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Ten Years of "Body Packers" in New York City: 50 Deaths

ABSTRACT: We reviewed all 50 body packer deaths in New York City from 1990 to 2001. The majority (37/50) of deaths were caused by acute intoxications due to open or leaking drug packets in the gastrointestinal tract. The number of packets recovered ranged from 1 to 111 (average 46). The weight of the combined packets ranged from 9.4 to 1200 g (average of 377). The age ranged from 19 to 57 years (mean 37.1). The decedents were: 82% male, 66% Hispanic, 24% Black, and 10% White. The manners of death were 47 accidents, 1 homicide, 1 natural, and 1 undetermined. The causes of death included 42 acute intoxications, 5 intestinal obstructions/bowel perforations, 1 gunshot wound, 1 intracerebral hemorrhage due to hypertensive disease, and 1 undetermined. Of the 50 decedents, 42 were transporting opiates, 4 cocaine, and 4 both opiates and cocaine. There were 9 deaths from 1990–1995 and 41 from 1996–2001. Of the 41 deaths between 1996 and 2001, only 6 involved cocaine. In New York City there has been an increase in body packer deaths from the early 1990s to the late 1990s. Along with this increase is a marked predominance of opiate body packer deaths with few cocaine deaths.

KEYWORDS: forensic science, body packer syndrome, forensic pathology, intoxication, fatality, drug smuggling

People who ingest packets of illicit drugs or insert them into body cavities for purposes of smuggling are termed body packers or mules (1–12). Smuggling packets of drugs by ingestion can result in death of the courier by various causes (2–5,8). The most common cause of death is an acute intoxication due to disruption of the packaging and gastrointestinal absorption of the illicit drugs. In the 1980s, there were published case reports that primarily involved cocaine ingestion (3,5,9,13–17). In the 1990s, deaths in opiate smugglers were also reported (2,6,8).

In order to investigate if there was a shift from cocaine to opiate fatalities in New York City, we reviewed all deaths in which drug packets were found in the gastrointestinal tract from 1990 to 2001. The epidemiology, circumstances, autopsy findings, cause of death, and toxicologic data of these 50 fatalities also were reviewed.

Materials and Methods

The Office of Chief Medical Examiner (OCME) investigates all unexpected, violent, and suspicious deaths in New York City. Toxicological testing is routinely performed on all autopsies and on select external examinations. Deaths with ingested drug packets from 1990 to 2001 were identified through a search of the OCME case and Evidence unit databases with subsequent review of the OCME autopsy files. The OCME performed over 50,000 autopsies and toxicologic analyses during the study period.

Autopsy blood specimens were collected with addition of sodium fluoride and stored at 4°C. All toxicologic testing was performed by the Forensic Toxicology Laboratory at the Office of Chief Medical Examiner. Ethanol concentrations were determined in blood using head space gas chromatography. Urine specimens were routinely tested for opiates, barbiturates, benzoylecgonine (BE), and methadone by enzyme immunoassay. In cases where urine was not available, blood was tested for opiates, benzoylecgonine, and barbiturates using radioimmunoassay. Quantitations of morphine, codeine, and benzoylecgonine were done using gas chromatography/mass spectrometry (GC/MS). Morphine was not qualitated in deaths prior to 1997. Urine or blood was also analyzed for basic drugs (including cocaine) by gas chromatography with a nitrogen phosphorous detector (GC/NPD).

In order to conclude that death was caused by an acute intoxication, three conditions must be met: the toxicology results must be within the range typically encountered in such fatalities; the history and circumstances must be consistent with a fatal intoxication; and the autopsy must fail to disclose a disease or physical injury that has an extent or severity inconsistent with continued life. In deaths caused by drug intoxication with more than one drug in concentrations greater than trace amounts, it is customary to include all of the identified drugs in the cause of death.

Packet contents underwent qualitative toxicologic testing at the OCME using GC/MS.

Results

There were 49 decedents with one or more packets of drugs found in the gastrointestinal tract at autopsy and 1 decedent with packets recovered at surgery shortly before death. Of these 50, there were 42 transporting opiates, 4 with cocaine, and 4 with both opiates and cocaine (3 decedents had packets containing a mixture and 1 had separate packets of opiates and cocaine). There were 9 deaths from 1990–1995 and 41 from 1996–2001. Of the 41 deaths between 1996 and 2001, only 6 involved cocaine of which 3 included packets that contained a mixture of heroin and cocaine (Fig. 1). There were no cannabis (including hashish) or amphetamine body packer deaths (1,18). One smuggler was transporting methamphetamine in a plaster leg cast (19). He died from an acute amphetamine intoxication. Since he had no intestinal packets, this death was attributed to substance abuse and was not included in this study.

