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Iatrogenic lipoid pneumonia

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Abstract
Lipoid pneumonia is a rare type of pneumonia, it occurs due to accumulation of lipid and lipid laden macrophages in alveoli. Lipoid pneumonia is of two types exogenous and endogenous pneumonia. Exogenous lipoid pneumonia occurs when mineral oils, vegetable oils and animal fats are inhaled or aspirated, whereas endogenous lipoid pneumonia occurs as a result of lipid accumulation in intra alveolar macrophages. As there is no definite clinical and radiological feature, this is also one of the reason for delaying and missing the diagnosis. So this is utmost important to aware physicians regarding this disease.

Keywords: Iatrogenic; lipoid; pneumonia

Introduction

Lipoid pneumonia is a rare type of pneumonia, it occurs due to accumulation of lipid and lipid laden macrophages in alveoli. It was first reported in 1925 by Laughlen in association with laxative use [1]. Until first half of 20th century there were many case reports of lipoid pneumonia due to inhalation and aspiration of fatty substances, but iatrogenic lipoid pneumonia is extremely rare, as our case [2,3,4]. Lipoid pneumonia is of two types exogenous and endogenous pneumonia. Exogenous lipoid pneumonia occurs when mineral oils, vegetable oils and animal fats are inhaled or aspirated, whereas endogenous lipoid pneumonia occurs as a result of lipid accumulation in intra alveolar macrophages due to bronchial obstruction, chronic pulmonary infection, fat storage diseases and pulmonary alveolar proteinosis [3, 5]. Its exact incidence is not known, however according to one autopsy study from USA its about 1.0–2.5% [3]. It is important to increase awareness about this disease, many physicians are still unaware regarding this disease, which leads to underdiagnosis and occurrence of disease as in our case. As there is no definite clinical and radiological feature, this is also one of the reason for delaying and missing the diagnosis. So this is utmost important to aware physicians regarding this disease. We present a case of iatrogenic lipoid pneumonia due to chronic paraffin ingestion, as prescribed by doctor for constipation.

Case report

A 7-months-old-male child presented to emergency with respiratory distress for two and a half months. There was no history of fever, cough, cyanosis, increased precordial activity or noisy breathing. The child was born to primigravida mother at term and had birth weight of 3 kg. There were no adverse perinatal events. The baby was growing well, gaining weight adequately, developmentally Normal, moving upper and lower limbs normally. At 3rd month of life, child developed constipation and subsequently the mother noticed that his anal opening was very small. For the above complaint, baby was shown to paediatric surgeon at PGIMER Chandigarh, where he was diagnosed as a case of anorectal malformation (bucket handle deformity). Anoplasty was planned and liquid paraffin was started for constipation. Anoplasty of child was done at 5th month of life and child was discharged, continued on liquid paraffin. On examination child was afebrile, tachypnoeic and other examination was normal. Child was started on nasal prong Continuous positive airway pressure (CPAP) and investigated for above complains. Sepsis work up came out to be negative, gastric aspirates for Cartridge based nucleic acid amplification test (CBNAAT) was negative. 2D Echocardiography was normal. Chest radiograph showed bilateral perihilar inhomogeneous opacities. Contrast enhanced CT chest was done which was suggestive of lipoidal pneumonia. Liquid paraffin was stopped and child was started on polyethylene glycol powder. Child was continued on Np CPAP for 3 days, after continued on nasal prong oxygen for 4 days, subsequently oxygen was tapered and stopped.

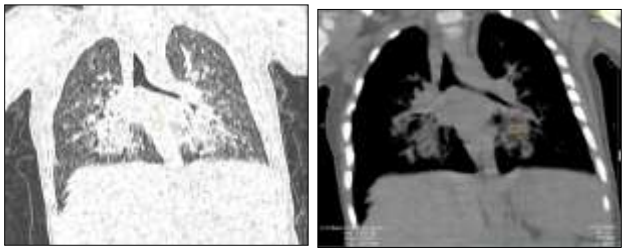

Fig 1: HRCT AND SOFT TISSUE WINDOW: performed in 16-row multi-slice CT scanner at 90 KV: Reveals perihilar areas of consolidation with air bronchograms. Areas of low attenuation corresponding to fat (- 51 HU average attenuation) seen within these consolidations.

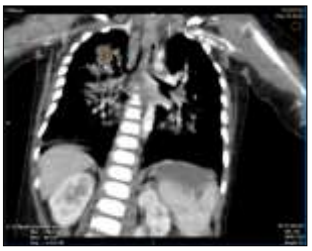

Fig 2: Soft Tissue Window: Follow up scan performed after 4 months after cessation of liquid paraffin and using alternate polyethylene glycol instead: Reveals reduction in size of the consolidations. Air bronchograms and areas of fat attenuation (- 15 HU average attenuation) however are still seen within.

Discussion

Lipoid pneumonia is a rare condition, it occurs due to accumulation of lipid in the alveoli, this triggers local inflammatory response. Exogenous lipoid pneumonia is more common type as compared to endogenous lipoid pneumonia, it develops due to accidental ingestion, inhalation or aspiration of vegetable, mineral or animal fats in the alveoli. Mineral oil is the most common culprit substance, in aetiology of lipoid pneumonia. As there is no pulmonary enzymes available to metabolize it, so alveolar macrophages phagocytize it. Presence of lipid laden alveolar macrophages, triggers granulomatous reaction with chronic inflammation which leads to pulmonary fibrosis [6]. In children aspiration of vegetable or mineral oil especially laxative substances, nasal oil drops are the main causes of aspiration pneumonia [7]. Lipoid pneumonia especially exogenous type, usually associated with underlying conditions such as tracheoesophageal fistula, swallowing disorders, cerebral palsy, neuromuscular disorders [8]. Diagnosis depends up on meticulous history, radiological characteristics and bronchoalveolar lavage. Diagnosis is very difficult except in cases of accidental aspiration of massive amount of lipids. Clinical features are nonspecific, they range asymptomatic to severe presentation, which depends upon amount and type of aspirated fat. In a study done on 28 children with lipoid pneumonia main clinical features reported: tachypnoea (96%), cough (86%), and fever (82%). Other symptoms were dyspnoea, lack of weight gain, and recurrent respiratory infections. On examination, main characteristics were crackles and wheezing, but 46% of children had abnormal auscultation [6]. On CT scan, consolidation, air space nodules, ground glass opacities and crazy- paving pattern are the main abnormalities seen in lung parenchyma. Lesions characteristically involves, right upper lobe with posterior and central distribution. The most typical CT finding is the unusual low density (−30 to −150HU) within the consolidation area, suggesting the presence of fat [9]. Main treatment is discontinuation of exposure. Multiple therapeutic BAL have been tried to remove lipid laden alveolar macrophages, which have been implicated in pulmonary fibrosis pathogenesis. Corticosteroids have been used in severe presentation to decrease inflammation and prevent pulmonary fibrosis [10]. Generally, prognosis of exogenous lipoid pneumonia is good after stopping the exposure. But in case of chronic exposure, pulmonary fibrosis, excavation and infection may occur [8]

Conclusion

Iatrogenic lipoid pneumonia is one of rare causes of pneumonia, which is difficult to diagnose and it can lead to serious complications. Meticulous history and examination very helpful in reaching diagnosis. Awareness among physician is needed regarding use of paraffin oil for the management of constipation.

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Ethical Approval-Due permission was taken from institutional ethical committee.

Patient Consent

Written and informed consent was taken from patient for the publication of this case report.

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