Oil instillation pneumonia - A social evil

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Abstract

In the current times of information empowerment, certain age-old socio-cultural practices such as the local custom of instilling oil into the nose and mouth of infants continue to be a major cause of morbidity and mortality in infants. Aim: To evaluate the magnitude of the problem of oil instillation and co-morbidities associated with it in a referral hospital. Materials and methods: Medical records of the children admitted to our hospital with a diagnosis of oil-instillation pneumonia were reviewed with regard to the clinical and radiological features, management issues and outcome. Results: History of oil instillation was present among 8.9% (69 / 774) of the children admitted with pneumonia; eighty seven percent of the patients with oil instillation were acutely symptomatic; 10% of them required mechanical ventilation for worsening hypoxia and respiratory failure of which three (4.1%) expired. Conclusion: Oil Instillation pneumonia is a common problem among the inpatients in this tertiary care hospital catering to Puducherry and adjoining parts of Tamilnadu.

Campaign targeting the local rural population with the help of health agencies, media and the local administration should be done on a priority basis to tackle this preventable health hazard.

Keywords: Oil-instillation, lipoid pneumonia, South India

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Introduction

Oil instillation pneumonia is a chronic, interstitial, proliferative inflammation of lung parenchyma resulting from aspiration of lipoid material. Oil aspiration pneumonia is a common cause of mortality and morbidity in infants and young children in South India.[1] The high incidence of this condition results from the local custom of instilling oil into the nose and mouth of children for apparently cleansing purpose. In the current times of information empowerment, harmful socio-cultural practices such as these continue to be major public health challenge. The high prevalence and varied clinical picture ranging from a slow indolent course to serious conditions like acute respiratory distress syndrome (ARDS) of such an easily preventable condition prompted this study.

Material and Methods

The records of the children admitted to our hospital with a diagnosis of pneumonia or bronchopneumonia during December 2005 to January 2007 were reviewed retrospectively. These records were examined for history of oilinstillation prior to admission /onset of symptoms. The medical records of all children so identified were scrutinized in detail to collect information about the presenting clinical features viz. cough, fever, and breathlessness, oxygen saturation at admission, Chest x-rays, total leucocyte counts, blood cultures, treatment modalities and the final outcome. All children with a history of atleast one episode of oil instillation during one week preceding admission or with history of recurrent oil instillation in the past, having persistent symptoms for more than 10 days inspite of antibiotic therapy and radiographic features suggestive of oil aspiration (persistent collapse consolidation, right upper zone collapse consolidation in infants, perihilar dense infiltrates etc) were included in the study. Those children with unexplained chronic respiratory symptoms and history of recurrent oil instillation in the past were also included. Out of the total 75 cases chosen for further analysis, 6 were excluded as 4 were positive for tuberculosis and 2 were positive

for HIV. Ampicillin and gentamicin were administered for infants less than two months and Ampicillin/ Amoxicillin alone for children above 2 months of age, in addition to other supportive care

Results

During these 14months, 774 children were admitted in our Paediatric ward for pneumonia. Among them 69 (8.9%) cases had history of oil instillation prior to onset of symptoms. The patients comprised of 65 infants (35 boys and 30 girls) aged between 15 days to 11 months and 4 children, (3 boys and a girl) aged between 12 to 18 months.

Table: Clinical characteristics of Children with oil aspiration(n=69)

Features	No. (%)
MAIN PRESENTING COMPLAINTS*	
Acute onset fever, cough and respiratory distress	60 (87)
Recurrent lower respiratory tract infections	20 (29)
Failure to thrive	3(4.3)
TIME INTERVAL (between aspiration and presentation)	
< 24 hours	25 (36.2)
2-7 days	23 (33.3)
> 7 days	21 (30.4)
TYPE OF OIL USED	
Gingilli oil	45 (65.2)
Coconut Oil	20 (29)
Neem oil	4 (5.7)
Chest Radiograph Findings	8 (11.6)
Collapse	19 (27.5)
Collapse consolidation	14 (20.3)
Perihilar opacities	9 (13)
Emphysema with hilar infiltrates Mixed findings	19 (27.5)
OUTCOME	
Improved without assisted ventilation	59 (85.5)
Needed assisted ventilation	7 (10.1)
Expired	3 (4.34)

* some children had multiple complaints.

Gingilli oil was used in 45 children, coconut oil in 20 children, and four children had neem oil instilled into their nose and mouth. Most of the children presented to us within one week of administration of oil. Chronic symptoms were observed in 9 children. Seven of them were symptomatic for more than 15 days and 2 children were symptomatic for more than 3 months. (Table:1)

Oxygen saturation at admission showed SPO2 > 95% in 14 children, 90-95% in 36 children and less than 90% in 9 children. Out of the 9 children withSPO2 < 90%, 7 children (10.1%) had to be given ventilatory support. Three of the seven ventilated children died (2 from ARDS and 1 from ventilator associated pneumonia).

