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# The "Body Packer Syndrome"—Toxicity Following Ingestion of Illicit Drugs Packaged for Transportation

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**ABSTRACT:** Ten fatalities and one survivor of attempts to smuggle cocaine within the body were investigated. Most cases have occurred since 1979. All but one of the victims were male. Victims found dead at home or in hotel rooms had little or no drug paraphernalia at the scene, although abundant laxatives and enema apparatus were often evident. Some died aboard aircraft, and witnesses described agitated behavior followed by grand-mal type seizures, respiratory collapse, and death. Seven victims presented to hospital emergency rooms. The symptoms included mydriasis, seizures, acute toxic psychosis, and coma in various combinations. One individual, realizing his plight, sought emergency room help by claiming he attempted suicide by using cocaine. All victims had recently returned to the United States on flights from South America. Balloons, condoms, or plastic bags filled with 3 to 6 g of cocaine each were swallowed and found in the gastrointestinal tract of eight victims. One of these had ingested more than 147 packets totaling 460 g. Two victims inserted packets of cocaine into their rectums, and one woman was found with nearly 170 g of cocaine in her vagina. The packets, being semipermeable membranes, do not have to break open to cause death from acute cocaine toxicity. Characteristic autopsy and radiologic findings, circumstances of death, and toxicologic data are presented. The "body packer syndrome" should be considered in any international traveler who dies suddenly, has seizures, or presents with any signs consistent with cocaine toxicity.

**KEYWORDS:** toxicology, cocaine, smuggling

Those who smuggle cocaine within their bodies are called "mules" or "body packers." The typical smuggler wraps a quantity of the drug in a plastic bag, a balloon, or a condom. The packets are then either swallowed or inserted into a body cavity and subsequently retrieved after the smuggler clears U.S. Customs. Although successful to an unknown extent, the practice has resulted in deaths and near-fatalities with increasing frequency. This report describes eleven such cases investigated by the Dade County Medical Examiner's Office.

## Methods

The case files of ten individuals who died from acute cocaine toxicity directly related to the smuggling of the drug within their bodies were reviewed. Medical examiner and police investigators and emergency room medical records provided information concerning the back-

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ground and terminal events of these individuals. Complete autopsies were performed in all fatalities. Before 1975 cocaine in fluoride-preserved blood was quantified by thin-layer chromatography. Since 1975 quantification has been done by gas-liquid chromatography with a nitrogen detector [*1*].

## Case Summaries

### *Case 1*

A 26-year-old white male of U.S. citizenship boarded an airplane in Bogota, Colombia, bound for Miami, Florida. About 45 min after takeoff he complained of feeling "sick to his stomach." Flight attendants administered oxygen but 75 min later he had generalized seizures and died.

Postmortem examination revealed 27 rubber packets in the stomach. They averaged 2 cm in diameter and consisted of a rubber bag tied with a double knot and placed within a similar bag that was also tied. Except for one bag that had ruptured, they each contained approximately 5 g of white powder. Subsequent analysis revealed this powder to be 35% cocaine. Procaine hydrochloride was qualitatively present. Gross autopsy findings included pulmonary congestion and edema, hepatic congestion, and gastric hyperemia.

### *Case 2*

A 17-year-old white male of U.S. citizenship was found dead in a Miami hotel. Investigation revealed he had taken a flight from Barranquilla, Colombia, the previous day. Witnesses said he appeared to be "high on drugs" when he checked into the hotel.

At autopsy, 53 condoms each containing an average of 4 g of a white substance were found within the gastrointestinal tract: 26 in the stomach, 3 in the duodenum and proximal jejunum, 1 in the distal jejunum, 15 in the ileum, and 8 in the colon. One condom in the distal jejunum was filled with liquid. Each condom was twisted, tied, and turned back upon itself a total of four times. Analysis of the contents revealed 10% cocaine and 90% lidocaine. The only other autopsy findings were hemorrhagic pulmonary edema and mild cerebral edema. The appearance of the gastrointestinal mucosa was not specified.

