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ORIGINAL ARTICLE

Surgical treatment in cocaine body packers and body pushers

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Abstract
Objective Body packers smuggle cocaine by swallowing containers filled with the drugs, whilst body pushers conceal the containers in the rectum or vagina. In a collaborative effort between the Department of General Surgery, two major airports and Poisons Centre, we performed a retrospective study to develop an algorithm for the treatment of ruptured cocaine-filled containers.
Materials and methods The data of all cocaine body packers and body pushers who were identified at the airports of Frankfurt and Paris from 1985 to 2002 were evaluated concerning incidence, demographics and surgical aspects.
Results From 1985 to 2002, 312 body pushers and 4,660 body packers were identified. The sex ratio was 1:1. Sixty-four "mules" (1.4%) developed life-threatening symptoms of cocaine overdose after the rupture of a container. In 20 patients, an emergency laparotomy was performed and the containers were removed; all of these patients survived. Forty-four body packers died before surgical treatment could be performed. Only one body pusher required medical attention.
Conclusion Cocaine overdose can be life-threatening. If the cause is the rupture of a container in a body packer, the only possible treatment is immediate laparotomy for the removal of the container.

Keywords Cocaine body packers · Cocaine body pushers · Surgical treatment

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Introduction

Cocaine is made from the leaves of *Erythroxylum coca*, a plant that grows only in the South American Andes. Cocaine abuse is a well-known phenomenon in South America, in North America and in Europe. It is smuggled into North America and Europe via several methods using humans as carriers. Body packers or "mules" (the donkey-like animals used for carrying heavy things) smuggle the drug by swallowing cocaine-filled containers, whilst body pushers hide cocaine packages in body cavities such as the rectum or vagina.

In a collaborative effort between the Airport Clinic Frankfurt/Main International Airport in Germany, the Charles de Gaulle International Airport in Paris, France, the Department of General Surgery in Göttingen, Germany and the GIZ-Nord Poisons Centre in Göttingen, Germany, an analysis of the medical and surgical aspects of international drug smuggling was performed. The aim of this study was to develop an algorithm for the evaluation and treatment of suspected cocaine body packers and body pushers. We were particularly interested in the treatment of ruptured containers. Because the situation is totally differ-

ent concerning heroin with a very efficient and selective antidote, the smuggling of this drug was not the scope of the present study.

Materials and methods

In an 18-year retrospective study, the records of all cocaine body packers and body pushers detained and treated at the Frankfurt and Paris airports were analysed. In particular, we examined the demographic data, incidence, treatment and outcomes of body packers and body pushers.

Nowadays, the personnel of many airlines are briefed concerning body packers: when a (economy class) passenger does not eat or drink anything during a long distance flight, especially from South America, this person is suspicious of being a drug smuggler. These passengers are then reported to the ground personnel. When an airline passenger was suspected of being a cocaine smuggler, a urine test for cocaine metabolites (benzoylecgonin) was performed. If the result of the test was positive, the suspect could have been either a drug user or a drug smuggler. An abdominal radiograph was taken to differentiate the two. In the case of a drug smuggler, the containers used to smuggle the cocaine were usually easily identified on a plain radiograph (Figs. 1 and 2). Once identified as a drug smuggler, the suspect was taken into custody and made to defecate the drug containers into a glass toilet. This device was constructed to clean and rinse the drug containers without the need to handle them (Fig. 3). In Frankfurt, body packers remained in custody at the airport until all drug containers were defecated. Medical care was provided by the airport clinic.

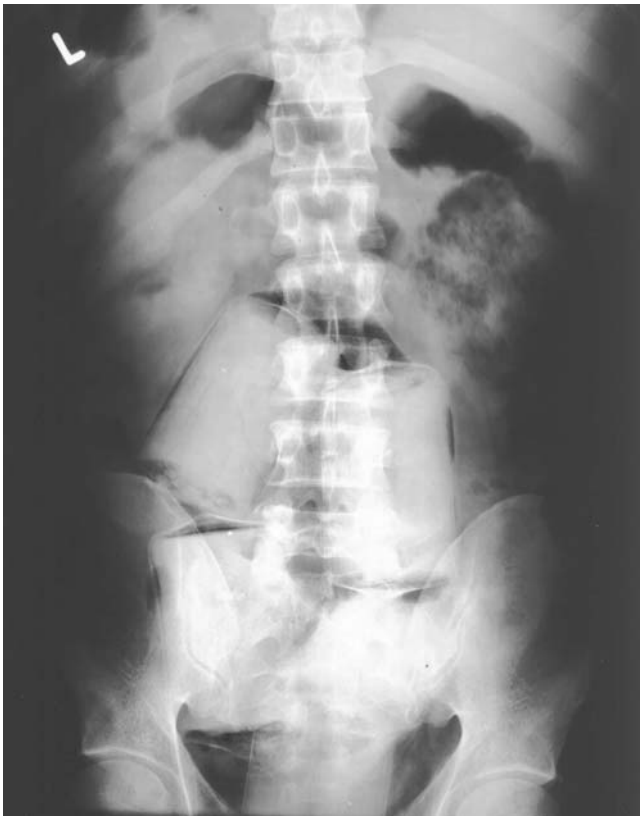

Fig. 2 X-ray of a body pusher

Fig. 1 X-ray of a body packer

Fig. 3 Glass toilet, *white arrow* shows where the drug smuggler sits and *black arrow* indicates the part of the device where the containers are rinsed and cleaned (modified from Schaper et al. [17])

