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Managing The Patient Poured Down Cellulosic Paint At Emergency Department

Başından aşağı Selülozik Boya Dökülen Hastanın Acil Serviste Yönetimi

Acil Tıp

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Özet

Selülozik boya maruziyeti, hekimlerin acil servis şartlarında yönetmesi gereken nadir bir durumdur. Boyanın kimyasal içeriği, hastaların temizlenme ve tedavi süreçlerini önemli bir şekilde etkilemektedir. Bu yazımızda, bir iş kazası sunulmaktadır. 20 yaşındaki erkek hasta acil servise, başından aşağı selülozik boya dökülmesi yakınması ile başvurdu. Hastanın yüzü, başı, boynu ve üst ekstremiteleri siyah renkli selülozik boya ile kaplıydı. Vital bulguları stabildi. Selülozik boya, ilk etapta su ve sabunla yıkamak ve hastanın saçının kesilmesi ile uzaklaştırıldı. Kalıntıları da tiner ile silmek zorunda kalındı. Laboratuvar değerleri normaldi. Başvuruda alınan örnekten kan toksikolojik incelemesi (headspace gas chromatography with flame ionization detection (HS-GC-FID)) yapıldı ve 0.6 µl/ml (0,522 µg/L) toluen tespit edildi. Hastanın maruziyet sonrasında 3 gün süren göz irritasyonu ve 7 gün süren uykusuzluk yakınmaları oldu. Acil servis hekimleri bütün boya çeşitlerini göz önünde bulundurarak olası olguların yönetimine ve tedavi yöntemlerine hakim olmalıdır.

Anahtar kelimeler: *Selülozik boya*, *Toluen*, *Acil servis*

Abstract

Cellulosic paint exposure is a rare condition that physicians should manage at emergency department settings. Chemical ingredient of the paint substatially effects the washout and treatment process of patients. In this case report we present a patient poured down cellulosic paint over head. A 20-year old man presented to our emergency department with a complaint of cellulosic paint poured down over head. His face, head, neck and upper extremities were covered by black cellulosic paint. His vital signs were stable. Cellulosic paint was primarily removed by washing with water and soap and the patient's hair was cut. We had to wipe with thinner to remove residual paint remnants. Laboratory results were normal. Blood toxicological (headspace gas chromatography with flame ionization detection (HS-GC-FID)) analysis was studied from the sample taken at admission and 0.6 µl/ml (0,522 µg/L) toluene was detected . Patient had complaints of eye irritation for 3 days and insomnia for 7 days after exposure. Considering all kinds of paints, emergency physicians must be aware of managing possible cases and strategies.

Keywords: *Cellulosic paint*, *Toluene*, *Emergency department*

Introduction

Cellulosic paints are industrial materials widely used in a broad range of industries [1]. Cellulosic paints contain varying amounts of multiple chemical components such as acetone, cosolvent, butyl alcohol and toluene. Components of cellulosic paints have detrimental effects on human health [2,3]. Beside these possible consequences, clinical effect substantially depend on length of time, way and amount of chemical exposure. Unfortunately, in current literature, the management strategy of the exposures is not stated clearly. Our study represents a case of accidental cellulosic paint exposure by pouring down on head and our experiences about managing this patient and cleaning up the paint.

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Case Report

A 20-year old man presented to our emergency department (ED) with a complaint of cellulosic paint exposure as an occupational accident. Exposure happened by pouring down on head 15 minutes before admission. At initial examination; his face, head, neck and upper extremities were covered by black cellulosic paint. The patient failed to see because the periorbital region and eyelids were covered by paint. His vital signs were blood pressure:131/71 mmHg, pulse rate: 111/per minute (regular), temperature: 36 °C, SaO2: 99 % and respiratory rate: 12/per minute. His state of conscious was assessed agitated (Glaskow Coma Scale:15). Electrocardiogram was sinus tachycardia. After initial examination, cellulosic paint was primarily removed by washing with water and soap and the patient's hair was cut (Figure).

Figure 1
Residual paint remnants on patient's scalp after haircut.

We had to wipe with thinner to remove residual paint remnants on patient's ears, eyebrows, eyelids and nails. Eyes were washed with saline solution (0.9% NaCl), and then eye drop including nonsteroid anti inflamatory drug was applied. Patient's whole blood count, blood urea, creatinine, sodium, potassium, aspartate aminotransferase, alanine aminotransferase, prothrombin time, international normalized ratio and arterial blood gases (pH:7.398) were all in normal ranges. Blood toxicological (headspace gas chromatography with flame ionization detection (HS-GC-FID)) analysis was studied from the sample taken at admission and detected 0.6 µl/ml (0,522 µg/L) toluene. At follow-up patient had insomnia and eye irritation for 7 and 3 days respectively, that recovered problem-free.

Case Discussion

Toluene is an aromatic hydrocarbon (C7H8) found in household products including adhesives, paints and thinners. Widespread misuse of toluene makes toluene toxicity more common and risky condition especially for children and young people. Acute toluene toxicity causes neurologic, cardiovascular and metabolic manifestations. We observed that the neurologic problems have been more researched and focused compared to

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other body systems at literature. Neurologic problems develop due to neuronal changes and include impairments in motor function and cognitive abilities [4]. Cardiovascular problems include fatal tachyarrhytmias and bradyarrhytmias [5]. Metabolic problems reported as bilateral adrenal hemorrhage result with metabolic acidosis, hypokalemia and hyperchloremia[6].Current literature represents acute toluene intoxication cases by inhalation of toluene containing paints and thinner fumes at indoor area [4-7]. However there are rarely encountered cases at literature occurred by orally intake and intrathoracic injection [7,8]. Apart from these conditions, in our case toluene exposure occurred by transdermal absorption as a result of cellulosic paint contact. We didn't observe severe intoxication signs and symptoms during follow-up. We believe this occurred due to limitedness of contact area, contact time and small amount of blood level (0,522 µg/L) compared with lethal cases (12,4 µg/mL (9), 30,2 µg/Ml [10].

In our case we considered the management of a cellulosic paint case at ED. Primarily at removal process of cellulosic paint from skin, we recommend washing with plenty of water. It isn't possible to remove the residual paint remnants from scalp so we recommend to have patient's haircut. In similar manner with the management of oil paint covered man, it's difficult to remove remnants particularly at ears, face and nails [11]. Wiping with small amounts of thinner should be performed in the manner of preventing dermal irritation and over exposure of toluene. Eyes should be washed with saline solution. Ophtalmology consultation should be performed in order to control conjunctival and corneal contagion.

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Information Presantation

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