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Clinical, diagnostic, and treatment features of Body Packing in Brazil: drugs, cell phones and beyond

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ABSTRACT

Introduction: Body packing is the smuggling of drugs and other contents inside the human body. However, non-narcotic contents studies are limited to rare case reports in literature. Thus, the objective of this study was to investigate cases of body packers in Brazil considering narcotic and non-narcotic contents. **Methods:** Retrospective study analyzing the medical records of body packers admitted from January 2015 to December 2019 at one of the main tertiary hospitals in central Brazil. **Results:** Ten cases of body packing were observed. Only 50% of the patients carried drugs, while surprisingly, 70% carried non-content, especially cell phones and accessories. All the patients were male, prisoners and young adults. In 60%, there were gastrointestinal obstruction and in 30%, there was acute narcotic intoxication. Abdominal radiography was enough for diagnosis in 80% of the cases. In 90% of the cases, emergency laparotomy was required, but all the patients successfully recovered. **Conclusions:** There was a higher prevalence of body packing of non-narcotic content; however, clinical and radiological presentations were similar to those of narcotic content. Emergency surgery proved to be effective for both content types. This study highlights the concerning high prevalence of body packing of cell phones and accessories in addition to drugs.

Keywords: body packing; drugs; non-narcotic contents; surgery; Brazil.

INTRODUCTION

The strategy of illegally transporting drugs or other contents inside the human body, known as body packing, is especially used while crossing borders between countries or entering prisons. It is a practice that has been commonly reported worldwide to traffic various types of narcotics, mainly cocaine, heroin, methamphetamine, and cannabinoids [1,2,3]. Individuals with contents hidden inside their bodies are known as body packers, and they usually conceal these items by oral ingestion or rectal insertion. Glass or paraffin fibers - radiopaque materials that are easily visible on radiographs - are used to pack these items [4]. Furthermore, to avoid organic rejection of the contents and to be able to transport drugs to the intended destination without the body eliminating them, body packers usually use antiemetic or anti-peristaltic medications [5]. Upon reaching the intended destination, they use laxatives, enemas, or other substances that facilitate the exit of the narcotic and non-narcotic contents from the body [3].

Thus, body packing is potentially fatal. The packing of drugs inside the body poses a serious risk of acute narcotic toxicity because at, any time, the packages can break and release the stored drug, which can be quickly absorbed by the mucosa of the digestive system. In addition, intestinal obstruction due to impaction and perforation of the intestinal viscera can occur, which could result in sepsis [2,3].

Several studies have shown the involvement of body packing in drug trafficking. However, this type of transport strategy can be even more complex, given the existence of reports of the transport of non-narcotic substances that can be accommodated in the gastrointestinal tract, such as fruits and condoms; however, these reports are rare [6]. Among these non-narcotic content types involved in body packing, cell phones and their accessories (i.e., chargers, chips, and batteries) should be highlighted [7,8]. Cell phones are a growing and serious problem for prison systems as they are used by prisoners to

maintain contact with the outside world, coordinate criminal activities, or even scam victims. The deliberate commercialization of these cell phones within prisons became common practice, and the data about underscores how serious is the problem [9].

In 2008, 2,800 cell phones were seized in prisons in the state of California in the United States (US); in 2010, this number had already reached more than 10,700, and in 2011, the number rose to 15,000 [10,11]. However, it is estimated that these seizures do not even represent 10% of the total number of devices in prisons in that state [10]. The problem is not only limited to California, with the US National Institute of Justice showing high number of cases of cell phone use in prisons in the states of Texas, Nevada, New York, and Tennessee [12]. In a study in the state of Mississippi in the US, it was shown that 25% of prisoners have at least one cell phone [11].

In Brazil, this scenario is alarming. In prisons in the state of Ceará, 16,983 cell phones, 5,713 batteries, and 6,988 chargers were seized between 2014 and 2016, revealing the high number of cell phones present in prisons in that state [13]. In the same study, the high prevalence of body packing by prisoners, visitors, and even corrupt jail employees to smuggle these cell phones and their accessories was demonstrated [13]. In the Brazilian state of Minas Gerais, the situation is also serious, as in 2017 alone, 22,310 cell phones, 13,416 batteries and chargers, and 6,492 cell chips were seized in prisons maintained by the state. Despite having a lower relative number of inhabitants, the region of Triângulo Mineiro in this state was one that most accounted for the greatest number of cell phones and accessories seized, with 1,040 cell phones, 845 chargers and batteries, and 291 telephone chips seized in 2017. [14].