All the children had abnormal chest radiographs. The observed findings varied from collapse, collapseconsolidation, obstructive emphysema to just perihilar opacities. Blood counts revealed neutrophilia in 57 (82.6%) cases.

Among the 3 children who expired, post mortem, biopsy of the lung was done in two patients. Interstitial cellular infiltration with partial alveolar collapse and foamy macrophages filling the alveoli were present in one case and macrophage infiltration in the other.

Figure: Chest radiograph of a child with lipoid pneumonia showing bilateral extensive opacities.

Discussion

There was a definite history of oil instillation in these children including the older ones who were subjected to customary oil baths. The persistence of symptoms and its temporal correlation with instillation of oil, the radiological findings, and poor response to routine treatment for pneumonia implicates oil instillation as the probable etiology for the persistent respiratory symptoms in these children.

Oil instillation practice is a health hazard and a significant contributing factor for persistent pneumonia in children. Oil instillation pneumonia- A social evil

Though, this issue was highlighted way back in 1973 by Balakrishnan [1], oil-aspiration pneumonia is still a health problem in countries where infants are forced to receive vegetable or animal oil due to traditional belief. [2] This practice often includes oil cleansing of the throat, nose, ears and eyes by grandmother or traditional Dai. A halfspoonful of oil is placed on the child’s mouth and repeatedly smeared over the tongue to remove the white coating. Then half or a spoon of oil is instilled in each nostril and blown repeatedly apparently to remove the mucous accumulated. This practice is often started as early as third day of postnatal life. Oil is sometimes applied to the eyes and ears as well.

Clinical manifestations depend on type, amount and duration of oil aspirated. Mineral oil aspiration is usually less symptomatic, the abnormality being detected on a chest radiograph. It may sometimes lead to chronic nonproductive cough or pleuritic pain and very rarely acute illness resembling infectious pneumonia especially when amount aspirated is more. On the other hand, animal and vegetable oil aspiration may present with acute or persistent

pneumonia usually refractory to antimicrobial therapy. Course is often cyclical with recurrent febrile illnesses and chest infections. [3- 6]

In our study 86% of children presented acutely with fever and respiratory distress. Mild cases usually cause inflammation involving mainly the airways with minimal or no parenchymatous changes. In severe cases, it manifests itself as fever, cough and recurrent episodes of pneumonia. In the intervening period, the child has persistent cough and often wheezy breathing. Prolonged exposure causes chronic interstitial pneumonia. These children have failure to thrive, constitutional symptoms of chronic ill health and are more predisposed to secondary infections and its complications like purulent sputum, bronchiectasis and lung abscess.

Radiographic findings depend on the age of the child, the duration and severity of oil aspiration and the presence or absence of secondary infection. Bronchitis and bronchiolitis with minimal parenchymal involvement usually appear as hilar shadows and prominent bronchovascular markings [3,4]. Parenchymatous lesions are usually seen in posterior segment of right upper lobe in children who are recumbent and in lower lobes, lingular and right middle lobes in children who are older [7]. In early stages chest x-ray reveals alveolar consolidations, ground glass opacities, alveolar nodules, linear opacities (interlobular septal thickening), mediastinal adenopathy, cavitation and pleural effusions in decreasing order of frequency. In late stages emphysematous appearance is seen in adjacent lung resulting from volume loss and contraction of lesion Annobil et al described the pulmonary radiological manifestations of lipoid pneumonia in 24 children with aspiration of ghee into four broad categories, viz bilateral multilobar consolidations (BMLC) in 50% (12 cases), bilateral perihilar infiltrates (BPHI) with or without associated lobar consolidation in 21% (five cases) right perihilar infiltrates (RPHI) in 21% (five cases) and unilateral right lobar consolidation (RMLC) in 8% (two cases) [8].

Bronchoscopy with bronchoalveolar lavage has been reported to be successful in establishing the diagnosis of exogenous lipoid pneumonia. The macroscopic appearance of bronchoalveolar lavage with fat globules on the fluid surface and the cytologic demonstration of lipid-laden macrophages is consistent with the diagnosis of ex- ogenous lipoid pneumonia. Kameswaran et al reported a series of 24 cases of lipoid pneumonia in children, 22 of which were diagnosed by rigid bronchoscopy with bronchoalveolar lavage. Bronchoscopy has the additional advantage of assessment of airway anatomy to rule out other causes of chronic nonresolving pneumonia. Although the demonstration of a high lipid-laden macrophage index is diagnostic of lipoid pneumonia, additional diagnostic tests like the chemical analysis of bronchoalveolar lavage fluid may be necessary to confirm the exogenous nature of lipid

Treatment usually involves discontinuation of exposure to the offending agent and treating any complicating infection with antibiotics [5]. Systemic Steroids in short courses have shown clinical and radiological improvement but the results need to be validated by controlled trials [5].

The custom of oil instillation is so deep seated in the collective consciousness of the rural population here that an intensive health education campaign by health agencies and media along with the local administration targeting specially the younger generation should be tried on a priority basis to relieve the infants and children of tomorrow from this easily preventable condition.

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