
Illicit drugs: What dermatologists need to know

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We review the most common systemic and cutaneous signs of heroin, cocaine, methamphetamine, Ecstasy, and marijuana use. We also provide an overview of the skin and soft-tissue infections frequently found in intravenous drug users and the effects of the adulterants added to the drugs. (*J Am Acad Dermatol* 2013;69:135-42.)

Key words: adulterants; cutaneous manifestations; cocaine; cutting agents; dermatology; ecstasy; heroin; illicit drugs; intravenous drug users; levamisole; levamisole-induced purpura; marijuana; methamphetamine; puffy hand syndrome; skin and soft tissue infections; skin popping; track marks.

It has been estimated that 8% of the population aged 12 years or older are current users of illicit drugs.¹ Because drug abuse carries a societal stigma, patients may not immediately report their history of drug abuse to the physician. It is important for dermatologists to recognize cutaneous signs of drug abuse to properly treat the patient.

CUTANEOUS SIGNS OF DRUG ABUSE

Track marks

Track marks are caused by intravenous (IV) drug injection and occur as a result of venous damage and thrombosis with subsequent scarring of the veins and pigmentation of the overlying skin (Figs 1 and 2). They are the result of repeated injections, blunt needles, and irritation from the drug or the adulterants. The most common site is the medial vein in the antecubital fossa of the nondominant arm.^{2,3} However, many people inject in unseen places such as the popliteal fossa, dorsal veins of the feet, and inguinal veins to avoid this stigmata. It is important to note that the lack of track marks does not preclude IV drug use.⁴ Interestingly, IV use of cocaine usually does not induce track marks because it typically does not contain sclerosing chemicals that are added to other drugs such as heroin.⁵

Skin popping

Drug users may inject the drugs intradermally or subcutaneously. This is done accidentally or when veins are sclerosed from previous use, but some

users do prefer this method of delivery. Skin popping leaves irregular, leukodermic, atrophic, punched-out scars caused by irreversible tissue injury (Fig 3). Hypertrophic scars or keloids can develop over these areas.^{6,7}

Puffy hand syndrome

Puffy hand syndrome is also a sign of past or current drug addiction. It presents as nonpitting edema of the back of the hands and may spare the fingers.⁸ Quinine, which is an adulterant that is added to heroin, is thought to be the cause as it induces lymphatic damage.⁹⁻¹¹

Sooting tattoos

These are caused by cooking the drugs and flaming the needles with matches and then injecting the carbon and soot into the dermis.^{6,12} Many times users will cover these lesions with commercial tattoos to make them less noticeable.⁶

Tourniquet hyperpigmentation

This occurs when users apply whatever is available for tourniquets (eg, belts, shoelaces) too tightly and leave it on for too long causing inflammation and subsequent postinflammatory hyperpigmentation.⁷

SPECIFIC DRUGS

Cocaine (coke, C, snow, flake, blow)

Cocaine is a sympathomimetic that causes feelings of euphoria, increased confidence, and well-being,

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and results in tachycardia, hypertension, altered mental status, and mydriasis. Cocaine is extracted in the form of a coca paste from the *Erythroxylum coca* plant. It is treated with numerous chemicals to purify it into a water-soluble powder that is close to 100% pure. However, by the time the user buys it, dealers have generally diluted it with inert or active substances that will be discussed later in this article. Cocaine sold on the streets is a fine, bitter-tasting, white crystalline powder that can be mixed with water and injected, inhaled (snorted), or ingested orally but cannot be smoked.^{13,14}

The free-base form, also called “crack,” is a hard/brittle substance that is produced by neutralizing the cocaine hydrochloride with sodium bicarbonate (baking soda) or ammonia mixed with water. It causes similar symptoms to powdered cocaine but is more intense and addictive. Smoking crack affects the system in seconds as opposed to snorting cocaine, which takes around 15 minutes. Crack cocaine can only be smoked and is much cheaper and more accessible; subsequently, the use of cocaine has increased dramatically over the years.¹⁴

There are many cutaneous signs of cocaine abuse including halitosis, frequent lip smacking, cuts and burns on the lips from broken/chipped crack pipes, madarosis (loss of the lateral eyebrow) from the hot steam rising from the crack pipe,^{5,15} palmar and digital hyperkeratosis from holding the hot crack,¹⁶ and midline destructive lesions of the nasal septum caused by ischemia from snorting the cocaine.^{5,17,18}

“Snorter warts” are nasal verrucae that have been reported in cocaine abusers. They are caused by the transmission of the human papillomavirus on dollar bills. The dollar bills are used to snort the cocaine and are passed from one person to the next, which transmits the human papillomavirus infection.¹⁹

Many types of vasculitis have been described in cocaine abusers such as urticarial vasculitis,²⁰ Churg-Strauss vasculitis,²¹ necrotizing granulomatous vasculitis,²² palpable purpura, and Buerger disease.²³⁻²⁵ Pseudovasculitis with aggressive nasal destruction can be misdiagnosed as Wegener granulomatosis especially when the perinuclear antineutrophil cytoplasmic antibodies are falsely positive.^{5,26} The cause is thought to be a combination of vascular ischemia because of the

cocaine, irritation caused by the adulterants added to the cocaine, and infections secondary to trauma.¹⁷

Adverse drug reactions have been reported in cocaine users. There is 1 case report of acute generalized exanthematous pustulosis,²⁷ and another report of a college student developing Stevens-Johnson syndrome twice because of cocaine use.

The authors believed it was a result of an adulterant that was added to the cocaine, but it could not be confirmed.²⁸ Cocaine has also been reported to unmask or cause scleroderma.^{29,30}

Cocaine abuse can cause formication, which is a tactile hallucination of insects crawling underneath the skin that leads to delusions of parasitosis and/or neurotic excoriations.^{23,31}

CAPSULE SUMMARY

- The use of illicit drugs has become a major societal problem; many illicit drugs or the adulterants used with them can show cutaneous manifestations.
- Here we provide a comprehensive review of the major cutaneous signs of illicit drug use for the most commonly abused drugs.
- This review should enable dermatologists to recognize those signs and enable correct diagnosis and therapeutic planning.

Heroin (smack, H, ska, junk)

Heroin is an opiate that causes significant euphoria, addiction, respiratory depression, and miosis. It is synthesized from morphine, which is a naturally occurring substance extracted from the seed pod of the Asian opium poppy plant. The most common forms of heroin are a white powder or a black sticky substance called “black tar.”³² Heroin base (common in Europe) must be mixed with an acid such as lemon juice to dissolve in water. The hydrochloride salt (common in the United States) only requires water to dissolve. Heroin once dissolved is then heated, drawn into a syringe or eyedropper through cotton, and then injected. Historically, a bag of heroin had a purity of 1% to 10% but over the last 15 years, the purity has increased to an average of 40%. The higher purity has allowed the drug to be snorted and smoked, which has increased the appeal of heroin for many new users who are hesitant of injecting.¹⁴

There are many cutaneous signs of heroin abuse. Of addicts, 4% develop urticaria, which can last for days. They can develop a “high pruritus,” which is intense itching especially on the genitals and face.⁷ There is a reported case of penile ulcers after injection into the dorsal vein of the penis³³ and necrotizing cellulitis of the scrotum after injection into the left femoral artery.³⁴ Pemphigus vegetans,³⁵ fixed drug eruptions, toxic epidermal necrolysis, necrolytic migratory erythema not associated with glucagonoma, and acanthosis nigricans⁷ have all been described with heroin abuse.

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