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# Sniffing Skeletal Fluorosis: A Rare Manifestation of Difluoroethane Inhalant Abuse

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## Introduction

Inhalants are substances of abuse commonly used for the desired effect of euphoria. The term “dusting” refers to the inhalation of compressed air cleaners. Skeletal fluorosis is a bone disorder caused by excessive fluoride deposition. It is typically associated with industrial or drinking water sources and is rare in developed countries. We report a case of skeletal fluorosis from chronic inhalation of 1,1 difluoroethane.

## Case

A 33-year-old male with inhalant use disorder presented to the emergency department with depression and suicidal ideation. Physical exam displayed prominent bilateral hand swelling and long bone deformities. Upon further questioning the patient reported five years of inhaling “surf-onn.® computer dust-off” (1,1 difluoroethane) in increasing frequencies and amounts. Over the past six months he noted significant bilateral hand pain and deformity that was interfering with his daily functions.

Radiographs of his bilateral hands, forearms, lower extremities, and chest demonstrated diffuse periosteal new bone formation and sclerosis. The patient was diagnosed with skeletal fluorosis after other rheumatologic etiologies were ruled out. Diagnostic testing demonstrated a urine fluoride 64.5 mg/L (ref <3) and serum fluoride 1.8 mg/L (ref <0.13). Cessation of inhalant use was advised and the patient was provided with vitamin supplementation (C, D, E, and calcium).

## Discussion

Inhalant use is commonly associated with central nervous system effects and cardiac dysrhythmias. Skeletal fluorosis from inhalation use is rarely reported in the literature.

Cessation is needed to prevent further fluoride bony deposition. Recovery is prolonged and may take 8-12 years. Vitamin C, vitamin D, and calcium may aid in bone repair; vitamin E and methionine may reduce bone accumulation of fluoride.

## Conclusion

Clinicians should be aware of the potential for skeletal fluorosis in patients with chronic inhalant use. Patients with inhalant use disorder should be counseled regarding this rare but debilitating adverse effect.