Despite the absence of the risk of acute narcotic toxicity in cases of body packing of non-narcotic objects, there is the risk of the release of plastic substances or heavy metals contained in these devices. The risk of obstruction or perforation of the digestive

system is still important to consider. Another aspect to note is that cell phones and their accessories also have radiopaque structures and can be viewed on radiographs [8].

Considering the risks of any content inside the gastrointestinal tract, it is necessary to remove the objects from the body packer as soon as possible. The extraction of the content can be performed by various means, such as laxatives, stimulation of intestinal peristalsis, and invasive procedures such as endoscopy and emergency surgery, with the latter being considered the safest route. However, the choice of treatment depends on the radiological findings and the patient's clinical condition [15,16]. Thus, to investigate body packing of both narcotic and non-narcotic contents, this study aimed to identify and describe cases of body packers treated by a surgical emergency unit in a tertiary hospital in the central region of Brazil.

METHODS

A retrospective and descriptive study was carried out among patients admitted between 2015 and 2019 to the surgical emergency unit of the Clinical Hospital of the Federal University of Triângulo Mineiro, which is one of the main tertiary hospitals in the city of Uberaba of the Triângulo Mineiro region in the state of Minas Gerais, Brazil. This hospital was selected for the study due to its large number of cases of drugs, cell phones, and cell phone accessories seizures that was registered in the prisons, according to data reported by the Department of Public Security of the Brazilian state of Minas Gerais [13]. Patients were selected based on data from the hospital's clinical management, as it is required by law for the hospital management to inform police authorities of all cases in which possible trafficked content is found during patient care. After selecting the patients, their medical and image files were reviewed to extract clinical and radiological data and detail the surgical procedures performed on the identified body packers.

This study was approved by the Research Ethics Committee (REC) of the Federal University of Triângulo Mineiro (UFTM), with project number CAAE: 32259220.7.0000.5154. All the proceedings and methods of this research were in accordance with Brazilian research ethics regulations and the Declaration of Helsinki.

RESULTS

Ten cases of body packing were identified over the 5-year study period. All cases of body packing registered in the hospital were attended by the surgical emergency unit, and no other cases of body packing were registered in other units of the same hospital. The identified cases are listed in chronological order in Table 1, which shows the description of these patients.

The 10 patients were men (100%), and their average age was 29.9 years (range, 19–46 years). All the patients (100%) had already served some type of sentence in the prison system, either in a closed regime (90%) or semi-open regime (10%). Despite the similar profile of the patients, there were important variations in the contents ingested and the clinical, diagnostic, and treatment aspects of these body packers. Table 2 presents additional details about the cases.

In all the patients, body packing was carried out by ingestion. The types of content that were ingested varied; cell phones and accessories were present in 70% of the patients, drugs were found in 50% of the patients, and one patient (10%) ingested other objects, including an adhesive paste (Durepox), a pen-drive, and a small saw. Two patients (20%) ingested both narcotic and non-narcotic objects. In 60% of the cases, there were extreme variations in the time periods for which the substances were retained in the patients' bodies before they were found, ranging from 1 hour to 5 months.

The signs and symptoms of the patients varied significantly. Sixty percent of the patients had gastrointestinal symptoms, such as emesis (40%), abdominal pain (50%), intestinal constipation (10%), hematemesis (10%), and chest pain (10%), which were ruled out as originating from other organs. In contrast, 20% of the patients reported no symptoms. Symptoms of acute narcotic intoxication were observed in 30% of the patients, which included chills (10%), paresthesia on the tongue (10%), convulsive crises (10%), decortication (10%), and decreased levels of consciousness (10%). In all these cases, rupture of the narcotic contents was subsequently confirmed.

In 80% of the cases, diagnosis was confirmed by imaging, more specifically, abdominal radiography (Figures 1A and 1B). Computed tomography was performed in 10% of the cases; however, the reason for this choice was not specified in the medical records. Upper digestive endoscopy (UDE) was performed in 10% of the cases.

