**Self-mutilation induced by cocaine abuse: the pleasure of bleeding**

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**Résumé**

Un cas d’automutilation induit par l’abus de cocaïne : le plaisir de saigner

Introduction > Les automutilations sont des blessures répétitives infligées à son propre corps, socialement inacceptables, sans intention consciente de se donner la mort, causant des dommages de gravité variable. Elles peuvent être associées à de nombreuses pathologies comme un trouble de la personnalité limite ou un trouble addictif. L’addiction à la cocaïne est associée à des complications somatiques, psychiatriques et sociales. La consommation d’amphétamines mais non de cocaïne a été associée à des actes d’automutilation sévères.

Observation > Nous rapportons ici un cas d’automutilation induit par l’abus de cocaïne.

Discussion > Les caractéristiques cliniques des automutilations sont très variables et il n’existe pas de consensus autour des étiologies de ce trouble. L’abus de cocaïne pourrait être l’une de ces étiologies. Les mécanismes neurobiologiques sous-tendant les processus addictifs pourraient expliquer pourquoi cette patiente perd contrôle et s’automutille lors de ses épisodes de consommations de cocaïne.

**Summary**

Introduction > Self-mutilation is direct and deliberate harm to one’s body without conscious intent to die. It is observed in both men and women with various psychiatric disorders, but most of those who self-mutilate are women diagnosed with borderline personality disorder. Cocaine addiction is a significant worldwide public health problem, associated with somatic, psychological, psychiatric, socioeconomic and legal complications. Amphetamine use, but not cocaine use, has previously been associated with severe self-injurious behavior.

Case > We report here a case of a female patient with recurring self-injurious behavior (“the pleasure of bleeding”) induced by cocaine abuse.

Discussion > The clinical characteristics of self-mutilation are manifold and there is a lack of agreement about its etiology. The complex behavior associated with cocaine abuse may be one cause of self-mutilation. Dysfunction of the inhibitory brain circuitry caused by drug addiction could explain why this cocaine-addicted patient loses control and self-mutilates during cocaine use.
Self-mutilation is defined as direct and deliberate harm to one’s body without conscious intent to die and is observed in both men and women with various psychiatric disorders. Most of those who self-mutilate, however, are women with borderline personality disorders [1].

In numerous forms, cocaine is frequently used and abused as an illicit recreational drug. Its use has been on the rise in recent decades. It is associated with addiction and remains a significant public health problem across the world. This drug is known to increase nucleus accumbens dopamine levels by blocking dopamine reuptake. Dopamine thus accumulates in the synaptic cleft, in the ventral tegmental area of the brain, resulting in increased sensations of pleasure and euphoria [2].

Cocaine addiction is also associated with abnormal function of the prefrontal cortex,3 which may adversely affect decision making, inhibitory control and problem solving in addicted subjects [3]. Cocaine’s acute effects include inhibition of activity of the locus coeruleus and pontine nucleus, and suppression of feelings of fear and anxiety. Inhibition of dopamine and serotonin reuptake is the reason why users may become agitated, paranoid and anxious [4].

Amphetamine use, but not cocaine use, has been associated with severe self-injurious behavior [5]. To our knowledge, self-mutilation induced by cocaine abuse has never been reported. One study reported the unusual case of a patient seeking an anesthetic effect without loss of consciousness, who ingested lidocaine during self-mutilation [6]. We report here the case of a woman with recurring self-injurious behavior induced by cocaine abuse.

Case

A 44-year-old divorced caucasian woman was admitted to our department for recurring self-mutilation — specifically, cutting of the skin of her forearms after nasal inhalation of cocaine. Her medical history was unremarkable. Her psychiatric history included agoraphobic symptoms (not clearly agoraphobia), a history of alcohol abuse (beginning at the age of 32; at admission, she had not used alcohol for several months), and intranasal cocaine abuse. No childhood trauma, no personality or even borderline personality disorders (assessed as a lifetime diagnosis) were found. She reported no noteworthy psychiatric or medical diseases in close relatives. Her prior psychiatric treatment included psychoanalysis and fluoxetine (20 mg per day), prescribed by her general practitioner for the past two years. When interviewed, her affect was appropriate, orientation and contact good, and her speech normal. Her mood was mildly depressed, following the events that led to her admission. She reported no suicidal ideation, suicidal behavior, or desire for self-injury, and had no psychotic ideation.

Cocaine abuse had begun two years earlier, at the age of 42, at a private party with friends. She never injected or smoked it and had never used other psychoactive drugs, such as amphetamines or methamphetamine. Alcohol abuse involved only white wine, at a mean quantity of two bottles per party or dinner. She has smoked a pack of cigarettes daily since she started smoking at 23.

The first episode of self-mutilation accompanied her initial use of cocaine. She reported that she could not resist this behavior, because cutting the skin of her arms felt overwhelmingly gratifying when she was intoxicated on cocaine. She talked about “the pleasure of bleeding” she could experience by using a knife or a razor blade to watch her blood running over her forearms. A complete physical examination showed she did not injure other areas of her body.

Our patient described her self-mutilation as a complex maladaptive behavior, as a means of regulating her emotions during the negative mood state induced by cocaine binge and crash. The pleasure of bleeding seemed to stabilize her mood during cocaine abuse. She told us that the perception of the pain was lessened appreciably during each act of self-injury under the influence of cocaine and that she usually felt better after cutting herself.

The patient agreed to follow-up treatment in a substance abuse program (medication and individual cognitive-behavioral therapy). Topiramate, because of its side effects, was started very low (25 mg daily, given at bedtime) and the dose was increased 25 mg each week for 8 weeks until she was receiving 200 mg of topiramate every day [7]. The urine screening was negative for cocaine and other illicit drugs. After 6 months of follow-up, she had neither self-mutilated nor used cocaine since admission.

Discussion

We report here the first case of a patient who repeatedly self-mutilated her forearms while under the influence of cocaine. Many theories consider self-mutilation to be a strategy to reduce distress or tension, an expression of anger or shame, or manipulative behavior. Some authors link this behavior to borderline personality disorder [1] or treat it as a means of controlling traumatic childhood experiences [8]. This patient, however, has no history of childhood trauma or any axis II disorder. Self-mutilation may also be linked to difficulties in impulse control, as here. In any case, the clinical characteristics of self-mutilation are manifold, and its etiology is a topic for debate [9].

There is a close relation between dopamine and self-mutilation. High doses of dopaminergic agonists such as amphetamine can induce self-mutilation. Animal models have been used to explore this phenomenon but no study has proved its link with cocaine. We know that this psychoactive substance alters synaptic transmission by interacting with dopamine transporters and that its dopaminergic action is one
of its most important neurobiological properties. Gorea and Lombart report that the dopaminergic system may participate in mutilating behavior in rats [10]. The complex behavior associated with cocaine abuse may be one cause of self-mutilation. Dysfunction of the inhibitory brain circuitry in drug addiction [3] could explain why this patient loses control and self-mutilates during cocaine use.

This case report suggests that this specific self-mutilation behavior may be important to consider in the daily clinical approach for some patients. Research on this subject is needed and would be an interesting addition to the pathopsychological and physiological understanding of cocaine addiction.

References