

Case Report

A fatty cough

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ABSTRACT

Lipoid pneumonia is a rare form of pneumonia caused by accumulation of exogenous or endogenous lipids in the pulmonary system. Symptoms can often range from being asymptomatic to presenting with chest pain, fevers and shortness of breath. High resolution CT and bronchoalveolar lavage (BAL) remain important in establishing the diagnosis. The treatment of lipoid pneumonia includes stopping the offending agents and providing supportive therapy. The use of anti-inflammatory agents has shown some benefit in severe cases.

KEY WORDS: Diagnosis, fatty pneumonia, treatment

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INTRODUCTION

Exogenous lipoid pneumonia is an uncommon form of pneumonia caused by inhalation or aspiration of fatty-like substances. Even though rare, it still remains prevalent in children and in areas that continue to practice folk medicine. A good history remains key in aiding with the diagnosis.

CASE REPORT

A 67-year-old female with history significant for hypertension, dyslipidemia, diabetes, and hypothyroidism, presented to our clinic with progressive shortness of breath and a nonproductive cough, attributed to her bronchial asthma. She denied smoking or being exposed to second-hand smoke. She was a retired navy officer and was able to perform all her day-to-day activities until recently. She lived alone and denied any travel history outside the continental US. She also denied having any pets or significant exposure to asbestos or other metals. Medicine reconciliation showed that she had been compliant with all her medications and appropriate inhalers.

On presentation, she was afebrile with stable vital signs (oxygen saturation 92% on room air). Her physical exam was significant for some coarse breath sounds, more pronounced on her left side, with no visible clubbing or cyanosis. She was able to talk in full uninterrupted sentences. Her heart sounds were normal with no rubs, gallops, or murmurs. She had trace, lower extremity edema bilaterally.

Her labs revealed a normal white blood count, complete metabolic panel, antinuclear antibody, rheumatoid factor, erythrocyte sedimentation rate (ESR), angiotensin converting enzyme, and quantiferon level. An initial chest X-ray showed bilateral pulmonary nodules. She was referred for pulmonary function tests (PFTs) showing a mild obstructive pattern. A contrast chest computed tomography (CT) revealed large areas of homogeneous consolidations bilaterally [Figure 1]. These CT findings were markedly worse compared to her previous chest CTs. A positron emission tomography (PET)-CT was reported as negative [Figure 2].

After a lengthy discussion, the patient agreed to a bronchoscopy. The biopsy and washing results showed

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Figure 1: Positron emission tomography-computed tomography

benign tissue with intra-alveolar foamy, lipid-laden macrophages, suggestive of lipoid pneumonia. No malignant cells or fungal elements were identified.

DISCUSSION

Lipoid pneumonia is an uncommon form of pneumonia resulting from accumulation of lipids or fatty-like substance in the alveoli.^[1] Initially seen in children with anatomic oral deformities, it is now reported in all age groups.^[1] Lipoid pneumonia can be further classified as endogenous, where the lipids are derived from the lung itself or exogenous where aspiration of oil-like substances (oil-based laxatives, lip balm, lip gloss, petroleum jelly) are often the culprit.^[1,2] Exogenous lipoid pneumonia remains common especially in children with developmental delays that affect their ability to swallow and in developing countries, where folk remedies or tradition medicines continue to be used.^[1,3]

The clinical findings are often nonspecific and usually depend on the duration of oil intake and the type of oil ingested.^[2] The symptoms can vary often from being asymptomatic to presenting with chest pain, cough, fevers, hemoptysis and/or shortness of breath.^[1-4] Weight loss has also been reported.^[1]

Laboratory test results are often normal, but leukocytosis with an elevated ESR can be seen. PFTs, often nonspecific, can be normal, show an obstructive or restrictive pattern.^[1,3]

Chest X-ray findings can be normal, but often mimic other pulmonary diseases such as pneumonia, carcinoma, and ARDS.^[4] High-resolution CT plays a key role in establishing the diagnosis. The most characteristic findings include the presence of consolidations with air bronchograms and sometimes a fine “spun glass” appearance.^[1] Ground-glass opacities, interlobular septal thickening, nodules, and “crazy-paving” patterns have also been reported.^[1-3] Pneumothorax and pneumomediastinum, even though rare, are often associated with a poor prognosis.^[1] Interestingly, partial resolution of CT findings can occur

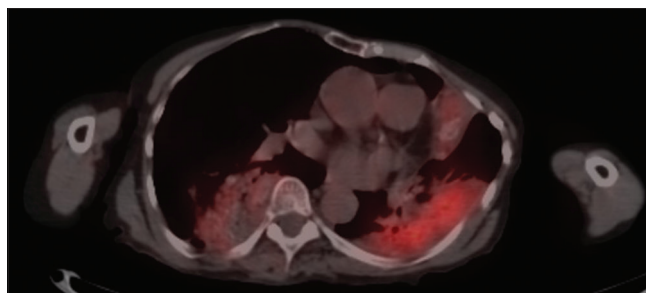


Figure 2: Chest computed tomography

after stopping the offending agent.^[1,2] PET-CT has been used to aid in the diagnosis of exogenous pneumonia, but can sometimes be misleading, suggesting an underlying malignancy.^[1]

The diagnosis is confirmed by detecting intra-alveolar lipid-laden macrophages in the respiratory specimen collected from the sputum, via bronchoalveolar lavage (BAL) or transbronchial or open lung biopsy.^[1] BAL is widely available and more reliable than sputum, hence often the preferred method.^[1] Alveolar hemorrhage and inflammatory exudates may also be seen.^[2]

The diagnosis of exogenous lipoid pneumonia is usually based on the following triad:^[2]

- History of mineral oil or other oil product ingestion
- Compatible radiologic findings
- Presence of intra-alveolar lipids or lipid-laden macrophages on BAL.

The treatment of lipoid pneumonia remains unclear and often based on case reports and small studies. Discontinuation of the offending agent is key. Supportive therapy remains the mainstay of treatment. Anti-inflammatory agents like steroids have shown some benefit and reserved for more severe cases. Whole lung lavage and immunoglobulins have also been used as treatments for lipoid pneumonia, but data remain inconclusive at this time.^[1,2] A recent study by Lu *et al.* showed that in children with acute exogenous lipoid pneumonia, multiple BALs combined with steroids therapy had significant improvement in the clinical and radiological outcomes.^[3] The course of the disease is usually indolent but maybe complicated by superinfection with various microorganisms including various *Mycobacterium* and *Cryptococcus* species.^[1,2]

On further questioning, our patient admitted to the application of Vaseline petroleum jelly on her dry lips and using her tongue to smear the jelly, multiple times a day. She was started on daily prednisone with marked improvement in her symptoms on follow-up. In addition, she was strongly advised to stop application of all lotions and creams to her face, including Vaseline to her lips.

This unique case emphasizes the need for general awareness of this uncommon disease. In addition,

it highlights the need for a good history in aiding with a focused diagnosis and to help provide prompt treatment.

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Conflicts of interest

There are no conflicts of interest.

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