In 90% of the cases, the ingested contents, or parts of them, were retained in the stomach and failed to pass through the pyloric sphincter. In all these cases, an emergency surgical approach was necessary, and thus, exploratory laparotomy and gastrostomy was performed (Figures 2A, 2B and 2C). In one of these patients (case 1), laparoscopic video surgery was attempted; however, this was unsuccessful. In 10% of the cases, removal of the content occurred through UDE because part of the content was fixed in the lower esophageal sphincter. In 20% of the cases, the content had already passed the pylorus and was eliminated through the feces as these patients did not present with severe symptoms of acute narcotic intoxication. One patient (10%) presented with acute narcotic intoxication, and as the content already passed the pylorus, we opted for ileotomy and colostomy to remove the content (Figure 3). In general, the treatment measures adopted were successful as there were no recorded deaths, with all the body packers (100%) having completely recovered.

DISCUSSION

Profile of patients

The body packers in our study were male young adults already serving some type of sentence in the prison system, and carried out body packing by orally ingesting the contents to be trafficked within the penitentiary institutions. In addition, these patients ingested very different types of content; non-narcotic content was predominant, included cell phones and accessories (i.e., chargers and batteries), and accounted for 70% of the cases. Narcotic substances, which included marijuana, cocaine, and crack, were ingested in 50% of the cases.

In addition to prisons, national borders and airports are frequent locations for the occurrence of body packing [17]. In our study, all cases of body packing came from prisons in the Triângulo Mineiro region, a central region far from international airports, the seacoast, and borders with other countries. In other words, the geographical characteristics of this region may explain the absence of cases of body packing from locations other than prisons. However, the possibility of body packing cases from other locations should not be excluded. It is worth noting that as only a low percentage of body packers present with symptoms or complications [17], the magnitude of the issue of body packing out of prisons in this region may be underestimated.

Although most studies concerning body packing in the literature are case reports [2], our profile of young and male body packers matches that reported in other studies from Switzerland [18], Germany [19], Iran [20], Turkey [21], and Australia [22]. Thus, the male young adult profile may apply to body packers worldwide.

Problem of cell phones in body packing

Apart from reporting the profiles of body packers, no epidemiological studies published so far have highlighted cases of cell phones and their accessories in body packing as serious problems. Even a literature review that compiled more than 200 articles with more than 9,044 cases of body packing since the first description in 1977 didn't address the involvement of cell phones and other accessories in body packing as a public health problem [2]. To the best of our knowledge, our study was the first to demonstrate a series of cases of body packers who ingested contents that were not exclusively narcotic. There is a lack of research on body packing involving non-narcotic objects, with only a few case reports being published [6,7,8].

The findings of our study highlight a persistent problem that has recently emerged in Brazil and may partly help explain the origin of so many cell phones, accessories, and other non-narcotic contents in Brazilian prisons [13,14]. However, the problem of cell phones inside prisons is not only a challenge in Brazil; it is an alarming global issue that has been reported in several countries such as the US [10,11,12], Kenya [11], and England [23]. Thus, it is possible that body packing involving non-narcotic content is a global problem that warrants more vigilant monitoring and investigation in other countries.

Clinical and radiological findings of the patients

From a diagnostic point of view, the non-narcotic contents found in the patients in this study, especially cell phones and their accessories, were similar to the narcotic ones that were found. Both the drug packs and non-narcotic objects that were ingested had similar clinical effects on the gastrointestinal tract, i.e., they caused similar symptoms such as constipation, abdominal pain, and emesis, and even led to no presentation of symptoms in some cases [17]. However, only the narcotic substances showed acute narcotic intoxication. These symptoms can vary depending on the drug and amount

absorbed by the intestinal mucosa [17]. According to the clinical data, common symptoms associated with intoxication of metals and plastics, intestinal perforation, and sepsis did not occur in the patients in our study.

In addition, it is important to emphasize that patients may have simultaneously ingested narcotic (drugs) and non-narcotic (cellular devices and accessories) substances, and the latter can be quite varied. This highlights the complexity of body packing in Brazil, where in addition to the non-narcotic content being repeatedly transported, they can be simultaneously trafficked with narcotics. These findings underscore that doctors and surgeons should be aware of the possibility of the simultaneous trafficking of narcotic and non-narcotic content.

