

# **Perineal Acute Irritant Contact Dermatitis in Kerosene Poisoning: An Intriguing Presentation**

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## **Introduction**

Kerosene is a combustible hydrocarbon liquid, used commonly in rural and urban households for cooking purposes. In developing countries, kerosene poisoning is accidental among lower socio-economic group.<sup>1</sup>We report here a case of kerosene poisoning in an adult female who developed acute irritant contact dermatitis three days after the ingestion. To the best of our knowledge, such unique presentation is not reported in the literature.

**Keywords** – Kerosene dermatitis, Kerosene poisoning, Irritant contact dermatitis

## **Case report**

A 35-year-old South Indian female reported to Emergency Department with history of ingestion of unknown quantity of kerosene accidentally, 2 hours before admission. She was tachypneic and drowsy at that time and was transferred to Intensive care unit (ICU). She developed chemical pneumonitis and was in stupor state. Next day, she started soiling due to associated bowel and bladder incontinence. Her excreta had associated typical unpleasant kerosene odour. On third day of admission, patient complained of severe burning sensation over her thighs.

The site-specific examination revealed intense vesiculation and few large well-defined erosions over medial aspect of thighs and gluteal region (Figure 1). A diagnosis of acute irritant contact dermatitis was made. The patient was catheterized to prevent further soiling. She was treated with emollients, topical fusidic acid and betamethasone and oral cephalosporin to prevent secondary infections. The lesions resolved in three weeks' time with residual pigmentation.

## **Discussion**

Kerosene, a liquid hydrocarbon is obtained from distillation of crude petroleum.<sup>2</sup> The chemical composition of kerosene is complex, contains paraffins (55.2%), naphthenes (40.9%), aromatic hydrocarbons (3.9%) and harmful components like benzene, hexane, mercaptans and sulfur.<sup>3</sup> Kerosene is still used as energy source in households of many developing countries due to its

economic viability and easy availability.<sup>4</sup> The accidental kerosene ingestion is the most common cause of acute poisoning in children. However, in adults, kerosene poisoning due to accidental ingestion or suicide attempt is unusual.<sup>5</sup>

There are no quantitative data regarding the toxicokinetic of orally ingested kerosene in humans. Limited animal data indicates that it is poorly absorbed from gastrointestinal tract, minimally distributed to various tissues such as lung, liver, kidney, heart and brain. The cytochrome P-448 enzymes may play a role in metabolism and there is not quantitative information regarding its excretion.<sup>6,7</sup> In our patient, the unabsorbed kerosene in faeces had resulted in irritant contact dermatitis of the perineum.

The exposure of kerosene results in dermal barrier impairment. Kerosene dissolves the lipids of stratum corneum, increases proinflammatory cytokines and produce oxidative stress. This promotes dermal inflammation resulting in irritant contact dermatitis.<sup>4</sup>Electron microscopically, kerosene produces large lacunae in the stratum corneum, cytolysis and fragmentation of tonofilaments in stratum spinosum. The more toxic and easily volatile aromatic hydrocarbon is responsible for oedema, hyperaemia and bulla formation.<sup>8</sup>

The contact of skin with kerosene usually does not produce any immediate reaction. However, prolonged contact elicits irritant contact dermatitis.<sup>9</sup> Most of the reported kerosene dermatitis are due to chronic occupational contact, but can also occur with acute exposure. The kerosene dermatitis produces first or second-degree chemical burns. Initially it begins as erythematous discoloration and produces blistering, scaling and fissuring over a period of time.<sup>10</sup> Lesions are more common in concealed areas, and not seen in areas exposed to air.<sup>9,10</sup> Jee et al in their study described (1) erythema with or without desquamation over interdigital spaces, (2) eczematous papulovesicles, papules, scaling and thickening (3) defatting dermatitis with pallor, dryness and fissuring as three major forms of kerosene dermatoses.<sup>7</sup>

As soon as kerosene exposure occurs, that area should be gently washed with normal saline or clean water. It can be treated topically with emollients, corticosteroids and antibiotics if there is any secondary infection. Kerosene dermatitis resolves by three weeks without any sequelae.<sup>10</sup>

## **Conclusion**

The unique feature about our case is that patient has developed perineal acute irritant contact dermatitis following contact with kerosene present in the excreta. This warrants the need to take careful measures to prevent soiling in kerosene poisoning patients, to prevent this untoward morbidity.

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## Legends

Figure 1 –Examination revealed intense vesiculation and few large well defined erosions over medial aspect of thighs and inguinal region.