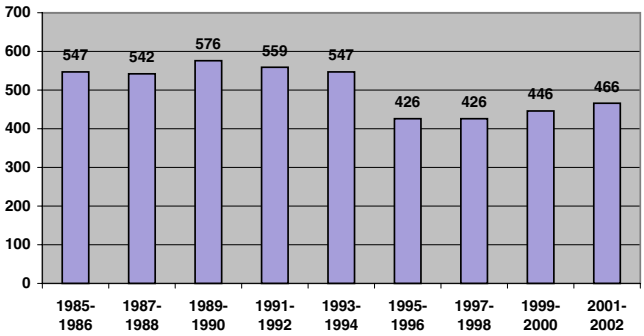

Fig. 4 Temporal development of cocaine body packing, 1985–2002, n=4,660

Results

From 1985 to 2002, 4,660 cocaine body packers were detected at the Paris and Frankfurt/Main International Airports. Of these body packers, 49.7% were women and 50.3% were men. Their mean age was 37.3 years (range 16–80 years) for Frankfurt and 25 years (range 17–67 years) for Paris. Figure 4 shows the number of body packers detected each year between 1985 and 2002. Of these body packers, 4,596 were asymptomatic. The remaining 64 body packers (1.4% of all detected body packers) developed symptoms of severe cocaine overdose due to the rupture of the cocaine-filled container. The most frequent symptom was a generalised seizure. Cardiovascular and gastrointestinal symptoms were common as well. Within this group of 64 symptomatic cocaine body packers, 20 underwent emergency surgery. The ruptured or leaking cocaine-filled containers were removed by laparotomy. No major complications occurred in the cases treated surgically and the survival rate was 100%. Forty-four cocaine "mules" died of cocaine overdose before adequate treatment could be given (Fig. 5). In these cases, either a cocaine overdose caused by the rupture of a cocaine-filled container was not suspected or the overdose occurred so quickly that the patient died on the way to surgery. Very often, the doctors did not think of this possibility. In many cases, the information that a body packer had died was obtained from the coroner.

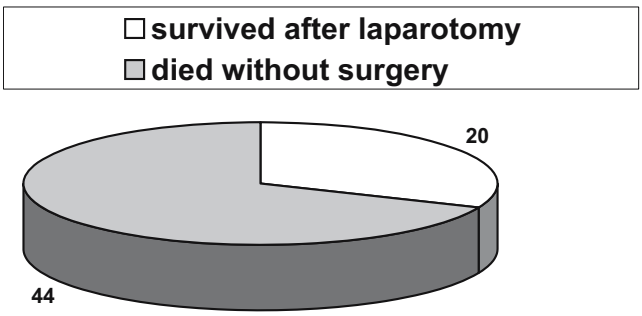

Fig. 5 Symptomatic body packers, treatment and outcome, 1985–2002, n=64

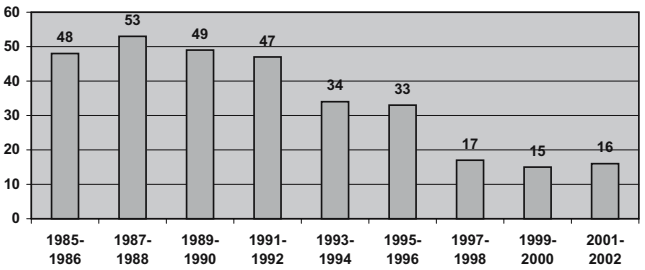

Fig. 6 Temporal development of cocaine body pushing, 1985–2002, n=312

Between 1985 and 2002, a total of 312 cocaine body pushers were detected at the 2 airports. The incidence of body pushers during this time period is shown in Fig. 6. No major medical problems were observed in this group. Only 1 case required extended medical care: a 37-year-old woman required operation due to an incipient ileus requiring removal via rectal endoscopy. The woman recovered without incident.

