

Lung Abscess and Pneumatocele After Accidentally Kerosene Ingestion in a Child

KAZA İLE GAZ YAĞI İÇİMİ SONRASI BİR ÇOCUKTA AKCİĞER APSESİ VE PNÖMOTOSEL

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SUMMARY

Hydrocarbon compounds are easily accessible products. Exposure to hydrocarbons is usually by accidental ingestion especially in children younger than 5 years. Pneumonitis is the most common complication of hydrocarbon ingestion. However; formation of lung abscess and pneumatoceles is believed to be a very rare event. Herein; we report a four year old child with hydrocarbon pneumonitis who had developed lung abscess and pneumatocele.

Key words: Hydrocarbon pneumonitis, lung abscess, child, pneumatocele

ÖZET

Hidrokarbon bileşikleri kolaylıkla ulaşılabilen ürünlerdir. Hidrokarbonlara maruziyet genellikle kaza sonucu içme ile özellikle 5 yaş altı çocuklarda olur. Pnömonit hidrokarbon alımının en sık komplikasyonudur. Bununla birlikte akciğer apsesi ve pnömotosel oluşumunun oldukça nadir bir olay olduğuna inanılır. Burada akciğer apsesi ve pnömotosel gelişen hidrokarbon pnömonitli dört yaşında bir çocuk sunuldu.

Anahtar sözcükler: Hidrokarbon pnömoniti, akciğer apsesi, çocuk, pnömotosel

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Kerosene is a low viscosity liquid hydrocarbon compound. Exposure to hydrocarbons is especially easier in lower socioeconomic status. The highest rates of morbidity and mortality result from accidental ingestion by children younger than 5 years. Pulmonary toxicity is the major cause of morbidity and mortality. It is followed by Central Nervous System (CNS) and cardiovascular complications (1).

CASE REPORT

A four year-old girl was admitted to a local hospital because of unknown amount of kerosene ingestion acci-

dentally. She was forced to vomit by her family. When she arrived the hospital, she was lethargic and dyspneic. Her chest X-ray was normal on admission but after six hours the following X-ray revealed pneumonic infiltration in the left lung. Oxygen, intravenous fluid therapy and parenterally ceftriaxone were started. Although her neurological status improved immediately, respiratory symptoms and fever didn't recover till the fifth day of the treatment and she referred to our hospital. On admission, she was tachypneic, dyspneic with respiratory rate 60/min and had intercostal retractions, body temperature was

38°C (axillary), oxygen saturation was 97%. Breath sounds were diminished at the basis of left lung by auscultation of the chest. Laboratory evaluation showed leucocytosis (WBC; 14000/mm³), anemia (Hb; 10,5 gr/dl), high C-reactive protein level (CRP: 245mg/L) and elevated liver enzymes (SGOT:170 IU/L, SGPT:230 IU/L). Other laboratory findings were normal.

Chest X-ray revealed pneumonic infiltration in the lower lobe of the left lung. Antibiotics were changed to teicoplanin and meropenem and 1 mg/kg/day prednisolone was given additionally. Three days after this treatment, fever was ceased and her clinical status was improved. At the end of the first week of the treatment, chest X-ray (Fig 1) and Computerized Tomography (CT) of thorax (Fig 2) showed decrease in infiltration but cavity with air-fluid was evident in the lower lobe of the left lung. It was presumed as lung abscess. Antibiotics and prednisolone were continued. White blood cell count, CRP and liver enzymes decreased to normal limits after ten days. Prednisolone was discontinued after two weeks. Her physical examination was completely normal and she had

no complaints at that time. On the third week of the antibiotic treatment, abscess formation was disappeared but a thin walled pneumatocele was seen in chest X-ray. Antibiotic therapy was continued parenterally for four weeks. Chest X-ray, taken about one month after the discharge (two months after accidentally ingestion), was completely normal.

DISCUSSION

Liquid hydrocarbons derived from petroleum are widely used in household and industry. These are easily accessible products. Most of the dangerous hydrocarbons are derived from petroleum distillates such as gasoline, furniture polish, household cleaners, kerosene, propellants, solvents and other fuels. Exposure may occur in different ways but the most common exposure type is accidental in children and it is related to the highest rates of morbidity and mortality (1). Improper storage and mislabeled containers of hydrocarbons are common contributing factors (2). In our case kerosene was stored in a bottle of water in the kitchen.

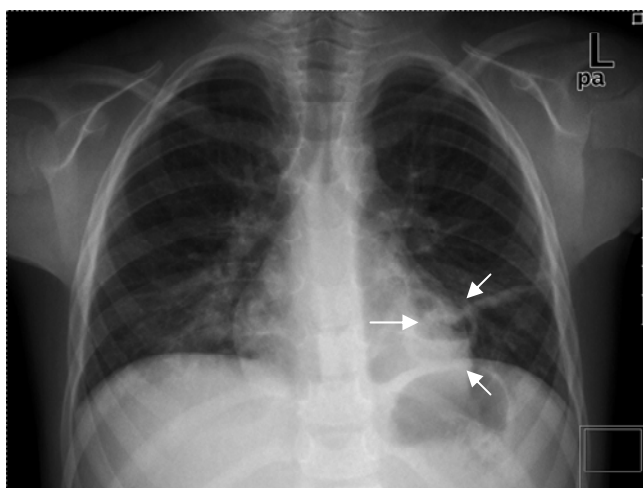


Figure 1. Chest X-Ray of the patient. Air-fluid level in the left lung considers lung abscess (Lung abscess is marked with arrows)



Figure 2. Computerized tomography of thorax (Abscess formation is marked with arrows)

As hepatic injury was recognized by cause of chronic exposure and certain hydrocarbon ingestion, it was not reviewed after acute kerosene ingestion (2). In our case liver enzymes were found elevated and it could not be explained with another disease and was recovered without any specific therapy.

Aspiration pneumonitis is the most common complication of hydrocarbon ingestion (40%) (5). The toxic potential of hydrocarbons is directly related to their physical properties. Kerosene-like highly volatile compounds with low viscosity are more likely to be inhaled or aspirated into the respiratory system (7). Clinical findings are coughing, choking, fever, cyanosis, tachypnea, grunting, wheezing, and rales. Initially, the chest X-ray may be normal, but positive findings may develop after the first few hours of ingestion. Common findings include fine

perihilar opacities, bibasilar infiltrates, and atelectasis. Prophylactic use of antibiotics is not recommended for prevention of hydrocarbon pneumonitis (1). However once signs of secondary infection developed, antibiotic therapy should be started. Choice of antibiotic combination should cover common gram positives, gram negatives, and anaerobes (8). Although effects of steroids are not explained and thought to be harmful, some authors and we believed that steroids accelerate clinic recovery (9-10). In the presented case, symptoms improved immediately after the beginning of the steroid therapy. However pneumatocele formation is a rare complication that occurs in approximately 4% of the patients with pneumonitis, only few cases with lung abscess were reviewed (11). Pneumatocelles generally appear lately (3-15 days after accident) after the resolving of the consolidation. These

are often large, septate and irregular lesions and sometimes contain air-fluid levels. The majority of these lesions resolve almost completely with no residual pleural or parenchymal scarring throughout for weeks and months (12-14). In our case lung abscess appeared after the first week of the treatment and resolved with pneumatocele formation in the third week of the treatment.

Although incidence of hydrocarbon pneumonitis decreased, it still remains a problem in developing countries as our country. We reported this case because lung abscess and pneumatocele formation after hydrocarbon ingestion is rare and the patient was treated with corticosteroid and antibiotics without any sequel.

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