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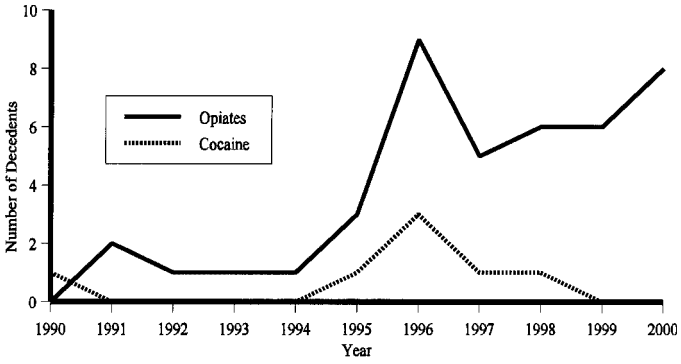

FIG. 1—*Incidence of decedent "body packers" in New York City carrying cocaine or opiates.*

TABLE 1—*Postmortem blood concentrations of opiate or cocaine intoxication deaths by integrity of gastrointestinal package.**

	Disrupted Packets		Intact Packets	
Specimen	*n*	Range (mean)	*n*	Range (mean)
Opiates (mg/L)	29	0.2–72.2 (14.0)	5	0.2–2.8 (1.3)
Morphine (mg/L)	19	0.1–32.4 (5.9)	2	<0.1–0.3 (0.3)
Cocaine (mg/L)	6	0.2–20.5 (10.6)	2	<0.1–0.5 (0.5)
Benzoylecgonine (mg/L)	6	0.3–15.7 (9.9)	2	Positive

* Results with concentrations of less than 0.1 were excluded from the mean calculation, and two deaths due to the combined effects of opiates and cocaine were excluded from this table. Morphine was not qualitated in deaths before 1997.

The opiate and morphine concentrations are set forth in Table 1. The site of the blood specimen was not recorded in all deaths; however, among the peripheral blood samples (approximately half of all specimens were peripheral samples), opiate concentrations with the corresponding morphine concentrations in parentheses included the following: 72.2 (morphine not tested), 29.2 (7.7), 27.2 (15.7), 20.8 (12.0), 19.0 (7.5), and 11.9 (5.9) mg/L. The number of packets recovered in the gastrointestinal tract ranged from 1 to 111 (average 46 packets). The total weight of the packets per person ranged from 9.4 to 1200 g (average of 377 g). The packets were generally distributed throughout the gastrointestinal tract (Table 2). Additional packets were recovered, already "passed," at the scene in several deaths. All of the decedents apparently ingested the packets (so-called "swallowers") as opposed to insertion into the rectum or vagina ("stuffers") since no decedent had packets limited to the rectum or vagina.

The majority of deaths (37/50) were due to acute intoxications with evidence of opened or leaking packets in the gastrointestinal tract. Of these 37, there were 29 opiate, 6 cocaine, and 2 combined opiate/cocaine intoxications. There were eleven (11/50) fatalities without evidence of disrupted packaging. The causes of those deaths included: four gastrointestinal obstructions/perforations, one homicidal gunshot wound, one intracerebral hemorrhage (not cocaine-related), and five acute intoxications (two were due to a combination of cocaine and opiates; however, only opiates were detected in the packets). One (1/50) person died of sepsis following surgery for a jejunal perforation with a clinically described leaking packet; however, postmortem toxicology was negative. One (1/50) person had leaking opiate packets at autopsy but negative postmortem toxicology results and no gastrointestinal perforation. The manners of death included 47 accidents, 1 homicide, 1 undetermined, and 1 natural. At autopsy, the homicide victim had intact gastrointestinal packets as well as an intact abdomen.

TABLE 2—*Packet contents and location per decedent.**

Packet Contents		Gastrointestinal Location	
Heroin Couriers	45	Stomach	3
Acetylcodeine	44/45	Small Bowel	3
Monoacetylmorphine	39/45	Large Bowel	2
Papaverine	29/45	Stomach and Small Bowel	7
Codeine	18/45	Stomach and Large Bowel	9
Caffeine	5/45	Small and Large Bowel	9
Cocaine	4/45	Stomach, Small & Large Bowel	14
Theophylline	2/45	Abdominal Cavity	1
Noscapine	1/45	Gastrointestinal Tract, NOS	2
Meconin	1/45		
Hydrocotarnine	1/45		
Sole Cocaine Couriers	4		
Opiates, NOS	1		

* One death occurred following surgical removal of opiate packets; however, forensic toxicology on the packet was not performed.

