

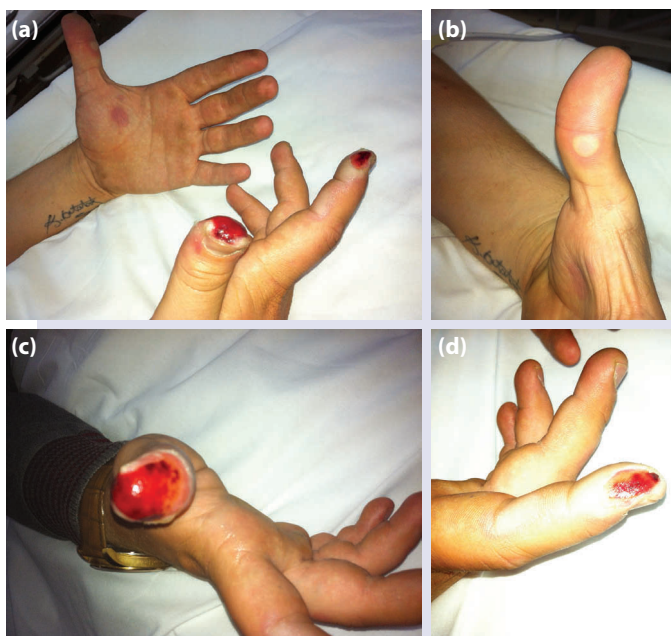
# Hydrofluoric Acid Exposure

Feriyde CALISKAN TUR,<sup>1</sup> Ersin AKSAY<sup>2</sup>

<sup>1</sup>Department of Emergency Medicine, Tepecik Training and Research Hospital, Izmir;

<sup>2</sup>Department of Emergency Medicine, Dokuz Eylul University Faculty of Medicine, Izmir, both in Turkey

A 21-year-old male was admitted to the emergency department with bleeding skin burns. He had been exposed to 70% hydrofluoric acid (HF) through his nitrile hand gloves during an etching glass procedure at work. He had painful lesions, which included bleeding skin abrasions due to second-degree burns on the first and second fingertips on the right hand, and white spots on the left first finger, which covered approximately 0.1% of the surface (Figures 1a-d). Electrocardiography was performed and electrolyte levels were determined. After washing with water, 10% calcium gluconate was administered intravenously and 5 mL was injected around the border of the wounds for analgesia and detoxification. The pain was reduced, and six weeks later, his wounds had fully healed. Upon tissue penetration, hydrofluoric acid dissociates into hydrogen and fluoride ions, the latter of which is toxic.<sup>[1-3]</sup> HF burn treatment aims to neutralize the fluoride ions with calcium and magnesium ions.



**Figure 1.** (a) Hydrofluoric acid burns on the right and left hands. (b) Hydrofluoric acid did not penetrate the finger, but non-hemorrhagic white lesions were seen on the left thumb (mid metaphalangeal). (c, d) Bleeding fields due to second-degree burns by hydrofluoric acid on the first and second finger tips of the right hand.

Massive exposure to HF constitutes a life threatening situation. A 50% hydrofluoric acid solution covering as little as 1% of the total body surface (160 cm<sup>2</sup>) area or exposure to HF of any concentration covering 5% of the total body surface area can be life threatening.<sup>[1]</sup> Calcium gluconate injections provide fluoride detoxification and improve pain. Intravenous calcium gluconate and locally administered subcutaneous injections are recommended to resolve the pain of the exposed skin area.

## References

1. Hatzifotis M, Williams A, Muller M, Pegg S. Hydrofluoric acid burns. *Burns* 2004;30:156-9. [CrossRef](#)
2. Dünser MW, Rieder J. Images in clinical medicine. Hydrofluoric acid burn. *N Engl J Med* 2007;356:e5. [CrossRef](#)
3. Goldfrank LR, editor. *Goldfrank's toxicologic emergencies*. 8th ed. New York, NY: McGraw Hill; 2006.

Submitted: June 10, 2014 Accepted: June 27, 2014 Published online: January 20, 2015

Correspondence: Feriyde CALISKAN TUR, MD. Gaziler Cad., No: 468, Yenisehir, Izmir, Turkey.

e-mail: ozgedumanatilla@gmail.com