### *Case 3*

A 22-year-old white male was found dead in his hotel room. At the scene were two partially used Fleet® enemas, a bottle of Haley's M.O.®, and a container of Ex-Lax®. Investigation revealed he had checked into the hotel the previous day after arriving at the airport on a flight from Bogota, Colombia. He was a U.S. citizen.

At autopsy, 75 condoms filled with 5 to 6 g of white powder each were found within the gastrointestinal tract: 71 in the stomach (Fig. 1) and 4 in the small intestine. Five condoms in the stomach (Fig. 2) and three in the small intestine were ruptured. Some packets were tied together, forming short chains of three condoms each. Analysis revealed the packets contained 25% cocaine. The cutting agent was not determined. Pertinent autopsy findings included pulmonary congestion and edema, cerebral edema with moderate bilateral uncal and cerebellar tonsillar herniations, and a hemorrhagic gastric mucosa.

### *Case 4*

A 19-year-old black American male arrived at Miami International Airport from Bogota, Colombia. Because of his nervous appearance and rapid movements in the Customs area, a strip search was ordered. As he was being led to the examination room he suddenly reached into his pocket and swallowed an unknown substance, which the subject stated was a mari-

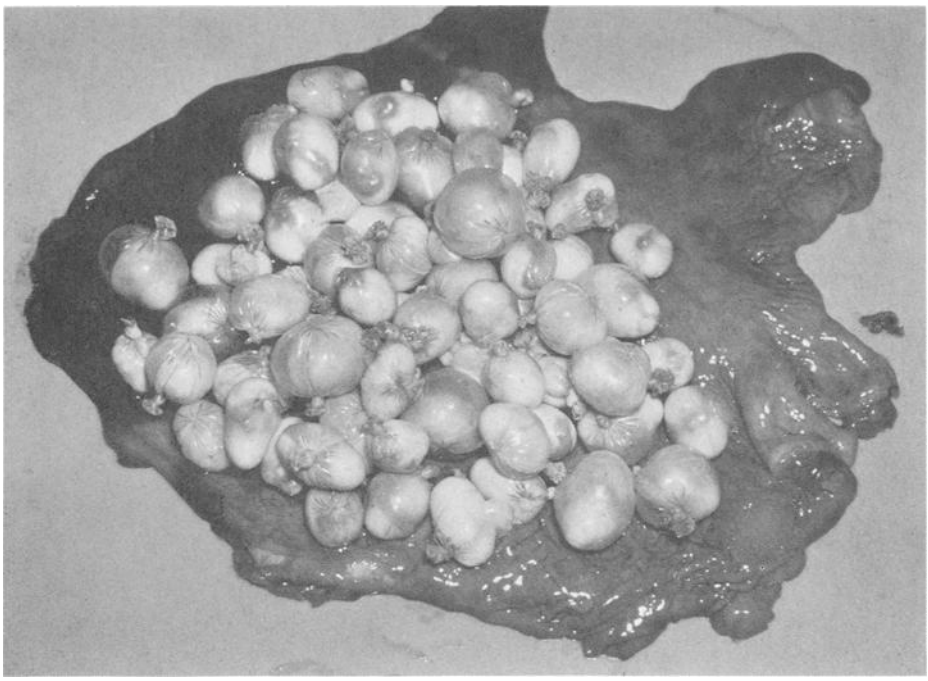

FIG. 1—*Opened stomach containing 71 cocaine-filled condoms (Case 3).*

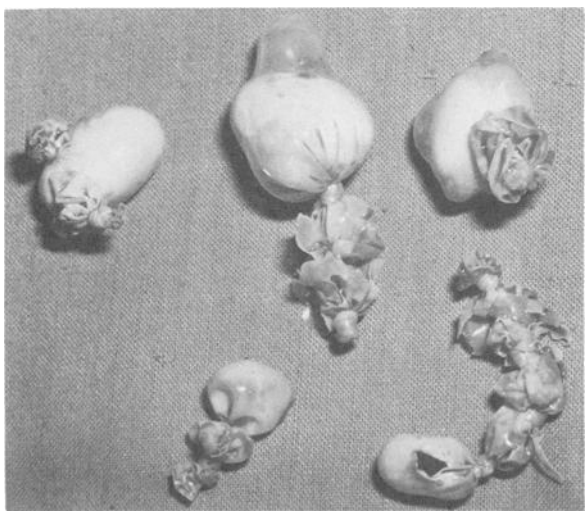

FIG. 2—*Ruptured condoms retrieved from stomach and small intestine. Note that some are tied together in short chains (Case 3).*

