

## REMOVAL OF TAR FROM BITUMEN BURNS USING BUTTER FROM HOSPITAL KITCHEN: A CASE REPORT AND REVIEW OF LITERATURE

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### Abstract

Coal tar burn are rare injury but difficult to manage because of their adherence to underlying skin. As the temperature of coal tar is very high so it causes deep tissue damage. The exact method of management of bitumen burns are not known. Different literature mentions different agents for removing the tar. Here we use, commercially available butter.

### Introduction:

Coal tar is a black, semisolid cementitious material, mixture of phenols, polycyclic aromatic hydrocarbons and heterocyclic compounds and is used in paving and roofing industry.<sup>1</sup> Hot tar when comes in skin contact cause serious injury. Traditionally, immersion in cold water is harmful for major burns as it leads to hypothermia but for minor burns it may be useful to solidify the inciting agent after dissipating heat.<sup>2</sup> Bitumen manual debridement should be avoided, it should be done by trained medical professional using petrolatum or fat based material or antibiotic containing ointment. Majority of the patients, around two-thirds involve 3 to 5% of the body surface area, and only one-third involve 10% or more and these one-third patients require aggressive management. Our aim should be preventing infection, reduces pain, less tissue injury and less complication.<sup>3</sup> Here, an author reported a case of bitumen burn presented in casualty, in which tar is removed using butter from hospital kitchen.

### Case report:

A 45-year male patients presented in casualty with hot coal tar burn of bilateral feet after an hour of falling from motorcycle over under constructed road at mid night. Only the bilateral feet with dorsal and planter surface were involved, rest of the body were unaffected. Depth assessment could not be done. According to the Wallace rule of 9, total body surface area involved was about 4%. Patients was initially managed conservatively using analgesics (WHO analgesics ladder 1986, step 2), antibiotic and intravenous fluid and he was asked to immerse his legs in cold water for 10 minutes. Meanwhile, conventional butter of about 250 grams was arrange from the hospital kitchen. It was applied over the affected part and rubbed gently for 20 minutes and washed with normal saline. Photographs were taken before, during the procedure and immediately after removing the coal tar. Patient was comfortable during the procedure without any complain of itching, irritation or any tingling or numbness sensation. Silver sulphadiazine was applied topically. The patient was discharged after 48 hours and advised

for daily dressing with silver sulphadiazine for 14 days and follow up in OPD after 3 days.



**Figure 1- Dorsal aspect of feet showing tar**



**Figure 2- Planter aspect of feet showing tar**



**Figure 3- Apply butter for 20 minutes and rub it gently.**



**Figure 4- Dorsal aspect of feet after wash with normal saline**



**Figure 5- Planter aspect of feet after wash with normal saline**



**Figure 6- Apply silver sulphadiazine and then covered with non-adherent dressing.**

#### **Discussion:**

Bitumen burns are the rare injuries but the major health problems in paving and roofing industry. Due to high temperature(93°C), when it comes in contact with skin, it cools rapidly and densely adhered to the skin and produce a bump of variable depth so the mechanical debridement become difficult and painful and may further damage the skin.kerosene, gasoline, acetone, petrol and alcohol, ether, aldehyde are usually ineffective with tissue damage and causes systemic side effect due to absorption<sup>4</sup>. Some author describes the use of Mayonnaise <sup>5</sup>, baby oil <sup>6</sup>, sunflower oil <sup>7</sup>, for tar removal. Here, author use, butter for removal of tar. The benefits are easily available in hospital kitchen, rapid acting, safe, non-toxic, non-irritant, no local tissue damage, no systemic adverse effect, better and effective

emulsifying agent. Wound heal without any complication and no any surgical intervention required<sup>8</sup>.

Now a days different emulsifying agent are available like Petroleum-based ointments such as petrolatum, Neosporin ointment (polymyxin B sulfate-neomycin sulfate-gramicidin), Tween 80 (polyoxyethylene 20 sorbitan mono-oleate; the 80 refers to the average molecular weight of the polyethylene glycol polymer). Liquid Tween 80 is more water soluble, easily removable and rapidly acting therefore more preferable. However, Neosporin is easily available in emergencies<sup>2,9</sup>.

#### **Conclusion:**

Bitumen burns are the challenging health problem because tar is densely adhered to skin. Manual debridement is very painful procedure and cause tissue trauma. Here we use butter as an emulsifying agent which is safe, rapidly acting, less painful and less destructive agent.

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