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A C Brown, P C Slocum, S L Putthoff, W E Wallace and B H Foresman

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Exogenous Lipoid Pneumonia Due to Nasal Application of Petroleum Jelly*

Andrew C. Brown, D.O., F.C.C.P.; Philip C. Slocum, D.O., F.C.C.P.; Stephen L. Putthoff, D.O.; William E. Wallace, D.O.; and Brian H. Foresman, D.O., F.C.C.P.

We describe a patient who presented with a history of unexplained exertional dyspnea and pulmonary infiltrates. She was evaluated for interstitial lung disease,

*From the Texas College of Osteopathic Medicine, Departments of Internal Medicine, Pathology, and Surgery, Fort Worth, Tex.

presumed to be idiopathic and underwent an open lung biopsy. The pathologic findings were compatible with exogenous lipoid pneumonia and her history revealed longstanding use of intranasal petroleum jelly (Vaseline) at bedtime. (*Chest* 1994; 105: 968-69)

Exogenous lipoid pneumonia results from the long-term aspiration of oil-based substances. Aspiration after ingestion of mineral oil for the treatment of constipation and intranasal instillation of liquid paraffin as a component of nose drops were common causes.¹ Contributing factors include neurologic impairment, debilitation, Zenker's diverticulum, and old age, all of which predispose to chronic aspiration. Recognition of this entity has led to decreasing use of mineral oil for constipation and reformulation of nasal sprays, reducing the frequency of these causes. Consumers are unaware that many other products on the market contain oil and may be responsible for this syndrome. We report a case of exogenous lipoid pneumonia developing in a woman from the intranasal application of petroleum jelly (Vaseline).

CASE REPORT

During September 1992, a 67-year-old woman presented to our office with exertional dyspnea. She denied fever, chills, cough, exertional chest pain, orthopnea, or leg swelling. Her medical history is significant for essential hypertension, osteoarthritis, and osteoporosis. She has a 15-pack-year smoking history and minimal alcohol consumption. She has never been employed outside her home. She and her husband denied prior exposure to mineral dusts or organic vapors. Her medications included a combination of hydrochlorothiazide and triamterene (Maxzide), clonidine, and a calcium supplement.

Her temperature was 36.7°C, pulse was 76/min, blood pressure was 160/90 mm Hg, and her respiratory rate was 20/min. Right nasal mucosal congestion and friability were noted on head, eyes, ears, nose, and throat examination. Symmetric chest wall expansion was present. The percussion note was resonant and auscultation of the lungs revealed clear breath sounds. Results of cardiac and abdominal examination were unremarkable. There was no evidence of clubbing or pedal edema.

Laboratory investigation revealed a WBC count of 7,700/cu mm. The erythrocyte sedimentation rate was 42 mm/h and there was no detectable antinuclear antibody titer. Room air arterial blood gas showed a pH of 7.43, Pco₂ of 43 mm Hg, and a PaO₂ of 77 mm Hg. Chest radiograph (Fig 1) demonstrated marked interstitial infiltrates in the mid lung zones and bases. Pulmonary function studies demonstrated mild restriction without evidence of obstructive lung disease. An M-mode and two-dimensional echocardiogram revealed normal left ventricular size and function. An open lung biopsy specimen revealed numerous lipid-laden macrophages, multinucleated giant cells, and interstitial fibrosis, consistent with the diagnosis of exogenous lipoid pneumonia (Fig 2). Results of microbiologic studies were normal.

On questioning, the patient admitted to the intranasal application of petroleum jelly during the preceding 5 years for the treatment of a "dry" nose. She applied the petroleum jelly just prior to going to bed. The patient was instructed to discontinue this practice. Reevaluation after a 1-month trial of moderate-dose prednisone did not demonstrate improvement in either her symptoms or pulmonary function. The prednisone dosage was tapered and discontinued.