juana cigarette. The strip search revealed a string protruding from his anus. The subject was instructed to remove this, whereupon he suddenly began to convulse and vomit bloody fluid. He then admitted that what he had swallowed an hour earlier was actually 95% pure cocaine and that he had 30 g of 95% pure cocaine within a plastic bag inside his rectum. He died at a

local hospital despite resuscitative measures. One plastic bag containing white powder was removed from the victim's rectum.

Postmortem examination revealed multiple irregular white particles between 5 and 10 mm in diameter within the stomach. No other particles or packets were seen in the remainder of the gastrointestinal tract. The organs were otherwise normal except for mild pulmonary edema.

*Case 5*

A 32-year-old white male of U.S. citizenship was in flight from Barranquilla, Colombia, to New York. Shortly after takeoff he went to the airplane's rest room. Upon returning to his seat he was observed by the other passengers to be staring straight ahead with wide-open eyes and to be rapidly moving his legs back and forth. About an hour later he suddenly had generalized convulsions. Cardiopulmonary resuscitation was initiated by nurses on board the airplane. The plane was diverted to Miami, Florida, where further resuscitative measures proved futile.

At autopsy 147 complete condoms and 40 condom fragments were found within the gastrointestinal tract (23, ileum; 61, ascending colon; 21, transverse colon; 42, descending colon). The packets were wrapped upon themselves numerous times and each contained approximately 1.5 g of cocaine. The purity of the contraband was not determined. One condom was not ruptured but contained a light brown fluid with some air above the fluid. Two dozen pieces of partially digested paper napkins and cardboard were present within the stomach. Other findings included gastritis, duodenitis, and mild cerebral edema.

*Case 6*

A 29-year-old black male of U.S. citizenship arrived at Miami International Airport from La Paz, Bolivia. He suddenly developed generalized seizures in the Customs area of the airport. He was transported to a local hospital where he was found to be alert and oriented, with an oral temperature of 37.8°C, a pulse of 160/min, respirations 40/min, and blood pressure of 180/110 mm Hg. Toxicologic testing performed at the hospital revealed cocaine in the blood. A roentgenogram of the abdomen revealed "multiple round shaped forms" (Fig. 3). He was treated for head lacerations sustained during the convulsion. Approximately 7 h after admission to the hospital his temperature increased to 40.5°C. He again had generalized seizures, and he died 11 h after admission.

Postmortem examination revealed 110 red and blue balloons within the colon. Each contained approximately 2 g of 95% pure cocaine. Although all the balloons were intact, 13 were filled with clear liquid. Acute pulmonary edema and cerebral edema with meningovascular congestion were the only other autopsy findings.

*Case 7*

A 30-year-old white male of U.S. citizenship and Colombian birth displayed extreme polydipsia while registering at a local college. He said he had just ingested 20 Darvon® capsules, whereupon he was taken by ambulance to a local hospital. He told medical personnel there that he had attempted suicide by swallowing an aluminum foil packet filled with cocaine. A short time later he began running up and down the halls and shouting obscenities. He was found dead on a stretcher shortly after being transferred to another hospital. No seizures were witnessed.

At autopsy, a 2- by 1- by 1-cm empty aluminum foil packet was found in the pylorus, and a ruptured rubber finger cot with a knot at one end was in the fluid-filled cecum. Other findings included marked hemorrhagic pulmonary edema and mild cerebral edema with

FIG. 3—*Abdominal X-ray revealing cocaine condoms throughout the colon (Case 6).*

moderate meningovascular congestion. The mucosal surfaces of the gastrointestinal tract were normal.

A subsequent search of the victim's apartment revealed a metric scale, glycerine suppositories, Fleet enemas, Kaopectate, and a finger cot that had been cut open.

