Chronic Exogenous Lipoid Pneumonia

According to the chest x-ray (CXR), there were defined signs of left-sided hydrothorax, a suspected nodule in the left upper lobe (LUL) and lung consolidation in the right lower lobe (RLL) (Fig. 1).

Multi-slice computed tomography (MSCT) was performed with working hypothesis of pneumonia in the RLL, left-sided hydrothorax and metastases in the LUL. The following changes were identified: lung consolidation were determined in the basal segments and in the middle lobe of the right lung with indistinct irregular margins, surrounded by uneven patches of ground-glass opacity (Fig. 2). Density in these areas was about -50 HU. The volume of the RLL was reduced, segmental bronchi located close together (Fig. 3). In the left lower lobe (LLL) lung consolidation with fat density was observed (Fig. 4). Left-sided hydrothorax and pulmonary nodules was also determined in LUL (Fig. 5).

Discussion:

Lipoid pneumonia (LP) is a rare condition characterized by the accumulation of fat in the alveoli. The reaction in the lung parenchyma is similar to the reaction to a foreign body [1, 2]. LP can be exogenous - inhalation or aspiration of various fatty substances or endogenous - when depositing in the alveolar macrophages of endogenous cholesterol or other lipids which are allocated from necrotic cells [3].

Exogenous LP can be acute (rare) or chronic (more often). LP develops with prolonged using of laxatives and fat-containing nasal drops, after prolonged infusions of mineral oils in the tracheostomy or in cases of professional contact with the oil-containing aerosols [2, 3].

Symptoms of LP are nonspecific. In acute exogenous LP they are coughing, shortness of breath, and low-grade fever, that disappear against the background of symptomatic therapy. Chronic LP is often asymptomatic and detected incidentally on X-ray [4].

CXR findings of LP are very diverse and nonspecific. Radiological appearance includes lung parenchymal opacities and consolidations and less commonly pneumatoceles, pneumothorax, pleural effusions, and pneumomediastinum [4].

MSCT shows lung consolidation predominantly in the LLL with or without fat-like low attenuation or ground-glass
opacities with associated thickening of interlobular septa with a crazy-paving pattern. Lung tissue fibrosis is determined around pathological changes in chronic form. Sometimes the solid lesions without fat density may mimic severe lung diseases like primary lung cancer [3, 4].

The differential diagnosis is carried out with a variety of tumours of the lung, bacterial or viral pneumonia, pulmonary alveolar proteinosis, or hamartomas [4]. In this case, the patient's tracheostomy was lubricated by mineral oil in 2007 a few times - it is probable that fat reached the lungs via this path. Clinical presentation and CXR findings are not specific, but MSCT show typical manifestation of chronic LP: lung consolidation with fat density, indistinct irregular margins surrounded by uneven patches of ground-glass opacity and predominance in the LLL.

The basis of diagnosis is cytology (bronchoalveolar wash) or histological examination (biopsy of lung tissue) [5]. At present there is no proven way to treat LP [4]. It is necessary to stop further flow of fatty substances in the respiratory tract in all cases. Pathological changes are resolved independently over time in most cases in acute LP [1]. Chronic LP is asymptomatic, usually it does not prescribe additional treatment. In severe cases, some authors use repeated bronchoscopic segmental lavage therapy [5].

**Differential Diagnosis List:** Chronic exogenous lipoid pneumonia. Left lung metastasis. Left-sided hydrothorax., Adenocarcinoma (ex. bronchioalveolar carcinoma), Cryptogenic organising pneumonia, Chronic eosinophilic pneumonia

**Final Diagnosis:** Chronic exogenous lipoid pneumonia. Left lung metastasis. Left-sided hydrothorax.

**References:**


Description: Lung consolidation in the basal segments and in the middle lobe of right lung with irregular margins. Origin: Nechaev V.A., City Clinical Hospital ?4 of Department of Health care of Moscow, Moscow, Russia
Description: The volume of the RLL was reduced, segmental bronchi close together.

Origin: Nechaev V.A., City Clinical Hospital ?4 of Department of Healthcare of Moscow, Moscow, Russia
Description: Lung consolidation on the left lower lobe with fat density. Left-sided hydrothorax. Origin: Nechaev V.A., City Clinical Hospital ?4 of Department of Healthcare of Moscow, Moscow, Russia
Figure 4

Description: Pulmonary nodules in the left lung and left-sided hydrothorax. Staplers in the left lower lobe (after surgery). Origin: Nechaev V.A., City Clinical Hospital 4 of Department of Healthcare of Moscow, Moscow, Russia
Description: Signs of left-sided hydrothorax, lung consolidation in RLL and suspected mass in the LUL.
Origin: Nechaev V., City Clinical Hospital 74 of Department of Health care of Moscow, Moscow, Russia