The age ranged from 19 to 57 years with a mean of 37 years. The decedents were: 82% male, 66% Hispanic, 24% Black, and 10% White. Over half of the decedents (54%) were found in the New York City borough of Queens. Most decedents (46%) were found in hotel/motel rooms followed by the street (24%). Twelve couriers were apparently dumped on the street (nine opiate, three cocaine) and four had abdominal and intestinal incisions (three opiate, one cocaine) to recover the packets. No deaths occurred during or following legal incarceration or arrest.

There were six deaths with gastrointestinal obstructions/perforations. Four had no leaking packets and negative toxicology results. One died from sepsis after repair of a jejunal perforation with a leaking drug packet recovered during surgery, but postmortem toxicology was negative. The sixth decedent had a perforated jejunum with focal peritonitis, leaking packets, opiates in the blood, and pulmonary edema with oral/nasal froth at autopsy.

A variety of bowel stimulants were noted at the scenes including: over-the-counter laxatives, magnesium citrate, mineral/vegetable oil, epsom salt, and prune juice. Postmortem toxicologic studies detected antiemetic agents including chlorpromazine and promethazine. Nasal/oral froth was documented in 15 of the acute opiate intoxications and none of the cocaine deaths.

Discussion

From the early to the late 1990s, body packer deaths in New York City have increased. This change is due to an increase of opiate body packer deaths, while cocaine body packer deaths have nearly disappeared. These findings may be due to a shift in smuggling patterns and/or that gastrointestinal tract leakage of opiates is more lethal than cocaine. It is unlikely that cocaine smugglers have developed and maintained a monopoly on leak-proof packaging materials. Case reports in the literature have also mirrored this change from cocaine to opiates. Several case reports in the 1980s described cocaine deaths (3,5) while reports in the mid-1990s largely focused on opiate deaths (2,6,8).

Most of these body packer deaths were due to leakage of the drug packets in the gastrointestinal tract. This is supported by the circumstances of the death, the autopsy finding of disrupted packets, and elevated drug blood concentrations. A small fraction of these

deaths were not due to intoxications from leaking packets. These other causes included five bowel obstructions/perforations, a gunshot wound, a cerebral infarct due to hypertensive cardiovascular disease, and five acute intoxications from substance abuse (2,8,11,20).

Five deaths are interpreted as fatal acute intoxications from substance abuse rather than accidents as a consequence of body packing. This conclusion is supported by three findings. First, no leaking packets were found during the autopsy. Second, the opiate concentrations in these deaths were an order of magnitude lower (average 1.3 mg/L) than the deaths observed with opened/leaking packets (average 14.0 mg/L, see Table 1). Finally, two of these deaths had cocaine in the blood that was not detected in the gastrointestinal packets.

Other possibilities may explain these findings. For example, the absence of disrupted packets at autopsy does not exclude the natural evacuation of a disrupted packet before death or a leaking package that was incorrectly diagnosed as "intact" at autopsy. In addition, there is a wide range of opiate concentrations that may result in death and some people may die before they absorb enough drug to result in markedly elevated postmortem concentrations. This is supported by the wide range of opiate concentrations found in the "leakage" group (see Table 1). Previous reports have described similarly high opiate concentrations in body packer deaths. Some have suggested that abdominal diffusion of drug could account for these elevated concentrations if a non-peripheral blood sample were used for toxicologic analysis. Several peripheral blood samples in this study had markedly elevated concentrations (opiates up to 72.2. mg/L).

Purity of the drugs may explain why there were more opiate than cocaine deaths. A substance abuser who samples the first passed packet of his cargo may be more likely to "overdose" by injecting high purity heroin as opposed to snorting high-purity cocaine. Some of these deaths may be due to substance abuse of his/her own pure product. Unfortunately, purity testing was not performed on these packets. On a recent body packer who survived after hospitalization, a 62.9% heroin purity was determined on the recovered packets. "Street heroin" has a broad purity range with common values of 40 to 50% (personal communication, New York City Police Crime Laboratory).