In the present study, we verified that reports of body packing involving non-narcotic and narcotic content can be easily visualized using simple abdominal radiographs. Cell phones, accessories, and drug packages are radiopaque; hence, radiographs and CT scans are useful to confirm body packing and help determine the location of the content [8,17]. Upper gastrointestinal endoscopy was used in only one patient who had recently ingested the content, and chest pain was attributed to esophageal impaction. In the literature, radiography has been reported to be an important tool to identify body packing, with the sensitivity ranging from 40% to 100% to narcotic content, and is one of the first examinations required in suspected cases of body packing [8,17]. Thus, from a diagnostic perspective, it seems that similar radiological methods can be used to identify both narcotic and non-narcotic contents inside the body as both these types of content are easily visible on radiographs.

Treatment

In this study, we observed a pattern in which the narcotic and non-narcotic contents affected the pyloric sphincter; therefore, in 90% of the cases, it was necessary to perform a laparotomy with gastrostomy to remove these contents from the gastrointestinal tract. It is also worth mentioning that laparotomy is an emergency surgical intervention in cases where the content is impacted and cannot be eliminated through the feces. On the other hand, if the content is not retained and there are no clinical signs of acute intoxication, elimination through feces is a viable option if the patient remains monitored and radiological control is performed [17]. Thus, the therapeutic approaches for eliminating narcotic and non-narcotic content may be similar. However, in the present study, emergency surgery was the most frequently used treatment intervention.

It is important to emphasize that emergency surgery is the safest option for removing content from body packers. The extraction of drug packs can be performed with endoscopy or elimination through feces depending on the radiological findings of the location, quantity of the contents, and clinical symptoms of intoxication. However, both these options may be associated with a risk of rupture of the drug packets, which in turn could lead to acute narcotic intoxication. Therefore, it is necessary to assess the risks and prioritize emergency surgery. In cases of body packing involving cell phones and accessories, narcotic intoxication does not occur; however, they can get stuck in the pyloric sphincter. Surgical removal is the most appropriate option due to the risk of obstruction or perforation. In the presence of symptoms, emergency surgery is a suitable option, while in their absence, elective surgery may be considered an option as some patients have gone on for several months without showing symptoms.

In one patient (case 10), in addition to laparotomy and gastrostomy, it was necessary to perform an ileotomy and colectomy as the contents were located in various parts of the gastrointestinal tract and the patient had serious symptoms of acute narcotic

intoxication. In contrast, in case 8, as the patient did not have acute narcotic intoxication, elimination through intestinal transit was first attempted; however, as this was not successful, emergency surgery was subsequently performed.

As noted in this study, all the patients completely recovered. Even in the serious cases that involved acute narcotic intoxication, the recovery was satisfactory. Patients who ingested non-narcotic content also had good prognoses; therefore, laparotomy surgery followed by gastrostomy may be a resolute treatment option. There are no studies in the literature that assess which intervention should be taken in cases of different non-narcotic objects; therefore, in cases of body packing involving cell phones, cell phone accessories, and other similar content, the clinical management regimen appears to be similar to that of narcotic content. However, further studies with larger sample sizes are needed to definitively demonstrate the effectiveness of these treatment indications.

CONCLUSION

Our study highlights that body packing may be an underestimated problem in Brazil. Interestingly, more cases of body packing of non-narcotic contents were identified in the region studied. This warrants special attention and needs to be properly investigated by the authorities, given that studies that have been published so far predominantly evaluate cases of body packing involving only narcotic content. The reporting of cell phones in prisons in countries other than Brazil reinforces that body packing of non-narcotic objects may be a global problem. However, from a clinical, radiological, and therapeutic perspective, body packing of non-narcotic content may have many similarities to that of narcotic content, with the exception of acute narcotic intoxication, which is exclusively associated with drug ingestion. Emergency surgical intervention proved to be

effective and led to satisfactory patient recovery, regardless of the type of content ingested.

LIST OF ABBREVIATIONS

US – United States

REC – Research Ethics Committee

CAAE – Ethics Appreciation Presentation Certificate

UFTM – Universidade Federal do Triângulo Mineiro

UDE – Upper Digestive Endoscopy

CT – Computerized Tomograph

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ETHICS DECLARATIONS

Ethics approval and consent to participate

The study was approved by the Research Ethics Committee of Federal University of Triângulo Mineiro (No. 5154) under approval number 32259220.7.0000.5154.

