

IMAGES IN PULMONARY, CRITICAL CARE, SLEEP MEDICINE, AND THE SCIENCES

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Lipoid Pneumonia Associated with Polyethylene Glycol Chronic Aspiration

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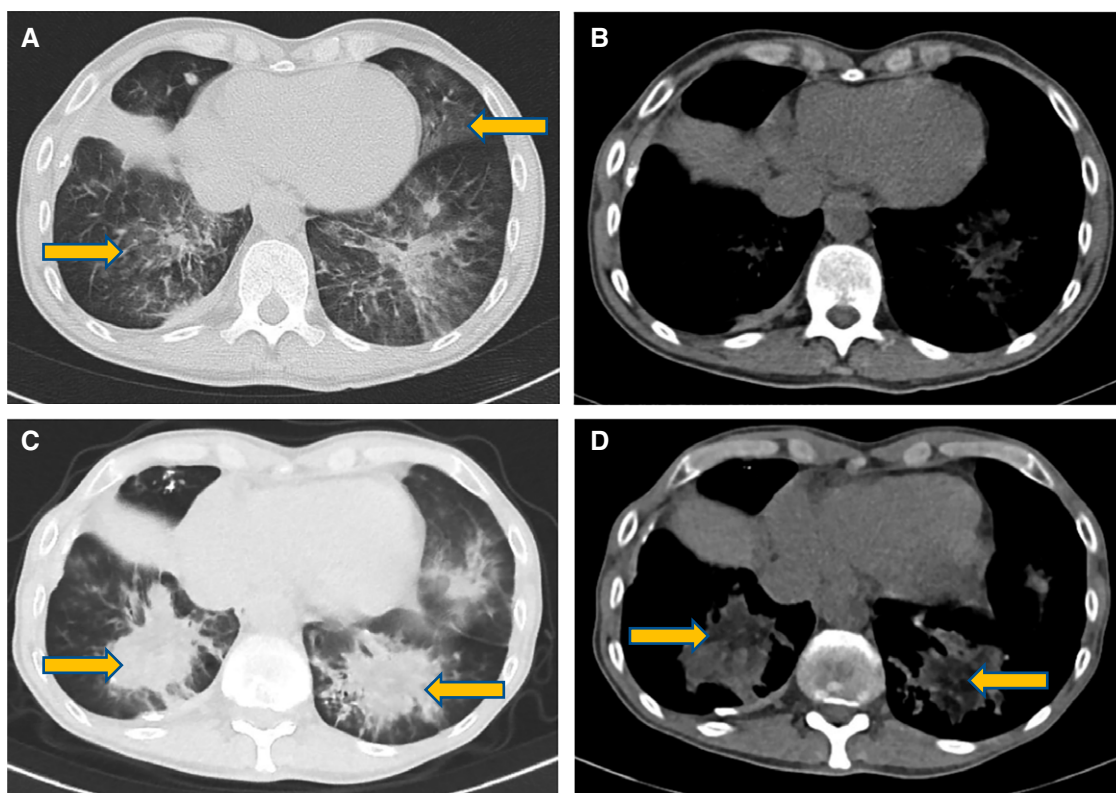
A 66-year-old man presented with recurrent fever, cough, and dyspnea. His medical history included severe oropharyngeal motility disorder, chronic constipation, and a 50-pack-year cigarette ex-smoking history.

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Chest computed tomography scans and BAL cytology (Figures 1 and 2) were suggestive of lipoid pneumonia (1).

After careful investigation with his general practitioner, pharmacists, and gastroenterologists, none of the classical contributing factors (including mineral oil laxatives) was found (2). The patient only used osmotic laxatives containing polyethylene glycol (PEG) for 10 years. Using PEGylated protein enzyme-linked immunosorbent assay (Enzo Life Sciences, Inc.), concentrations of PEG of the alveolar lavage were 150-fold and 476-fold higher, respectively, in the supernatant (4.000 ng/ml) and the cell pellet (5.300 ng/ml), compared with other patients taken as control subjects.

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Figure 1. (A and B) Chest computed tomography scans revealed ground-glass opacities 7 years before present admission (arrows). At the same degree, the present chest computed tomography scan demonstrates (C) lower lobe peribronchovascular consolidation in the lung window with (D) low-density attenuation areas (−59 Hounsfield units) in the mediastinal window (arrows).

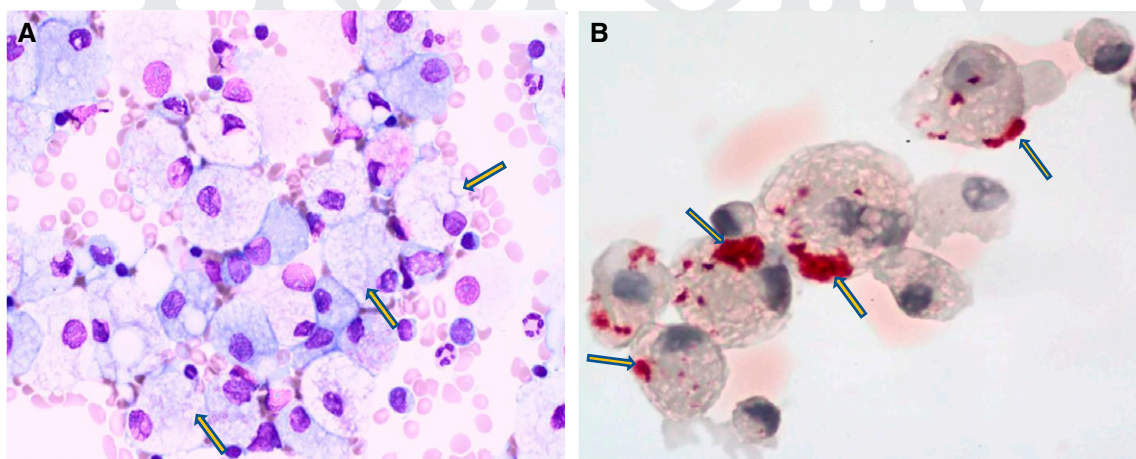


Figure 2. Cytological analysis of the BAL. In A, on a May Grunwald Giemsa stain (630×), numerous macrophages with unstained cytoplasmic microvacuoles (arrows) were observed in a background of rare neutrophils, lymphocytes, and some red blood cells. In B, Oil Red O stain (630×) highlighted red-stained fat deposits in these microvacuolated macrophages (arrows).

PEG is a nonlipid substance soluble in water and organic solvents; animal experimentations showed that PEG protein conjugates administered by inhalation accumulate in the form of vacuoles inside alveolar macrophages (3). In this case, because of the long exposure, PEG accumulating in macrophages may break down into products stained by Oil Red O staining or alter macrophage function resulting in surfactant lipid accumulation and lung injury (4, 5). This case reports an unusual association between lipoid pneumonia and inhaled PEG. ■

Author disclosures are available with the text of this article at www.atsjournals.org.

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