CASE REPORT

Heroin Body Packer's Death in Shiraz, Iran; a Case Report and Literature Review

NAHID NAJAFI[1], MAHMOUD MONTAZERI[2,*]

[1]Department of Toxicology and Pharmacology, School of Pharmacy, Shiraz University of Medical Sciences, Shiraz, Iran
[2]Chief of Autopsy Department, Fars Province General Office, Legal Medicine Organization, Shiraz, Iran

Abstract

Background: Intra-corporeal concealment of illicit drugs known as 'body packing' is uncommonly reported. These drugs mainly comprise opium, heroin, cocaine, 3,4-methylenedioxymethamphetamine (ecstasy), amphetamines, and marijuana or hashish. Body packers may also be called swallowers, internal carriers, couriers or mules.
Although this practice is not new, its medical complications have always been a matter of concern. Some have reported improved packaging methods to deal with such complications. Body packing is an on-going drug smuggling method and authorities across the world are always on the alert.
Case Presentation: It has reported a case of death due to the effects of heroin concealed in a man who was attempting to smuggle the drug within his gastro-intestinal track.
According to forensic procedure of sudden unnatural death, the decedent had to accept a series of examination such as CT scan, autopsy and toxicological analysis. He was found dead from acute heroin intoxication due to the rupture of drug packet in the stomach.
Discussion: This case illustrates the challenges to forensic diagnosis in forensic medical methods in evaluation of potential drug packers and therefore it needs to consider all methods and finally best method involved in forensic diagnosis.
Conclusion: In conclusion, in body packer's postmortem pathological signs are combined with evidence of the presence of drug pellets in the body as well as toxicological analysis in the ante-mortem history, and clinical reports. Toxicological analysis of the presence of the drug in body fluids, such as plasma, and in tissue extracts may not be of value when the level of the drug decreases after a period of metabolism.

Keywords: Body Packer; Heroin; Iran; Legal Medicine

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INTRODUCTION

Heroin poisoning occurs when an individual accidentally or intentionally overdoses on the drug or when an ingested heroin packet ruptures in the gastrointestinal (GI) tract of a "body packer" or "body stuffer." Body packers, also known as "mules," are persons who, voluntarily or through coercion, swallow or insert drug-filled packets into a body cavity, generally in an attempt to smuggle them across secure borders. Body packers can carry about one kilogram of a drug divided into 50-100 packets at a time. The packets usually contain life-threatening doses of opium, heroin, and cocaine, or amphetamines and methamphetamine derivatives wrapped in capsules, condoms, balloons, plastic bags, or the fingers of latex gloves (1-3). Herein, we report a case of a heroin body packer that expired due to respiratory arrest.

CASE PRESENTATION

The deceased was a male (height: 165 cm; weight: 73 kg). After illegally entering Iran, he was arrested by the Iranian police and delivered to the camp.

His death was announced 30 hours after he was arrested and it was confirmed by an emergency room doctor. The body was moved to the autopsy hall to determine the exact cause of death.

The color of the deceased man's lungs was normal. While no condensation was seen in the lungs, during the tracheotomy obvious hyperemia and edema were observed, although no consolidation of the tissue or suppuration was found. During the autopsy, we found a number of packs in the cadaver's alimentary canal from the throat to the colon (Figure 1), indicating that the packs had been consumed orally. After carefully and accurately examining the, it was determined that one of the packets had opened and the substance in the packet had been absorbed into the body.

Considering this issue, we continued to examine the body and we discovered a total of 61 packets. Each packet was 2.5 × 7.2 cm and each weighed approximately 21.5 grams. The weight of all 61 packets was 1314 grams (Figure 2). One of the packets had opened and its contents had secreted into the man's body, leading to his death.

