Letter to the Editor

The Ugly Side of Ghee Aspiration and Traditional Herbal Medicine Causing Lipid Pneumonia and Eosinophilic Granuloma

Hanaa Banjar
Department of Pediatrics, King Faisal Specialist Hospital and Research Centre (KFSH&RC), Saudi Arabia

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Dear Sir,

Exogenous lipoid pneumonia is an uncommon condition resulting from the aspiration or inhalation of fat-like material, such as mineral oil found in laxatives and various aerosolized industrial materials. These substances elicit a foreign body reaction and proliferative fibrosis in the lungs. Because symptoms are absent or nonspecific, the roentrogena graphic findings may simulate other diseases. Mineral oil placed on the nasal epothelium does not affect ciliary beating, but markedly impairs the movement of the mucous blanket by altering the physical properties of the secretions[1]. Exogenous lipoid pneumonia is often unrecognized, yet appropriate historical inquiries and simple laboratory tests can lead to the correct diagnosis, removal of the offending agent, and, potentially, improvement of lung function before serious complications develop.

Several reports of lipoid pneumonia, especially in infants and small children, have originated from traditional folk remedies. In Saudi Arabia, oily nose drops are still used and animal fats, such as ghee (clarified butter made from goats' milk), are often either forcibly fed to children in an effort to establish regular bowel habits or administered intra-nasally to treat coughs and colds[2,3].

Riff et al., described eight cases involving children between 2-8 months of age. Symptoms were mainly dry cough and recurrent febrile illness that required hospitalization. Most patients improved following the removal of the offending agents and steroid treatment[2]. Pathological findings consisted mainly of Lipid laden macrophages in the alveoli, lymphocyte infiltration and formation of multinucleated giant cells. Fibrosis may develop in advanced stages when arteriolar muscular walls are replaced by fibrous tissue and granulomatous formations that surround large coalesced macrophages that are filled with lipid[1].

Eosinophilic lung diseases are a heterogeneous group of disorders, which are characterized with pulmonary infiltrate and blood eosinophilia (pulmonary infiltrate with eosinophilia or PIE). Recent classification divided PIE into different groups, simple eosinophilia (Loeffler's syndrome), prolonged pulmonary eosinophilia, tropical eosinophilia, pulmonary eosinophilia with asthma, chronic eosinophilic pneumonia and poly arteritis nodosa[4].

In our report, we describe the first reported case of eosinophilic granulomain in conjunction with lipid pneumonia secondary to both aspiration of lipid and herbal traditional medicine administered through the nose and the mouth.

Our patient presented at 10 months of age with history of repeated chest infection since 3 months of age. He had multiple admissions to a local hospital with minimal response to anti-asthmatic medications and antibiotics. There was no history of diarrhea, but occasional vomiting with feeding. He has two brothers and one sister with asthma.

Initial physical examination showed height (ht) and weight (wt) at 25% for age, normal growth and development, respiratory rate of 40/minute, oxygen saturation (O_2 sat.) of 70% in room air, congested nose and post-nasal drip with bilateral rhonchi and no crepitation. The patient was diagnosed as a severe asthma attack and given intravenous (IV) steroids for three days and nebulized salbutamol with marked improvement. Chest X-ray (c-Xray) showed peribronchial wall thickening, but no infiltrate. Barium swallow showed severe gastroesophageal reflux (GER). He was weaned of O_2 with no problem and sent home on inhaled steroid, salbutamol and Prepulsid (Cisapride) as a pro-kinetic agent. Initially, he

Address correspondence to:
Dr. Hanaa Banjar MD, FRCPC, MBC #58, King Faisal Specialist Hospital and Research Centre (KFSH&RC), PO Box: 3354, Riyadh-11211, Saudi Arabia. Fax: +966-1-442-7784; email: hanaa@kfshrc.edu.sa

continued to improve, but three months later was again admitted to a local hospital with wheezing, hypoxemia and bilateral infiltrate. He continued to deteriorate after treatment with IV antibiotics and steroids for one month. On arrival to our center, he was in moderate respiratory distress, required 4 liters of O_2 to maintain normal saturation. C-Xray and CT chest showed cardiomegaly and bilateral infiltrate with air trapping. We suspected Bronchiolitis Obliterans, however, open lung biopsy showed Lipoid pneumonia with interstitial inflammation, Eosinophilia and poorly formed granuloma. Staining for fungal elements, acid-fast bacilli and Pneumocystis were negative.

Echocardiogram was within normal limit with no evidence of anatomic abnormalities. Ophthalmological examination was normal. Respiratory culture grew *Branhamella cattarhales*, resistant to ampicillin. Gastric aspirate was negative for acid-fast bacilli. CBC was normal with normal differential and Eosinophilic count. Cytoplasmic-Ant neutrophil cytoplasmic antibodies (C-ANCA) was negative though it is "usually positive in patients with vasulitis and Churg Straus disease"[4]. Arterial blood gas showed pH 7.47, Pco2 5.8, Pao2 7.4, Hco3 31. Sweat chloride test was <10 mmol/liter. Immunological work up was normal.

Initially, the mother denied of giving any lipid to the child, but later admitted of giving ghee through the mouth as 5ml daily since 40 days of age and a mixture of traditional herbal medicine, Khojoa, to treat the nasal congestion. Khojoa contains olive oil. For the same period, Halteet, Khashab and Myrrah were given daily as 5ml through the mouth and as nasal drops. Medical personnel had not noticed the mother giving the child these herbs, even after many admission to the hospital, as she regularly included them it in the child's milk container.

After many sessions of explaining to her the cause of the lung problem, she agreed to stop giving such medication to the child both in the hospital and at home. The patient showed marked improvement on oral steroid, 1-2mg/kg for 2 weeks, which was then tapered over a four-month period according to his clinical response. He required O_2 at home for three months, but was weaned thereafter. His c-Xray continued to improve and he continued to gain weight and experience normal development.

In our case, the mother had been giving the child a herbal medicine daily for one year. This was not observed by the medical staff as the mother hid the herb in the child's container of milk. She admitted that she routinely prepares this mixture at home and had used for all family members. She used it for our patient, through both mouth and nose, in an effort to improve his respiratory illness.

Lung cancer has been reported to develop in areas of preexisting exogenous lipoid pneumonia[1]. While mineral oil could be carcinogenic, the fibrous tissue itself may predispose to cancer, as in diffuse interstitial fibrosis. The association of cancer with lipoid pneumonia is, however, rare and only 21 cases have been reported[1]. Furthermore, in 100 patients with lipoid pneumonia, followed for up to 20 years, no cases of lung cancer have occurred[1]. Nevertheless, it is prudent to suspect malignancy when previously stable pulmonary opacities enlarge or cavitate or when new pulmonary lesions appear.

The treatment of lipoid pneumonia comprises discontinuing exposure to the offending agent, treating any complicating infection, and providing supportive care. Resection of nodules and masses can be curative, but because lipoid pneumonia is typically indolent and sometimes regresses, surgical removal is usually unwarranted unless a high suspicion of cancer exists[1].

In summary, lipid pneumonia is a common presentation in patients with persistent pneumonia in the Arabian continent. Traditional herbal medication may lead to severe inflammatory and granulomatous formation in the lung. Medical staff should routinely and repeatedly ask about lipid or ghee intake and traditional herbal medication in any case with persistent pneumonia in the Middle East. Steroid treatment may improve the inflammatory reaction.

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