A case report of hydrocarbon injection during pregnancy

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Abstract

Hydrocarbon injection in domestic accidents or attempted suicide especially in pregnancy is not extensively discussed in the literatures. We have reported a case of a 21-years-old pregnant woman who referred to hospital suffering from abdominal pain and dyspnea. After evaluation, she was diagnosed as a case of abscess in right upper quadrant (RUQ) and right lower quadrant (RLQ) due to petroleum injection as well as fetal death in an attempt of suicide. This article comprises an illustrative rare case of petroleum injection during pregnancy with subsequent fetal death.

Key words: hydrocarbon, petroleum, pregnancy, intravenous injection, soft tissue injection
Introduction
Poison control centers across North America report high numbers of incidents from exposure to a wide variety of products containing petroleum distillates. This is more common among children (1). Hydrocarbon intoxication is frequently noted in domestic or industrial accidents, as well as instances of attempted suicide involving ingestion, soft tissue and intravenous injection (2). Toxicity caused by petroleum products is based on the thinness and lightness of the product due to the case of absorption (3). Their effects can be variable in a vast spectrum from a mild cutaneous irritation to severe reactions like cardiac collapse and ultimately death (2). There are very few reports of soft tissue hydrocarbon injection in the publications especially in pregnancy and its fetal effects. We present an illustrative case of soft tissue petroleum injection during pregnancy and subsequent abscess formation and fetal death.

Case Report
A 21 years old girl presented to the emergency department for acute abdominal pain and dyspnea. She had no history of similar problem before. Her past medical and drug histories were negative. She had a history of coitus from 9 months ago especially via anal contacts. According to her menstrual retardation, she had been worked up 2 weeks before and was diagnosed of pregnancy. Also a history of soft tissue petroleum injection in right upper and lower quadrants (RUQ & RLQ) was investigated in an apparent attempted suicide. At the time of admission, the patient was alert and could answer the questions, complaining only of abdominal pain, along with heaviness in the chest, not associated with dyspnea. She was febrile with vital signs of PR= 108/min, T = 38° (axillary), BP = 120/80, PR = 20/min. No evidence of respiratory, cardiovascular or neurological abnormalities was noted. A non erythematous soft tender mass with the size of 4x10x 2 cm in RUQ and another non erythematous and tender moss of 10x6 cm could be palpated in RLQ. The uterine height was about 20 weeks and no fetal heart rate was auscultated. Hymen was intact and annular. Complete blood count showed 15000 leukocytes /mm3 with increased C - reactive protein (2+). No electrolyte abnormalities were seen. Blood cultures were negative. The girl had not any positive evidence of serology tests about having AIDS and hepatitis B and C. CXR was normal. Perfusion scan of lung did not reported probability of thromboembolism.
Trans abdominal sonography reported a dead fetus of 22 weeks gestational age, with reduced amniotic fluid and 2 masses in RUQ & RLQ with air bubbles diagnostic of abscess formation.
Emergent laparotomy was performed through a midline incision from xyphoid to pubic symphisis (fig 1). The dead fetus was delivered through hysterotomy (fig 2). The abscesses were drained and 2 drains were fixed. After the operation, an antibiotic regimen of penicillin 4000000 IU/q 4h, Gentamycin 80 mg/IV/TDS and Metronidazol 500 mg/IV/TDS was initiated and continued for 4 days. She was not febrile on the second hospital day. The drains were discontinued 5 days later and subsequently the patient was discharged having a good condition.

Discussion

Hydrocarbons are organic molecules that are derived primarily from petroleum distillation. They are typically classified by structure, and each group is distinct in its toxicological profile (2). About 5% of adult intoxication is on account of hydrocarbon ingestion. Of these, the most common product is petroleum oil (1). Most petroleum products are easily absorbed from the skin and stomach and their toxicity depends on lightness and thinness of the especial product. Gasoline as a thin and light product has the maximum absorption and motor oil as thick and heavy product has the least (4).

Toxic symptoms depend on rout of administration either by injection or ingestion. Subcutaneous or dermal injections of hydrocarbons are rarely reported; however, significant morbidity can occur (2). IV injection of hydrocarbons can result in pulmonary toxicity (5) injection of petroleum in to pleural cavity may result in chest wall necrosis and empyema (6). The main purpose of petroleum injection or ingestion have been suicidal attempt or self harm in self mutilating behaviors and psychiatric diseases (7, 8, 9, 10,)

Hydrocarbon agents have been reported to be teratogenic in animal models especially by delayed skeletal development during prenatal exposure (11) they may also have some renal toxicity in rats (12) in addition to deleterious effects in reproductive system and CNS (13) to our search no such injection during pregnancy have been reported.
In a research using human umbilical vein endothelial cells (HUVEC), the effect of some metabolite of hydrocarbons were assessed. These agents could induce inhibition of cellular growth and apoptosis(14).
In conclusion; petroleum soft tissue injection may be an etiology of abscess formation and fetal death in pregnancy.

References


Figure 1: Laparotomy: midline incision from xyphoid to pubic symphisis

Figure 2: Delivering the dead fetus through hysterotomy