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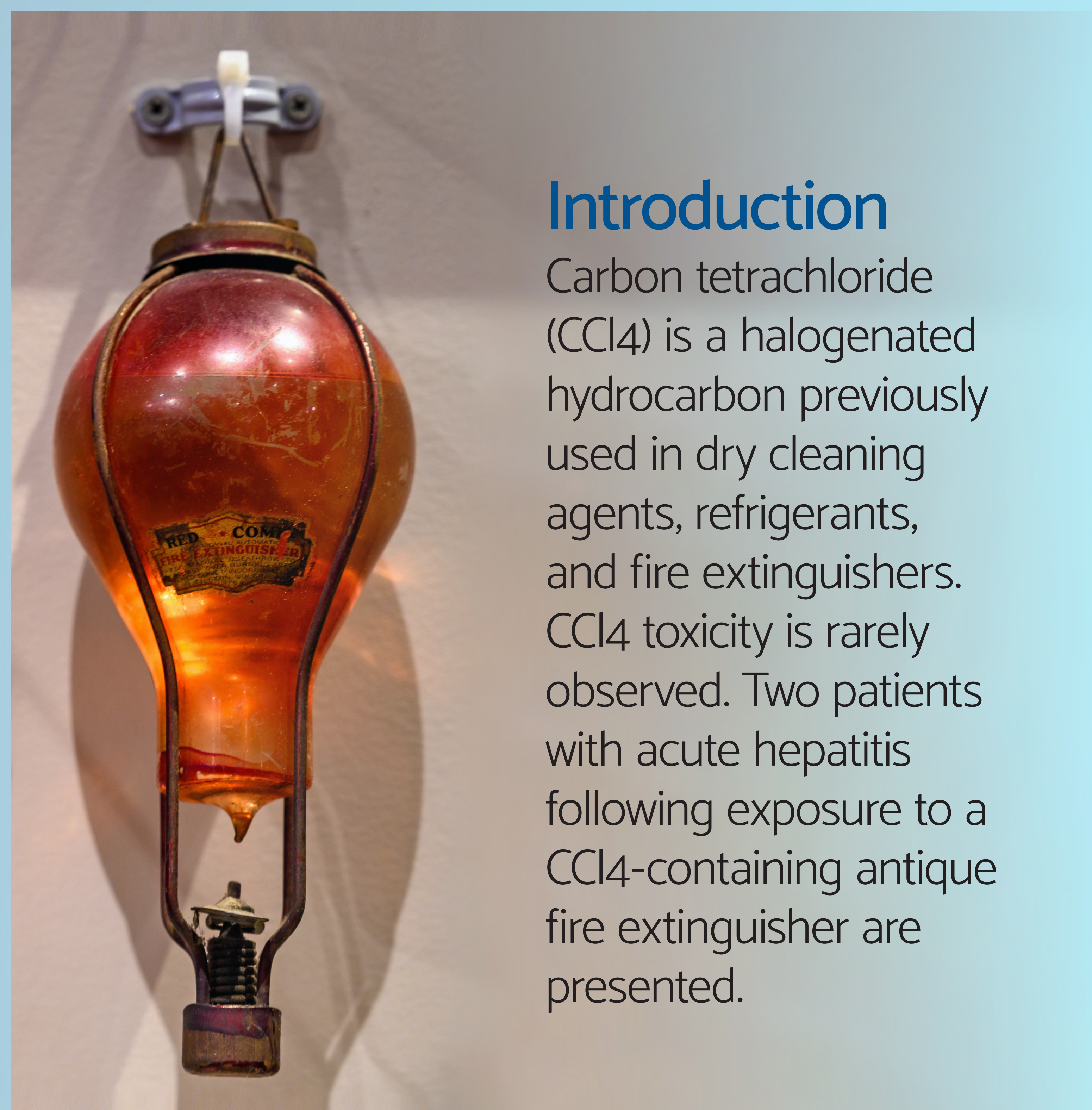
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Introduction

Carbon tetrachloride (CCl₄) is a halogenated hydrocarbon previously used in dry cleaning agents, refrigerants, and fire extinguishers. CCl₄ toxicity is rarely observed. Two patients with acute hepatitis following exposure to a CCl₄-containing antique fire extinguisher are presented.

Case Reports

A son (patient one) and father (patient two) were both admitted to the hospital with acute, unexplained transaminitis. After extensive questioning, they reported recent exposure to a large amount of CCl₄ when an antique “fire bomb” shattered on the floor of their home. Both patients not only cleaned the debris without personal protective equipment, but also slept in the contaminated area.

Patient one had a peak AST 3,386 U/L (<41) and ALT 2,968 U/L (<56). Patient two had a peak AST 18,203 U/L and ALT 8,572 U/L. Both patients received intravenous N-acetylcysteine; patient one also received oral cimetidine. Both patients recovered uneventfully without sequelae. Extensive work-up for other causes of transaminitis was unremarkable. Serum analyses for CCl₄ was also unremarkable due to delay between the exposure and hospital presentation.

Discussion

CCl₄ is a potent hepatotoxin. CCl₄ metabolism via cytochrome CYP2E1 produces its toxic metabolite, the trichloromethyl radical. This radical covalently binds to hepatocyte macromolecules and causes lipid peroxidation and oxidative damage with ensuing centrilobular necrosis. Treatment is not well established but N-acetylcysteine is likely beneficial via glutathione repletion and antioxidant effects. Cimetidine blocks cytochrome P450, and thus metabolite formation. Cimetidine may also promote stimulation of regenerative processes acting on DNA synthesis.

Conclusion

CCl₄ toxicity is rare and infrequently reported in current literature but should be maintained in the differential of acute hepatitis. That two patients presented nearly identically – especially at two different ages but from the same household- offered a clue to this enigmatic diagnosis.