*Correspondence to: Mahmoud Montazeri; MD. Chief of Autopsy Department, Fars Province General Office, Legal Medicine Organization, Shiraz, Iran.
Email: dr_mmontazeri@yahoo.com
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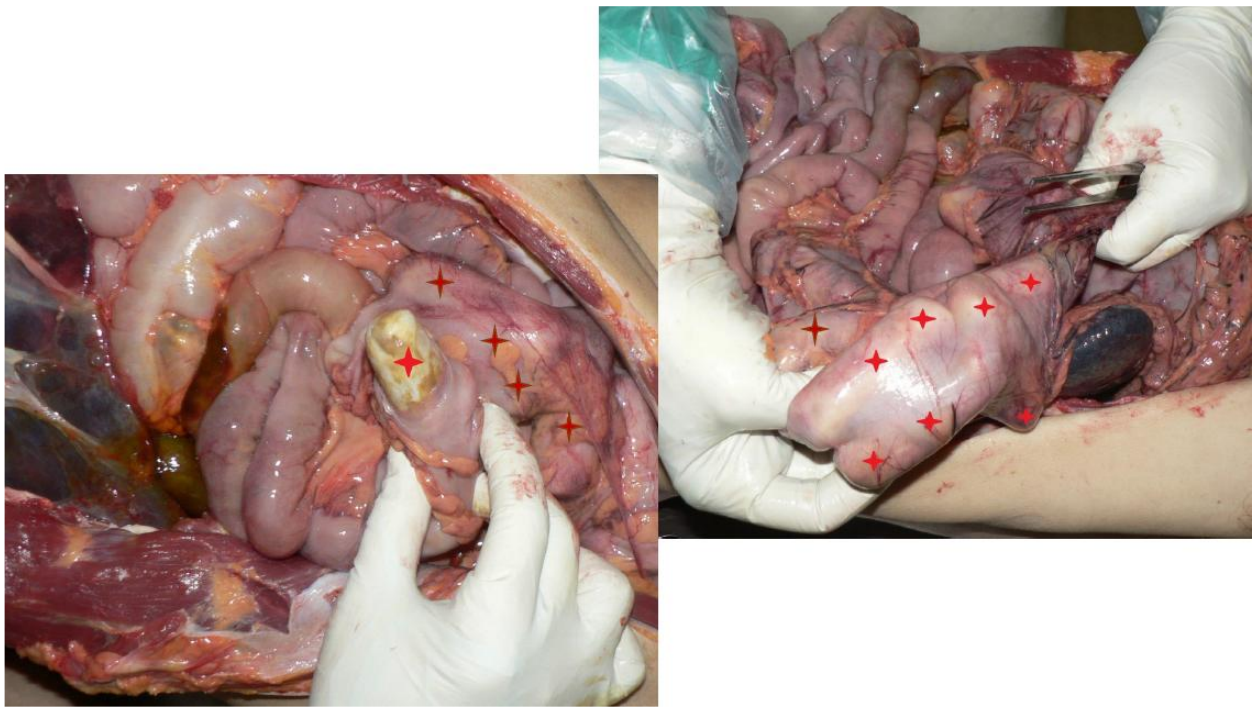

Figure 1. Packets found during the postmortem's autopsy

Figure 2. Packets existed from the postmortem's gastrointestinal tract

Although the examiner was unable to obtain a urine specimen from the cadaver, a blood specimen, vitreous, biliary fluid, and viscera samples were collected to conduct toxicology tests. The samples were sent to the legal medicine laboratory for analysis. In the toxicology test results, using the gas chromatography–mass spectrometry (GC-MS) method, no ethylic alcohol was found in the blood specimen or the vitreous analyses. Solid-phase extraction (SPE) and GC-MS were used to analyze the biliary specimen. The results confirmed the presence of morphine and codeine; however, using these two analytical methods no evidence of a drug was found in the viscera specimen. In order to identify the powder contained in the cylindrical packets that were embedded in the body, one cream-colored powder packet was sent to the laboratory for analysis. Using high-performance liquid chromatography (HPLC), it was determined that heroin and noscapine were present in the specimens.

DISCUSSION

Heroin (diacetylmorphine) is a semisynthetic narcotic that was first synthesized in 1874. It was originally marketed as a safer, non-addictive substitute for morphine. Soon after its introduction, heroin was realized to be as addictive as morphine. In the United States, heroin remains one of the most frequently abused narcotics. In its pure form, heroin is a white powder with a bitter taste (4, 5).

Heroin is a highly addictive semisynthetic opioid that is derived from morphine. When used intravenously, it is 3-5 times more potent than its parental compound, and it is able to modulate pain perception and cause euphoria. Similar to morphine, heroin and its metabolites have mu, kappa, and delta receptor activity (5).

In general, stimulation of the mu receptors results in analgesia, euphoria, central nervous system (CNS) depression, respiratory depression, and miosis. Stimulation of the delta and kappa receptors also results in analgesia, but the kappa receptors are mostly involved in spinal analgesia (6). Like morphine and other narcotics, heroin reduces the brain's responsiveness to changes in PCO_2 and hypoxia, thus resulting in respiratory depression. It also reduces peripheral vascular resistance (resulting in mild hypotension), causes mild vasodilation of the cutaneous blood vessels (resulting in flushing), and stimulates histamine release (resulting in pruritus). Heroin's inhibitory effects on the baroreceptor

reflexes result in bradycardia, even in the face of hypotension. Coma, respiratory depression, and miosis are the hallmarks of opioid overdose (7).

