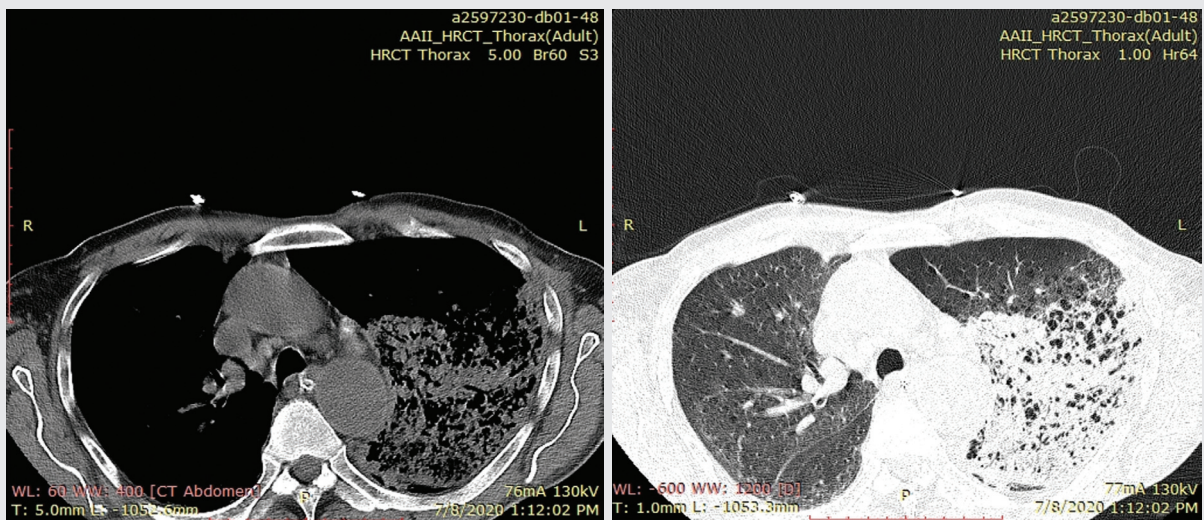


Figure 2. HRCT chest pulmonary and mediastinal window showing patch of consolidation in the background of emphysematous changes giving swiss cheese appearance

non-uniformly perforated forming ‘Swiss Cheese appearance’ (Swiss — style cheese that contain multiple holes) due to parenchymal consolidation [1, 2]. These cavity like holes within the pneumonic consolidation due to emphysema can mimic cavity forming consolidations like necrotising pneumonia, adenocarcinoma in situ and occasionally reticulo-nodular pattern giving appearance of interstitial lung diseases [1–3].

Other than pneumonia, pulmonary edema and hemorrhage in COPD patients have been described to have swiss cheese sign appearance. The sign has also been described for fluid containing pneumatoceles on CT chest secondary to pulmonary lacerations [4].

Hence it is crucial for a radiologist or pulmonologist to look for evidence of emphysema on radiology to correctly diagnose the unusual patterns of air space consolidation in the background of emphysema rather than cavitation or reticular-nodular pattern.

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