Consent for publication

The consent for publication was waived by the Research Ethics Committee of Federal University of Triângulo Mineiro considering the high risk of security to researchers going to the prisons, the retrospective analyses of patients distributed in many different penal establishments and sanitary issues regarding COVID-19 pandemic.

Availability of data and materials

All data generated or analyzed during this study are included in this published article (and its supplementary information files).

AUTHOR INFORMATION

Authors' contributions

VHAG conceived the study, interpreted data, and wrote the manuscript. CC collected the data and wrote the manuscript. DIBQ and CTE collected the data and approved the manuscript. Roberto da Mata Lenza and Ricardo Pastore submitted the research in Ethics Committee and approved the manuscript. Carlo José Freire de Oliveira wrote the manuscript, added scientific fundamental aspects to the research, including references.

Competing interests

The authors declare that they have no competing interests.

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TABLES, FIGURE TITLES AND LEGENDS

Table 1: Profiles of body packers admitted to a tertiary hospital in Triângulo Mineiro in 2015–2019

Case	Year	Sex	Patient's age	Patient's origin	Prison regime*
1	2017	Male	28 years	Prison system	Closed system
2	2017	Male	28 years	Prison system	Closed system
3	2017	Male	19 years	Prison system	Closed system
4	2018	Male	34 years	Prison system	Closed system
5	2018	Male	46 years	Prison system	Closed system
6	2018	Male	32 years	Prison system	Closed system
7	2019	Male	36 years	Prison system	Closed system
8	2019	Male	40 years	Prison system	Closed system
9	2019	Male	31 years	Prison system	Closed system
10	2019	Male	41 years	Prison system	Semi-open system

*In Brazil, the prison regime is divided into three types: (1) closed, in which the prisoner is permanently in prison; (2) semi-open, in which the prisoner spends the day performing their activities and returns to the prison every night; and (3) open, in which the prisoner does not stay in prison, but they cannot leave the country and must present themselves to the police authorities whenever requested.

Table 2 - Clinical, diagnostic, and treatment aspects of the body packers

Case	Content	Time between ingestion and medical care	Signs and symptoms	Imaging exams	Medical intervention	Treatment outcome
1	25 packs of marijuana	Unreported*	Emesis, chest pain, and chills	X-ray	UDE and excretion by feces	Complete recovery
2	1 cell phone charger	Unreported*	Abdominal pain, hematemesis, and constipation	X-ray	Laparotomy and gastrostomy	Complete recovery
3	3 packs of cocaine	1 hour	Abdominal pain and paresthesia on the tongue	UDE	Laparotomy and gastrostomy	Complete recovery
4	1 cell phone charger	5 months	Abdominal pain	X-ray	Laparotomy and gastrostomy	Complete recovery
5	1 cell phone	23 hours	Abdominal pain and emesis	X-ray	Laparotomy and gastrostomy	Complete recovery
6	1 Durepox, 1 pen-drive, 1 small saw, 1 cell phone, 1 cell phone battery, and drug packs with marijuana or cocaine	Unreported*	Emesis	X-ray	Laparotomy and gastrostomy	Complete recovery
7	1 cell phone	37 days	None	X-ray	Laparotomy and gastrostomy	Complete recovery
8	1 cell phone and packs of crack	7 days	None	X-ray	Laparotomy, gastrostomy, and excretion by feces	Complete recovery
9	1 cell phone charger	8 days	Abdominal pain and emesis	Tomography	Laparotomy and gastrostomy	Complete recovery
10	31 packs with no identified drugs	Unreported*	Convulsive seizures, decortication, and decreased levels of consciousness	X-ray	Laparotomy, gastrostomy, ileostomy, and colostomy	Complete recovery

UDE, Upper digestive endoscopy

* It could not be determined whether the body packers 1) did not specify the date they ingested the objects or 2) whether there was an error in filling out the medical records.

FIGURE 1 – Radiographs showing the cellphones in the patients’ gastrointestinal tracts as obtained in the abdominal radiograph. In all these patients (1A and 1B), the cellphones were clearly visible.

1A



1B



FIGURE 2 – Intraoperative aspects of the cellphone extraction process from the gastrointestinal tract. A small cellphone was removed from the stomach by laparotomy access (2A). The cellphone was also wrapped (2B). The outer covering was removed, which exposed the small cellphone (2C).