Heroin is quickly metabolized to 6-MAM and morphine. Most qualitative toxicological studies only screen for morphine, and they use the presence of morphine in the urine as a surrogate for heroin use. In criminal and legal cases, however, testing for specific compounds is necessary, and, because 6-MAM can only be generated from heroin metabolism, the presence of 6-MAM on a drug screening test is taken as evidence of heroin use (8-10).

The most common scenarios for a significant heroin overdose are the use of a higher dose, the accidental injection of a highly concentrated solution in an unsuspecting user, or the use of heroin after a prolonged period of abstinence. Intentional (i.e., suicidal) overdoses are rare. Other scenarios include body packing and body stuffing.

As we know, the effects of acute heroin toxicity cannot be medically reversed. In our case study, heroin toxicity occurred immediately prior to the patient's admission, leading to irreversible pathophysiological changes that caused him to go into a coma, resulting in his death long after the level of heroin in his blood and tissues had decreased.

The heroin must have been released from one or more of the pellets while he was undergoing the interrogation, which lasted 12 hours prior to his collapsing. This is consistent with pathological findings from similar reported cases of narcotic fatalities (11-19).

The diagnosis of heroin poisoning is usually made clinically with naloxone, but laboratory analysis may be helpful in confirming heroin use. These are indicated if the patient's condition does not respond to naloxone or if the patient's course of treatment is complicated. Resedation occurs when large doses of heroin are used, when continuous absorption from a ruptured transport bag occurs, or if a long-acting narcotic agent is present in the body. The absence of a response to naloxone should prompt a search for another cause of the clinical presentation, such as hypoglycemia. Respiratory support should be instituted early, when necessary (20, 21).

Gastric lavage in the setting of an oral heroin overdose is generally not recommended because it has no documented value. Furthermore, gastric lavage is contraindicated in body packers and body stuffers because the procedure may rupture a drug packet. Activated charcoal, which is indicated for orally-ingested narcotics, especially those with large intrahepatic circulation (e.g., propoxyphene), is of no value in a pure heroin overdose. Body packers and body stuffers also generally require whole-bowel irrigation, except in the presence of intestinal obstruction or perforation. Whole-bowel irrigation may be accomplished with an oral polyethylene glycol solution at a rate of 2 L/h until the stools are watery and clear (17, 22-26).

Admission to the hospital is rarely necessary and is generally limited to complications of heroin overdose and intravenous drug use. Admission to the intensive care unit is also rarely required and is indicated for patients who require respiratory support and those with life-threatening arrhythmias, shock, and recurrent convulsions, as well as those who require continuous naloxone infusions (rebound coma, respiratory depression).

As noted, because we did not foresee any additional value from the histological findings in this particular case and no specimens were taken for histology (26). X-ray is a method used to identify drug pellets, but the X-ray results may be unclear in strongly suspicious cases (11, 27, 28). Some investigators have reported that urine testing is a reliable method for the identification of drugs in every type of internal concealment, although some investigators have found negative results probably due to the patient's hospitalization (17, 29). Ultrasonography and saliva screening have been found to be unsuitable (27). Once the conversion of heroin to morphine is completed, the measurable detection of the morphine is limited to 12 hours. Thus, even with the most sensitive methods the maximum limit of detection does not exceed 48 hours in plasma (30-32). Surgery is usually performed without any complications (33). In the present case, the free heroin in the stomach contents probably leaked from one of the pellets in the stomach prior to death before it could be absorbed.

CONCLUSION

In conclusion, in body packer's postmortem pathological signs are combined with evidence of the presence of drug pellets in the body as well as toxicological analysis in the ante-mortem history and clinical reports. Toxicological analysis of the presence of the drug in body fluids, such as plasma, and in tissue extracts may not be of value when the level of the drug decreases after a period of metabolism. In the case presented in this paper, the cause of death was unknown, the pellets were not excreted from the intestines, and the radiology result was unclear so it could not provide accurate documentation. Thus, we performed an autopsy to confirm the toxicology analysis. We recommend that the force-feeding method of achieving drug pellet expulsion from suspected body packers be abandoned and replaced by safer, sensitive methods, and that radiology, if possible, and a toxicology analysis be used to detect the presence of drug packets in the body. Moreover, surgical intervention is indicated for persistent body packers when access to imaging is not an option or when unresponsive toxicology results, gastrointestinal obstruction, or perforation occur in heroin body packers.

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