

Bronchiectasis after Kerosene Ingestion

HANAA BANJAR, MD, FRCPC*

Kerosene paraffin ingestion represents a serious source of childhood poisoning in Saudi Arabia. The incidence of pneumonia after kerosene ingestion is high and may be accompanied with pleural effusion, pneumatocele or lung abscess. In this report we describe a case of kerosene ingestion that was complicated with bilateral pneumonia, pleural effusion and later with bronchiectasis.

Bahrain Med Bull 1998; 20(1): 19-20.

Kerosene ingestion is the most common form of acute childhood poisoning in most developing countries. In Saudi Arabia, it accounts for 25% of accidental home poisoning'. It is largely confined to the age group 1-5 years^{2,6}. In one study from Riyadh', 80% of the cases from outskirts of Riyadh where people live in tents or mud houses, kerosene is used for cooking and lighting purposes. The majority of families belong to the lower socio-economic class and in 80% of cases, the kitchen was the place for the storage of kerosene, and it is stored into open 'pop' bottles which are familiar to the child as holder of pleasant drinks. In approximately 33% of cases developed no symptoms. Cough was the most common symptoms in 36% and central nervous systems manifested by drowsiness in 10%, abdominal symptoms in 41%³. Death may develop in the seriously ill children in 1-3[°]/03-6.

Chest x-ray changes were reported in 30-60% of children^{2,6,7} pleural effusion in 4%, pneumatocele in 1-8[°]/08-".

To my knowledge, bronchiectasis (cystic dilatation of the bronchi) has not been reported before in the literature. In this report, I discuss a case with bronchiectasis after kerosene ingestion and its management.

THE CASE

A six year old male who was previously healthy, presented to a local hospital, after four hours of kerosene ingestion, with vomiting, abdominal pain and dyspnea. At that time, he had high fever with temperature 39°C, swollen lips, difficulty in breathing, respiratory rate (RR = 40/min) and decreased bilateral air entry

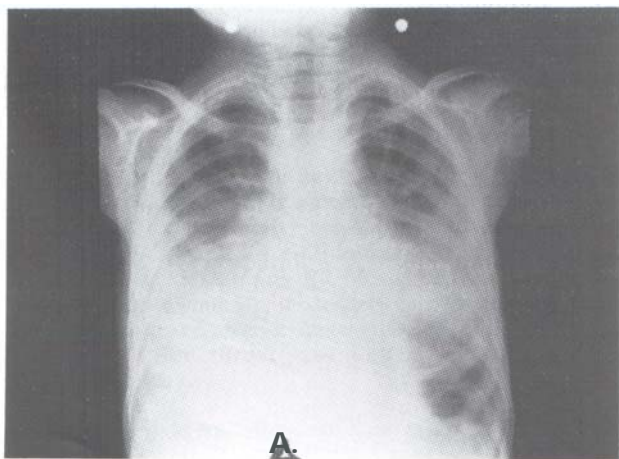


Figure 1. Initial chest x-ray after kerosene ingestion with bilateral pneumonic infiltrates involving RML, RLL, Lingula and LLL.

with bilateral crepitation.

* Department of Pediatrics
King Faisal Specialist Hospital & Research Centre
Riyadh
Saudi Arabia

His abdomen was distended with generalized tenderness but normal bowel sound. He was conscious with no focal neurological deficit, the rest of physical examination was within normal limit. The patient was admitted to the hospital and was given intravenous (IV) fluids and IV cefuroxime and amikacin for two weeks. Initial chest x-ray showed bilateral pneumonia of both right middle (RML), right lower lobe (RLL), left lower lobe (LLL) and Lingula (Fig 1).

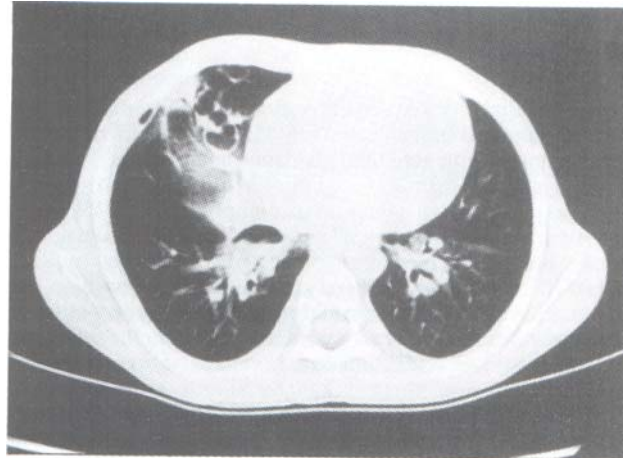


Figure 2. CT chest showing pneumonic patches in the posterior segments of both lower lobes, cystic bronchiectasis of the RML.

The patient continued to be febrile with loss of appetite and repeat chest x-ray two weeks later showed right pleural effusion, persistence of the pneumonic infiltrate of both lower lobes. Computerized tomography of the chest (CT) showed the same finding as the chest x-ray with cystic dilatation of the bronchi of the RML (Fig 2). Total white blood count (CBC) showed leukocytosis of 18,000 with 60% neutrophil and ESR 40/min, blood culture and respiratory cultures were negative.

The patient 2 weeks later referred to our hospital with low grade fever 38°C, mild tachypnea, RR=36/min and bilateral crepitation. He was treated with IV clindamycin as a coverage for anaerobes and ceftazidime for two weeks. He became afebrile, active with normal CBC and ESR and negative respiratory culture. The patient was discharged on oral (PO) cefixime for one month after which repeat chest x-ray showed resolution of bronchiectasis and pneumonic changes with minor peribronchial wall thickening (Fig 3). The patient has been asymptomatic after three months of follow up.