Discussion

The phenomenon of drug smuggling by body packing or body pushing has been a common practice for more than 20 years [1–5]. Cocaine body packers are paid approximately 3,000 euros for 1 transport—often swallowing up to

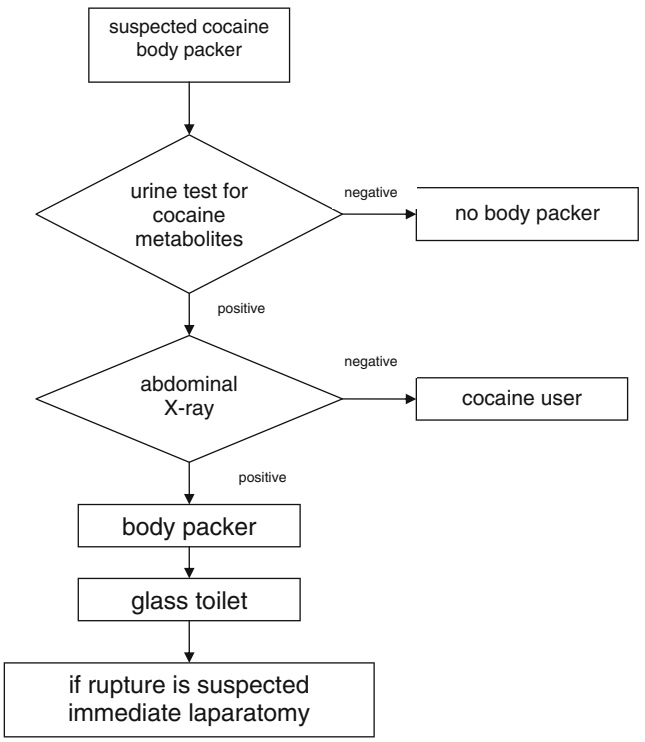

Fig. 7 Algorithm for the diagnosis and treatment of cocaine body packers

100 containers containing cocaine worth up to 50,000 euros. Although the containers are not usually condoms, as they were in the early days of body pushing and body packing, the industrially produced containers used today can still rupture, causing a life-threatening cocaine overdose [1, 5]. Although the quality of the containers has increased, there has to be no leakage for a positive result of the test: obviously the small amounts of cocaine on the surface of the containers—during the processing—are enough to be detected with the test. Over the 18 years of the study, several tests were applied at the 2 airports. In our experience, all tests had a high sensitivity because all persons with a positive result turned out to be either a drug smuggler or a drug consumer. As an example, the MAHSAN-COC® test can be mentioned: the sensitivity is 96.3%, whereas the specificity is 99.8% [6].

Each container used for cocaine smuggling contains approximately 10 g of pure cocaine, which is a potentially lethal dose. The clinical symptoms of a severe cocaine overdose affect the cardiovascular, gastrointestinal and central nervous systems. The most frequent symptom is a generalised seizure. Physicians must keep these symptoms in mind as a potential sign of a ruptured container in a body packer because the rupture of a cocaine-filled container is rare, even though body packing is quite common.

Several studies and case series stressed different aspects of cocaine body packing, e.g. the role of different radiological techniques [7–11] or whole bowel irrigation [12], complications of body packing in general [13] or the place of conservative or surgical management [14–17]. This study focused on the surgical aspects in the treatment of life-threatening cocaine intoxication due to the rupture of ingested cocaine-filled containers. The problem of intestinal occlusion caused by drug containers [18] is mentioned, but not elaborated upon in this study. From our retrospective analysis, we found that if a cocaine overdose due to the rupture of a drug container in a body packer is suspected, immediate laparotomy for the removal of the drug packages should be performed. Surgery is the only adequate therapy in this situation. A ruptured cocaine container is an emergency that can be compared to a ruptured aortic aneurysm. Both incidents are dramatic and surgical therapy should be performed immediately [18]. The severe cocaine intoxication is characterised by central nervous symptoms (e.g. hallucinations, seizures), cardiovascular symptoms (tachycardia, dysrhythmia, myocardial ischaemia and infarction), gastrointestinal symptoms (e.g. mesenteric ischaemia) and many more. Because an antidote does not exist, the surgical treatment of patients with ruptured containers is crucial. The fatalities in our study were mostly due to seizures or cardiovascular disorders. The most important aspect in this setting is that the doctor thinks of the possibility of a ruptured cocaine container. When a patient suffers from the abovementioned symptoms without an adequate history of these diseases and he or she has just arrived by plane from a country where cocaine is grown, this person is highly suspicious of being a body packer. Our simple algorithm for the diagnosis and surgical treatment of suspected cocaine body packers based on our experience is summarised in Fig. 7. An all-embraced algorithm for the treatment of cocaine and heroin body packers including detailed information about the medical treatment was developed by Traub et al. [19]. Among the cocaine body pushers in our study, only one patient required surgery, making it impossible to create a treatment algorithm.

In conclusion, cocaine body packing remains an immediate medical and surgical problem. There are still large numbers of body packers, but the rupture of a container is rare. Physicians involved in this field should be well aware that a laparotomy could be lifesaving when rupture of a cocaine-filled container does occur.

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