None of the cocaine body packers died with intestinal obstruction or perforation, but six of the opiate body packers did. What role, if any, does heroin play in these obstructive/perforation deaths? Opiates slow bowel motility and could make a physiologic contribution to intestinal obstruction. Opiates, however, were detected at autopsy in only one of the six decedents. These toxicology findings do not exclude prior opiate abuse. It is not surprising that someone who smuggles drugs may also abuse drugs. Since there may be a considerable time interval between the onset of the bowel obstruction/perforation, sepsis, and death, it is conceivable that opiates could make an initial contribution but were no longer detectable by the time of death. Unfortunately, bile was not tested in these deaths.

A review of fatal cases of body packers reported in the literature also supports this hypothesis: 5 of 17 fatal opiate body packers had gastrointestinal obstructions/perforations (2,4,5,8) and none of 15 reported fatal cocaine body packers had an intestinal obstruction (3,5,13). There have been reports of non-fatal intestinal obstructions in cocaine body packers; however, full forensic toxicologic examination of blood was not reported (9,17,20,21). Regardless of whether opiates play a physiologic role in these obstruction/perforation deaths, the manner of death is accidental even with negative toxicology results. The packets are foreign bodies that result in an intestinal injury that excludes a natural manner of death.

The majority of deaths occurred in the New York City borough of Queens, where both JFK and LaGuardia airports (and their associated plethora of lodgings) are located. The hotels and motels near the airports continue to be frequent scenes of these deaths. The proximity and privacy afford the couriers the rapid and convenient ability to unload their freight. As noted in other case reports, several couriers were apparently dumped in the street and/or eviscerated to recover the unpassed packets (2,3,8). Postmortem celiotomy was not limited to the opiate couriers as has been previously reported (2).

The toxicologic analysis of the contents of the packets demonstrates the various impurities that occur with illicit heroin production and the adulterants that are added to heroin. Codeine, acetylcodeine, and papaverine were commonly identified in the heroin packets (Table 2). Papaverine is an alkaloid found in opium to the extent of about 1% by weight. It is a smooth muscle relaxant that is used clinically as a vasodilator and antispasmodic (22). Other impurities included noscapine, meconin, and hydrocotarnine. This information may be helpful when interpreting toxicology results in acute opiate intoxication deaths. Codeine is not a metabolite of morphine; however, a small amount of morphine may be formed from the metabolism of codeine. The detection of relatively small concentrations of codeine compared to morphine favors heroin abuse and not sole oral codeine ingestion. The adulterants identified in the heroin packets included caffeine, cocaine, and theophylline. Two of the three carriers of leaking packets that contained a mixture of heroin and cocaine had opiates and cocaine detected in their blood. No lidocaine or quinine was detected in any packet; however, one decedent (who recently returned from Africa) had chloroquine detected in the autopsy blood (23–25).

One decedent had a total of 1200 g of opiates in 104 packets in his gastrointestinal tract. The largest reported total gross weight of cocaine extracted from a single person was 1340 g from an arrested passenger at Frankfurt Airport (10). Ancillary medications are sometimes taken by the couriers to aid in the retention of these large loads (16). Antiemetic medications such as chlorpromazine and promethazine were detected at autopsy. A variety of medications and accessories may be found at the scene or in a body packer's possession. These include antidiarrheal medications to slow bowel motility (so-called "stoppers" in the Australian/British literature), various laxatives (the "starters"), and condoms/dental floss for packaging (12).

The types of packaging can vary (9,10,15). Several studies have examined packaging since this information may be beneficial to clinicians treating a suspected body packer. Various treatment regiments (from laxatives to exploratory laparotomy) may be indicated depending upon the type of packaging seen radiographically or from the initial passage of a sample (9,11,17,21,26–30). Radiographs (e.g., a supine and upright abdominal radiographs with or without contrast) and urine toxicology screening are clinically helpful in determining if a person may be a body packer (1,9,31–39). Diagnostic radiographic features include the "double condom," "flour bag," and "rosette" signs (12,16,31,34,40).

The absence of deaths in people with inserted packets in the rectum or vagina ("stuffers") suggests that this method of transport is less likely to be found to cause death than oral ingestion. The apparent absence of these fatalities may be due to the relatively easier retrieval, by an accomplice or the courier, of packets in these locations. In addition, these packets are not subjected to the stresses of peristalsis. One courier who was discovered dead in a hotel room had left a note stating that he was a body packer and was afraid that

one of the packets had opened in his intestines. At autopsy, he was found to be correct. If this person had easier access to the packets, he could have removed them before death. If he had removed the packets, the decedent conceivably could have been incorrectly certified as an acute intoxication death from substance abuse as opposed to body packing.

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