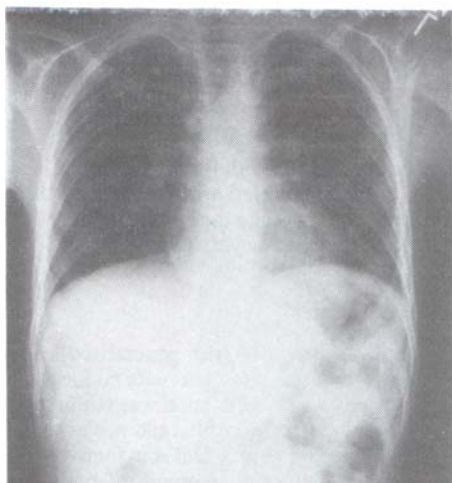


Figure 3. Chest x ray one month after discharge showing resolution of bronchiectatic and pneumonic changes except for peribronchial infiltrates in the LLL, the rest of the lung was normal.

DISCUSSION

Bronchiectasis after kerosene ingestion is rare. In our case, we have documented bronchiectasis by CT scan and its resolution after treatment with antibiotic clindamycin and ceftazidime and he also showed clinical and biochemical improvement. Pneumatoceles is an uncommon complication of kerosene ingestion and may occur in 8% of cases⁵. The pneumatocele usually involve the medial segments of LLL followed by RLL and RML¹, and usually bilateral and sub pleural in position. In our case the x-ray changes could be estimated to be similar to pneumatocele changes, but it would be unusual for the following reasons: it involved RML, unilateral in nature and occurred before the clearing of the pneumonic changes. Singh et al¹⁰ reported in a randomized trial in 100 children with accidental kerosene ingestion that ampicillin and metronidazole is superior to treatment with either ampicillin, carbenicillin or metronidazole alone with significantly faster improvement and when metronidazole was used alone, one third of cases showed radiological deterioration. Uddin et al⁹ found that in patients with kerosene ingestion and required more than 30 hours of admission to hospital showed more severe radiographic bilateral opacities compared to those patients who were discharged within 30 hours, and the presence of severe gastric dilatation, cyanosis requiring over 40% inspired oxygen concentration and drowsiness predicted to a certain degree, the gravity of the case. Coma, convulsion and metabolic acidosis were noted only in fatal cases. Ampicillin was used in most of the cases reported and another antibiotic was added (i.e. cloxacillin, gentamycin and chloramphenicol) only with severe pneumonic consolidation.

Mandi et al¹ used ampicillin or penicillin in all cases with bilateral infiltrate in chest x-ray (7 out of 27 patients) and had only one fatality from respiratory failure as a result of spontaneous pneumothorax and surgical emphysema.

In our case cefuroxime and amikacin for 2 weeks were not enough to improve the clinical and radiological picture as he continued to have fever, pleural effusion and pneumonic changes which only resolved after treatment with clindamycin to cover anaerobes and ceftazidime as the patient most probably aspirated some of the stomach content during the initial episodes of vomiting after the ingestion. Resolution of x-ray changes in our case can not be explained on the natural course only as it only resolved with the proper antibiotic coverage. The role of ceftazidime in our case might have been contributory but not the sole factor in

X-ray improvement as the patient was already on a similar coverage before.

CONCLUSION

In conclusion, kerosene ingestion is still a common accidental poisoning in children less than 5 years of age. Ampicillin is useful in treatment of bilateral infiltrate but the addition of an antibiotic against anaerobic bacteria like clindamycin or metronidazole should be considered in cases with severe pneumonic infiltrate and history of vomiting with suspected aspiration.

REFERENCES

1. Mandi AH, Taha SA, Rifai MR. Epidemiology of accidental home poisoning in Riyadh (Saudi Arabia) J Epidemiol Comm Hlth 1983;37:291-5.
2. Isbister C. Poisoning in childhood with particular reference to kerosene poisoning. Med J Aust 1963;2:652-6.
3. Mandi AH. Kerosene poisoning in children in Riyadh. J Trop Pediatr 1988;34:316-8.
4. Al-Sekat MA. Epidemiology of accidental poisoning of children in Riyadh, Saudi Arabia. Ann Saudi Med 1990;10:276-9.
5. Ellis JB, Krug A, Robertson J, et al. Paraffin ingestion - the problem. South African Med J 1994;84:727-30.
6. Uddin AA, Rambaud-Consson A, Thalji A, et al. Accidental kerosene ingestion: a 3-year prospective study. Ann Trop Pediatr 1991;11:155-61.
7. Eade NR, Taussing LM, Mar KSMI. Hydrocarbon pneumonitis. Pediatrics 1976;54:351.
8. Haris VJ, Brown R. Pneumatoceles as a complication of chemical pneumonia after hydrocarbon ingestion. AJR 1975;125:531.
9. Stones DK, Van Niekerk CH, Cilliers C. Computerized tomography in pneumatoceles after paraffin ingestion. Pediatr 1978;17:443-6.
10. Bergson P, Hales SW, Lustgarten MD, et al. Pneumatocele following hydrocarbon ingestion. Am J Dis Child 1975;129:49.
11. Majeed HA, Bassyouni H, Kalaawy M, et al. Kerosene poisoning in children. Clinoradiological study of 205 cases. Ann Trop Pediatr 1981;1:123.
12. Singh H, Chugh C, Shembesh H, et al. Management of accidental kerosene ingestion. Ann Trop Pediatr 1992;12:105-9.