Investigation revealed this individual had deposited several thousand dollars in his bank account just after he had returned from Colombia ten days earlier. It was concluded that he had passed all but one of the condoms he had smuggled into the United States at that time. When he developed cocaine toxicity he feigned a suicide attempt to obtain medical treatment and to avoid, he hoped, a police investigation.

*Case 8*

A 42-year-old white male of Colombian citizenship had generalized seizures in the Customs area of the airport shortly after disembarking from a flight originating in Medellin, Colombia. Resuscitative attempts at a local hospital were unsuccessful. A translucent dry rubber bag containing 50 g of white powder tied at each end by a ligature was found concealed in his underwear. Protruding from the anus was a similar intact bag filled with a clear fluid (Fig. 4). Both bags contained cocaine. The rectal mucosa (Fig. 5) around the bag ap-

FIG. 4—*Intact but fluid-filled rubber packet retrieved from the rectum (Case 8).*

FIG. 5—*Rectal mucosa adjacent to cocaine-filled packet (Case 8). Initial gross impression was ischemic necrosis, but the condition proved microscopically to be intense vascular engorgement.*

peared necrotic (black and shaggy), but microscopic examination revealed only intense vascular engorgement and no evidence of necrosis. Other pertinent autopsy findings included mild congestion of the lungs and liver.

*Case 9*

A 47-year-old white woman of Colombian citizenship was found in a coma in the rear seat of a taxicab and pronounced dead on arrival at a local hospital. Examination revealed two clear double-wrapped plastic bags in the vagina. Each contained 85 g of white powder that tests showed was cocaine. The labia minora and distal portion of the vagina were black and appeared necrotic. Microscopic examination, however, revealed intense vascular engorgement instead of necrosis.

*Case 10*

A 45-year-old Colombian man was found dead in a hotel room. The victim and a male companion had checked into the hotel the previous day after arriving on a flight from Medellin, Colombia. At the scene were containers of Di-Gel®, milk, Fleet's enemas, Haley's M.O., Ex-Lax, and figs. The body was in full rigor mortis and had a rectal temperature of 37.8°C. The lips and tongue had bite marks consistent with terminal seizures. The companion was not at the scene, nor was he subsequently found.

An autopsy revealed 430 g of cocaine contained in a total of 82 double-wrapped condoms in the stomach. Fourteen had lost the outer wrapping and the contents were moist. None had ruptured and none were filled with fluid. Pulmonary edema and gastric mucosal hyperemia were the only other findings.

*Case 11*

This 25-year-old white man of U.S. citizenship was the co-smuggler and traveling companion of the man described in Case 6. The pair became inadvertently separated during their travels, and the subject arrived in the United States some hours after his companion. He turned himself in to a local hospital after developing symptoms of acute cocaine toxicity and after hearing of the death of his friend. At the hospital he stated he had ingested 90 cocaine-filled balloons about 40 h earlier and that symptoms had begun about 35 h after ingestion. These symptoms included blurred vision (presumably because of the observed mydriasis), loss of balance, memory impairment, euphoria (to the point of grandiose delusion), and left upper quadrant abdominal tenderness. Eighty-eight intact balloons and two broken ones were surgically removed from the gastrointestinal tract. The patient had a smooth postoperative course and was eventually discharged to the county jail.

The subject subsequently revealed to one of the authors (R. E. M.) that the smuggling of cocaine within the body occurs daily and that some individuals have done this repeatedly. Also, it is thought that the packet should be retrieved within 8 h after ingestion to prevent the contraband from acquiring an unpleasant odor that could make it unpalatable.

## Comment

Scattered reports of cocaine smuggling within the body have appeared in the medical literature in recent years [*2–6*]; such smuggling has heretofore been considered an unusual cause of morbidity and mortality. However, seven of our eleven cases have occurred since 1979 and may reflect an increased popularity or interest in this method of smuggling. From the cases presented here and summarized in Table 1, it is evident that certain features in common within this group can aid in establishing a clinical diagnosis or in the investigation of a suspicious death.

