



Facial Scalds due to Steam Inhalation in a Neonate – A Case Report

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Abstract

Steam inhalation is a traditional remedy used in all age groups for treating respiratory problems like cough, coryza, pharyngitis, bronchiolitis, etc. Though equivocally beneficial, should be avoided in neonates, due to the risk of burns if not used correctly. We present a case of a term neonate with scalds on his face due to steam inhalation, given by his mother, to treat cough and coryza. First and second-degree burns were present on the face. Oral, nasal cavities, and eyes were unaffected. This case highlights the probable side effects of steam inhalation, a therapeutic approach lacking proven advantages. This reemphasizes the need to avoid such treatment strategy, especially in neonates who are predisposed to such injuries.

Introduction

Respiratory tract illnesses are common in all age groups. Through the generations, steam inhalation has been used by parents as an adjuvant home remedy for their affected children.¹ Most people don't know how to use it safely, resulting in burns, especially in children and neonates. In the case report, a term neonate is presented with facial scalds due to improper application of steam therapy.

Case report

A term 2.6 kg neonate was admitted to the hospital, with scalds of face, secondary to steam inhalation. Baby had history of cough, and coryza for one day, and was given steam inhalation by the parents, without consulting health care provider. The neonate was exposed to the steam, arising from the boiling water in the kettle, by keeping his face directly over kettle's mouth, resulting in scalds over face. At admission, there were no feeding difficulties or difficulty in breathing. On examination, vitals were normal. There were first and second-degree burns involving both eyelids, cheeks, nose, upper lip including philtrum, lower lip, and chin, involving around 1 - 2% of total body surface area. (Figure 1a). Oral cavity, nasal cavity, and eye examination was normal. Complete blood counts (Hemoglobin 15.4 g / dl, total leucocyte count – $14.6 \times 10^9 / L$, platelet count $220 \times 10^9 / L$, sodium (136 mmol / L), potassium (4.2 mmol / L) and calcium (8.6 mg / dl) were within normal limits. For analgesia, oral paracetamol at 15 mg per kg was given six hourly. For burns, silver sulfadiazine and mupirocin were locally applied. Baby was observed for any worsening in respiratory signs or difficulty in feeding. As the skin lesions were healing, and neonate accepted breastfeeds well with no worsening of clinical condition, he was discharged after four days. In follow-up OPD after 10 days, the baby was on exclusive breast feeds, gaining weight, and had no respiratory problems. His burn lesions have also healed satisfactorily. (Figure 1b).



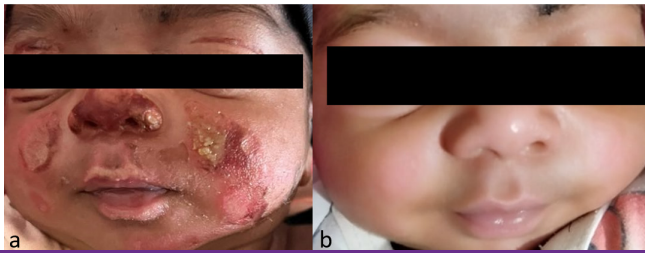


Figure 1. a. Facial scalds at admission, b. healed scalds in follow-up

Discussion

Steam inhalation therapy has been used as an old traditional remedy for management of various respiratory illnesses like common cold, coryza, bronchiolitis, etc.¹ It is a commonly prescribed adjuvant therapy by the paediatricians and physicians.² Heated humidified air can be given through various mechanisms like the traditional methods of bending over the bowl filled with boiling water with the cloth overhead, sitting in a room full of steam or sauna, or by modern methods like electrical steamers.^{1,3} Steam can act through various mechanisms. It can directly inactivate virus in respiratory tract, prevent drying of the respiratory mucosa, improve mucociliary clearance, pulmonary congestion, lower inflammation and oxidative stress, and can activate the immune cells of respiratory tract and the body.^{1,3-5} However, the benefits of the hot humidified air in respiratory illness, have been equivocal.^{3,6-8} The major barrier for its widespread application is the adverse effects of burns and scalds, due to direct effect of hot steam, or due to spillage of the hot water.^{9,10} These may cause burns over face or body, inner lining of oral and nasal cavities, eyes, and the respiratory tract.^{2,7,9} In a case series, 19 patients ranging from two weeks old children to 91 years old adults, were reported to a regional burn centre with burns secondary to steam inhalation.⁷ Burns varied from superficial partial to deep dermal burns. In another study, 16 children attended the burns center following steam inhalation scalds. With an average age of 7.4 years, burns ranged from 0.25 to 17% of total body area.² Authors concluded that despite many practitioners recommending steam inhalation, given serious burn injury, this practice should no longer be recommended in the paediatric age group.

To the best of our knowledge, this is the first report of scalding injury over the face of a two weeks old baby due to direct steam exposure. This case highlights the need for proper counselling and general awareness in public about the benefits and risks associated with steam inhalation. Parents should be informed that steam inhalation in a neonate should be avoided. If to be used then, electrical vaporizers would be safer than the water kept in bowl or kettle. Sitting in a room full of vapours or sauna might be the safest way for steam inhalation. If not

possible, then the child along with mother can sit in tent (a small enclosed area made with any piece of cloth covering the infant and mother), with eyes of infant covered by a cloth and vapour source inside it with its distance from the dyad adjusted to achieve maximum safety. These methods may enhance the safety of steam inhalation.

Conclusion

Hot humidified air has equivocal benefits in the respiratory illnesses. However unsafe administration of steam inhalation may result in burns. With insufficient evidence to recommend this practice, it should be avoided, especially in neonates. Any baby with respiratory symptoms should be kept under direct healthcare provider observation.

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