2A



2B



2C



FIGURE 3 – Characteristics of the drug packages after their removal from the patients involved in body packing. The different appearances of the packages indicate the different locations in which they were found within the gastrointestinal tract: in the left, packages from stomach; in the middle, packages from small intestine; in the right, packages from large intestine.



Figures

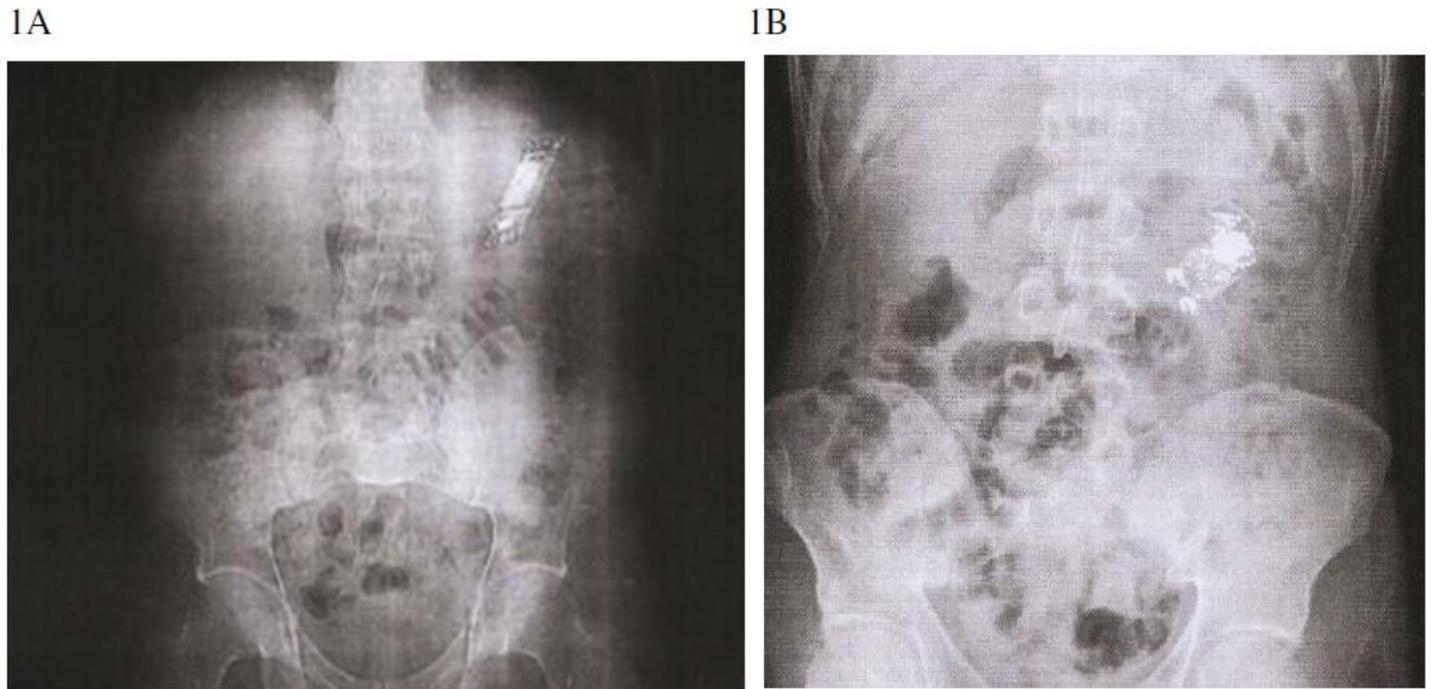


Figure 1

Radiographs showing the cellphones in the patients' gastrointestinal tracts as obtained in the abdominal radiograph. In all these patients (1A and 1B), the cellphones were clearly visible.

2A



2B



2C



Figure 2

Intraoperative aspects of the cellphone extraction process from the gastrointestinal tract. A small cellphone was removed from the stomach by laparotomy access (2A). The cellphone was also wrapped (2B). The outer covering was removed, which exposed the small cellphone (2C).



Figure 3

Characteristics of the drug packages after their removal from the patients involved in body packing. The different appearances of the packages indicate the different locations in which they were found within the gastrointestinal tract: in the left, packages from stomach; in the middle, packages from small intestine; in the right, packages from large intestine.