DISCUSSION

Aspiration of oil is responsible for the development of exogenous lipoid pneumonia. Aspiration of animal lipid can produce an acute, hemorrhagic pneumonitis with associated respiratory compromise. Animal lipid is hydrolyzed into

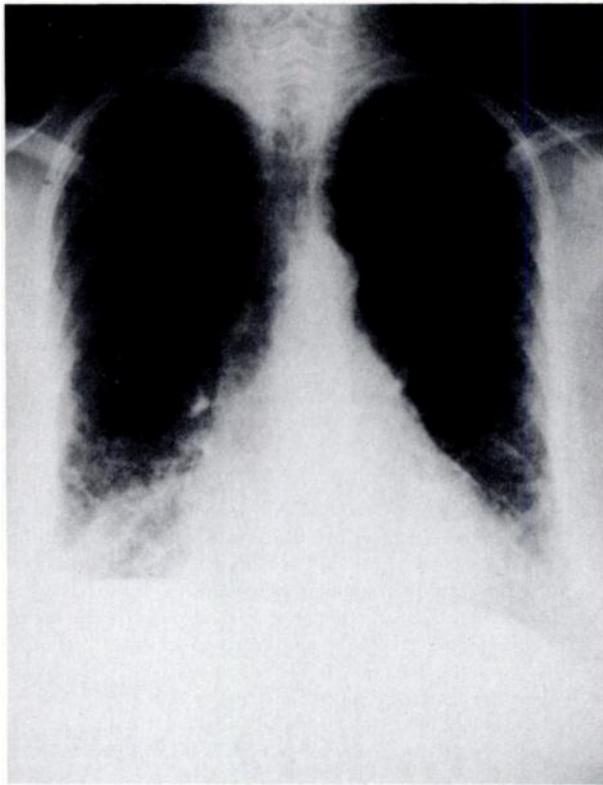


FIGURE 1. Posteroanterior chest radiograph showing bilateral interstitial infiltrates predominantly in the mid and lower lung fields.

free fatty acids that are responsible for the acute pneumonitis. In contrast, the aspiration of mineral lipid usually does not result in significant inflammation or clinical symptoms. Most cases of mineral oil aspiration are discovered incidentally at autopsy, or on open lung biopsy for investigation of an abnormal chest radiograph. Only in retrospect is the history regarding use of a product containing mineral oil elicited. When symptoms do develop they most often consist of cough, chest pain, and dyspnea.

The histopathologic findings in mineral oil aspiration include alveolar and interstitial accumulation of lipid-laden macrophages, multinucleated giant cells without true granuloma formation, and interstitial fibrosis.¹ Radiographic manifestations vary and include lobar consolidation, interstitial infiltrates, and nodules that often simulate pulmonary neoplasia.^{2,3}

Treatment of this condition is supportive. Treatment with the offending product should be discontinued. There is evi-

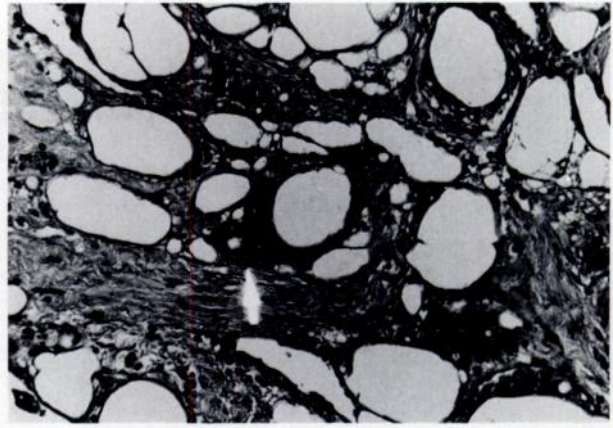


FIGURE 2. Numerous large, multinucleated giant cells (arrow) surround variably sized spaces. Interstitial fibrosis and a sparse mononuclear cell inflammatory infiltrate are noted, focally (hematoxylin-eosin, original magnification $\times 20$).

dence suggesting the use of glucocorticoids may hasten recovery.⁴ We hypothesize that our patient did not respond to prednisone therapy because she had already developed significant fibrosis.

Recently reported cases of exogenous lipid pneumonia resulting from the use of lip balm⁵ and hand lotion⁶ suggest that more cases are likely to occur, as long as oil-based products are used. To our knowledge, this is the first reported occurrence in a patient applying petroleum jelly intranasally. It is common practice to apply this around the outside of the nose. Physicians need to be aware of this practice and discourage the intranasal use of this product.

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