For medical personnel, the possibility of cocaine smuggling within the body should be considered when any person newly arrived from a South American country presents with any of the signs of acute cocaine toxicity. These include nervous or agitated behavior, toxic psychosis, mydriasis, hyperthermia, and seizures. The signs and symptoms often have their onset in the Customs area of the airport or aboard the aircraft itself prior to landing. Once symptoms developed, two of the individuals in our cases admitted upon questioning to swallowing cocaine.

Two of the three individuals found dead in their hotel rooms had physical evidence at the scene to suggest cocaine smuggling within the body. These included the presence of laxatives, enema apparatus, ticket stubs indicating a recent flight from a South American country, and bite marks of the tongue and lips suggesting terminal seizures. Additionally, the presence of ice packs or wet towels may suggest premortem hyperthermia. Both medical personnel and those responsible for investigating sudden death should be aware of the possibil-

TABLE 1—*Summary of cases. (Note: Cases 1 to 4 have been alluded to or briefly mentioned in previous reports* [3,5,6]*).*

| Case | Year | Packets Recovered, *n* | Anatomic Location of Packets | Packets Ruptured, *n* | Cocaine Recovered, g | Purity of Cocaine | Blood Cocaine Concentration, mg/L | Location of Victim at Onset of Symptoms |
|---|---|---|---|---|---|---|---|---|
| 1 | 1974 | 27 | stomach | 1 | 135 | 35% | 7.2 | airplane |
| 2 | 1975 | 53 | stomach, small and large intestines | 1 | 212 | 10% | not quantified | found dead in hotel room |
| 3 | 1976 | 75 | stomach, small intestine | 8 | 412 | 25% | 9.6 | found dead in hotel room |
| 4 | 1977 | 1 | rectum | none | 30 | unknown | not quantified | airport Customs |
| 5 | 1979 | 147 | small and large intestines | 40 fragments found | 460 | unknown | 6.6 | airplane in flight |
| 6 | 1980 | 110 | colon | none | 220 | unknown | 3.0 | airport Customs |
| 7 | 1980 | 1 | cecum | 1 | none | none | 0.21 | college campus |
| 8 | 1980 | 1 | rectum | none | 50 | 91.3% | 2.3 | airport Customs |
| 9 | 1980 | 2 | vagina | none | 170 | 96.2% and 97.5% | 2.3 | found comatose in taxicab |
| 10 | 1980 | 82 | stomach | none | 430 | 69.0% | 3.0 | found dead in hotel room |
| 11 | 1980 | 90 | colon | 2 | 176 | unknown | 4.5 | hotel room (survived) |

ity of a traveling companion. This is not only important for apprehension and prosecution but also because the traveling companion's life may be endangered from cocaine toxicity. As demonstrated by Case 7, a cocaine packet that does not pass through the gastrointestinal tract may break open and cause death as long as ten days after ingestion.

Several of our cases demonstrate that it is not necessary for the packets to rupture to result in a cocaine overdose. Indeed, there is some evidence that commercially available condoms may be permeable to water [7]. Once fluid from the gastrointestinal tract permeates the wall of the packet, which serves as a semipermeable membrane, the law of Gibbs-Donnan equilibrium takes effect. Thus, cocaine hydrochloride, being a salt, may either diffuse out of the packet or may cause more fluid to be drawn in. Rupture of the packet or the leakage of cocaine into the gastrointestinal lumen may then occur. In either event, acute cocaine toxicity rapidly develops because the drug is readily absorbed from mucosal surfaces.

Except for the presence of the foreign packets in the gastrointestinal tract or a body orifice, the autopsy findings were generally those of any drug overdose. Occasionally, localized hyperemia of the gastrointestinal tract was noted, and bite marks suggestive of terminal seizures were noted once. Two cases, however, had such severe localized vascular engorgement that the initial gross impression was that of massive acute ischemic necrosis. This was seen once in the vagina (Case 9) and once in the rectum (Case 8). The phenomenon may be explained in that high localized concentrations of cocaine may actually cause vasodilatation instead of the expected vasoconstriction [8, 9].

At present the morbidity and mortality rates of cocaine smuggling within the body are increasing. Greater awareness of the syndrome should result in more rapid case identification and, it is hoped, a reduced mortality. Whether the technique will be used with other drugs, such as heroin, remains to be seen.

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