

### Cleaning Chemical Exposure

*This case study recounts the circumstances surrounding a woman's claims that exposure to a chemical stripping agent caused burns, infection and damage to her immune system. The outcome illustrates the importance of validating claims against medical history and assessing toxicological factors according to the peer-reviewed literature to establish reasonable toxicological certainty.*

A woman was stocking vending machines as part of her job duties when she slipped and fell on a floor that was in the process of being refinished with the use of a chemical wax stripper. The plaintiff reported sustaining chemical burns over a large portion of her body from the stripping product even after spending 20 minutes rinsing off in the shower immediately following her fall. She also alleged that the burns caused her to develop an infectious condition known as methicillin-resistant *Staphylococcus aureus* (MRSA) due to damage to her immune system. In addition, she reported a swollen eye that she believed to be related to this event. Plaintiff subsequently brought a lawsuit against the floor refinishing company.

#### Suspicious Circumstances Cast Doubt on Claims

A careful review of medical records revealed inconsistencies within the plaintiff's story. Plaintiff demonstrated an extensive medical history of skin rashes, blistering, cellulitis and frequent MRSA infections that pre-dated her alleged exposure. Additionally, statements from plaintiff's co-workers revealed that she had been seen intentionally injuring herself by repeatedly sticking her own fingernail in her eye.

#### Toxic Exposure or Munchausen Syndrome?

Dr. Sawyer and an independent medical examiner opined that there was neither permanent impairment of the plaintiff's skin following her exposure, nor was there any reason to believe that her immune system was permanently damaged or compromised by exposure to the chemical stripping product. In fact, Munchausen syndrome (a mental illness in which a person acts as if he or she has a physical or mental disorder when, in truth, the symptoms are faked or self-inflicted) was considered to be the cause. The conclusion was highly consistent with plaintiff's extensive history of skin rashes, self-induced dermatological conditions, hospitalizations and the reported self-mutilation to her eye.

Factitious disorder (FD) is a general category covering a group of mental disturbances in which patients intentionally act physically or mentally ill.<sup>1</sup> Munchausen's syndrome was named after Karl Frederick Von Munchausen, a German Cavalry officer who was well known for exaggerating his adventures and who became famous after a collection of his tales was published. Factitious presentations have been described all over the world, in every medical specialty and in every age group, yet by its very nature factitious disorder is difficult to study. There is, therefore, a dearth of evidence in the literature relating to epidemiology and etiology.<sup>2</sup>

However, there is a wealth of study evidence relating to the particular chemicals in the stripping product and their effects on humans. Dr. Sawyer cited a long-standing study in which various concentrations of sodium hydroxide were applied to the forearms of human volunteers.<sup>3</sup> Results of the controlled study revealed that sodium hydroxide produced reactions after 15-180 minutes. Thus, if the plaintiff had been harmed by her exposure to the diluted stripping product, the initial symptoms (erythema) would have been present during the examination with her physician on the same day. Furthermore, her "burns" would have been evident within hours (or at most a day later). However, medical records revealed that the plaintiff did not report any skin conditions until 22 days after the incident occurred. Additionally, the concentrations applied during the controlled study were significantly stronger than the concentration in the diluted stripping product to which plaintiff was allegedly exposed.



Plaintiff stocking vending machines slipped and fell into chemical stripper.<sup>[a]</sup>

## Summary

Dr. Sawyer was able to provide conclusive evidence that the diluted chemical ingredients were insufficient to have caused plaintiff's reported injuries. Furthermore, even if the chemical components of the stripping product had been undiluted, they would have caused skin symptoms to occur within an hour or less. However, plaintiff's first indication of any dermatological issues (as documented in the medical records) occurred far beyond the required time-frame to be linked to the chemical stripper. In addition, the stripping product had been diluted with water by a factor of five, which further reduced any possibility of dermatological impact.

As a result of Dr. Sawyer's toxicological investigation, the case settled for a very minimal amount. Psychological aspects aside, Dr. Sawyer was able to demonstrate that the plaintiff's claims were fundamentally unfounded on a toxicological basis.

*(Disclaimer: Toxicology case studies are impartial and objective summaries of toxicological matters in which TCAS was retained for the purpose of assessing health-based factors which, in some cases, led to a determination of causation. No names or identifying information have been provided due to privacy and legal considerations. In the above matter, Dr. Sawyer was retained by defendant.)*

---

## Notes and References

1. Kamil et. al., "[Munchausen's Syndrome and Other Factitious Disorders in Children](#)," U.S. National Library of Medicine, National Institute of Health, 2006.
2. Steel R.M., "[Factitious Disorder \(Munchausen's Syndrome\)](#)," U.S. National Library of Medicine, National Institute of Health, 2009.
3. Nagao, S., et al., "The effect of sodium hydroxide and hydrochloric acid on human epidermis: An electronmicroscopic study," 1972, Acta Dermato-Venereologica, Vol. 52(1), pp. 11-23.

---

## Images

- a. Adapted from photo by [Jason Britton, Norman, OK](#)

---

### A Message from Dr. William R. Sawyer Chief Toxicologist, TCAS, LLC



*"Accurate characterization of a chemical cleaning product exposure can be complicated without expert assistance. A comprehensive toxicological assessment is essential in matters which involve refuting or demonstrating causation."*

[Home](#) | [Experience](#) | [Toxic Substances](#) | [Case Studies](#) | [CV](#) | [News](#) | [About](#) | [Site Map](#) | [Contact](#)  
[Toxic Exposures](#) | [Environmental Testing](#) | [Risk Assessment](#) | [Forensic Toxicology](#) | [Causation Evaluation](#)  
[Dioxin](#) | [LNAPL](#) | [Hazardous Substances](#) | [Heavy Metals](#) | [Alcohol Toxicology](#) | [Drugs of Abuse](#)  
[Environmental Hazards](#) | [Industrial Chemicals](#) | [Hydrocarbons](#) | [Metals & Compounds](#) | [Pesticides](#)  
[Pharmaceutical Toxicology](#) | [Consumer Products](#) | [Human Health Risk Assessments](#)

### Toxicology Consultants & Assessment Specialists, LLC

**(800) 308-0080** or [send a message](#)

6450 Pine Avenue, Sanibel, FL 33957 **(239) 472-2436**

29 Fennell Street, Skaneateles, NY 13152 **(315) 685-2345**

View Dr. Sawyer's profiles on [LinkedIn.com](#), [AlmExperts.com](#) and [Jurispro.com](#)

Copyright 2017 TCAS, LLC, All Rights Reserved

---

This is an informational and instructional website devoted to toxicology. It presents both original and edited public-domain content compiled as a useful educational resource. References and footnotes have been included wherever possible and image sources have been cited where appropriate. Although most pages can be printed or downloaded as PDF files (and we encourage you to make constructive use of our information), this website is copyrighted and material may only be reproduced and/or distributed with prior permission from TCAS, LLC.