Therapeutic options for body packers: surgical or conservative treatment?

A single center experience and review of literature

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Therapeutic options for body packers: surgical or conservative treatment? A single center experience and review of literature.

Body packing is a way to deliver packages of drugs hidden in body cavities. In Europe, as noted the latest report coming from the Brussels observatory, there are 74 million drugs consumers. Italy is in pole position and Perugia was considered as a "capital city" in the drug market. Body packers usually swallow the drug packets, although their insertion into the rectum and vagina has also been reported. The management depends on whether or not the patient becomes symptomatic. Surgery is indicated in presence of repeated bouts of drug toxicity not controlled by medical treatment, radiological evidence of packet retention in the stomach, intestinal obstruction or perforation. It is also important to emphasize that, in a multidisciplinary context, the patient's management before reaching the operating theater if symptomatic, is aimed to stabilization and is usually demanded to Intensive Care Unit (ICU) physicians. We present our center recent experience with body packers, managed both with surgical and conservative treatments.

KEY WORDS: Body packers, Drugs, Emergency surgery, Foreign bodies

Introduction

The 2012 annual report on drugs has shown in Europe, an increasing utilization of drugs (about 74 millions drugs consumers). Italy has reached an high prevalence (Table I) becoming one of the five European countries with the highest cocaine consumption, together with Spain, Great Britain, Denmark and Ireland. In this scenario a new social problem has emerged: the phenomenon of body packing [1].
Furthermore, Perugia, the city where our group works, has gained the deplorable appellation of "heroin capital of Italy"; in that context, in our Hospital, we had to witness the emergence of the new and worrying phenomenon of body packers [2-3].
The first case of body packing, a way to transport illegal drugs by hiding them in body cavities, was described in 1975 [4]. The transposters, called mules or swallowers, usually get to the hospital because of clinical complication or because they are arrested by the police.
In this report we discuss five cases of body packers: two of them underwent a surgical treatment, the other three were treated conservatively.

Materials and Methods

During the years 2011-2012 five patients were admitted at our Department of General and Oncologic Surgery in because of the finding of a specific kind of foreign bodies containing drug in their gastrointestinal tract. Two of these patients, with signs of poisoning unresponsive to medical treatment, were necessarily treated with surgery. The other three asymptomatic patients received cathartics. No major complications occurred. No one was

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TABLE I - *Estimates of European prevalence of drug use per Nations. The survery is based on a population with age ranging from 15 to 64.*

Country	Year	Central rate/1000 ages 15-64	Lower and Upper rates/1000 ages 15-64	Estimated number of user	Lower and upper bound of prevalence Estimates
Czech Republic	2010	5,3	4,3 - 6,3	39150	32000-46300
Denmark	2009	9,12	8,6 - 9,7	33074	31151-34997
Germany	2009	n.a.	3,4 - 4,0	n.a	182443 - 216651
Greece	2010	3,0	2,7 - 3,3	22515	20202 - 25171
France	2006	5,9	5,4 - 6.4	230000	210000 - 250000
Italy	2009	10,0	9,7 - 10,2	393490	382500 - 404500
Luxembourg	2007	7,7	6,5 - 9,9	2470	2089 - 3199
Austria	2009	4,6	4,4 - 4,7	25777	24867 - 26687
Poland	2009	2,9	2,1 - 3,8	79500	56000 - 103000
Portugal	2005	n.a.	6.2 - 7,4	:	44653 - 53240
Finland	2005	4,8	4,2 - 5,5	16600	14500 - 19100
Sweden	2007	4,9	n.a.	29513	n.a.
	2004 - 10	9,3	9,1 - 9,9	379262	368711 - 402640

treated with endoscopic approach because of the risk of packet's rupture or iatrogenic perforations.

The first patient was a 33 year old Tunisian man treated with Naloxon hydrochloride at the emergency room for opioid poisoning and referred to our department for swallowing of heroin packs. Admitted in good clinical conditions (treatable abdomen, absence of pain, no Blumberg's or Murphy's signs, valid peristalsis), he underwent a plain abdominal X-ray that revealed a round-shaped radio-opaque foreign body in the gastric cavity (Fig. 1). Since the vital parameters were stable, the patient underwent a CT scan which confirmed the presence of a partially unfolded drug packet in the stomach (Fig. 2). The patient was immediately submitted to an emergency laparotomy with gastrotomy that allowed the removal of the foreign body, which was a 5 grams heroin envelop covered by adhesive tape that actually appeared partly unfolded (Fig. 3) and that was delivered to the agents of the State Police. In the immediate post-operative course the patient was hypoxic and hypercapnic and he was therefore transferred in Intensive Care Unit (ICU), where assisted mechanical ventilation and Naloxon administration were assumed. Two days have been, necessary to restore normal breathing and state of consciousness, than the patient was transferred to our department and discharged on the seventh post-operative day in good clinical conditions.

Fig. 1: Abdominal plain X-Ray showing a gastric foreign body.

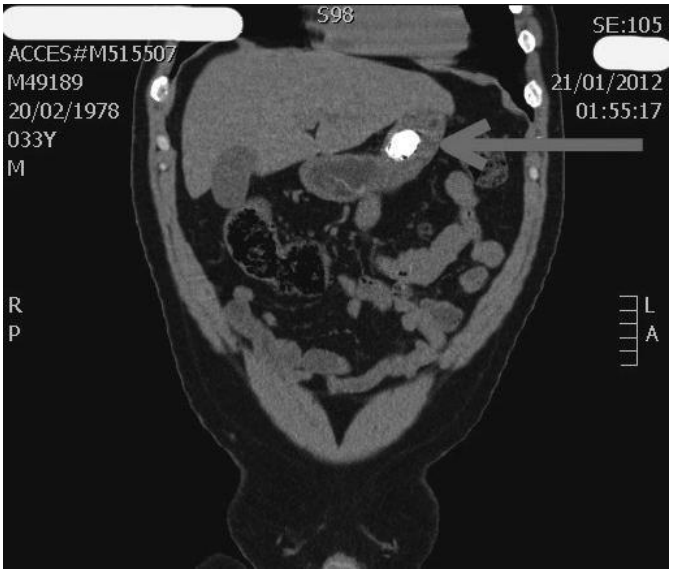

Fig. 2: Gastric foreign body, CT scan coronal reconstruction.

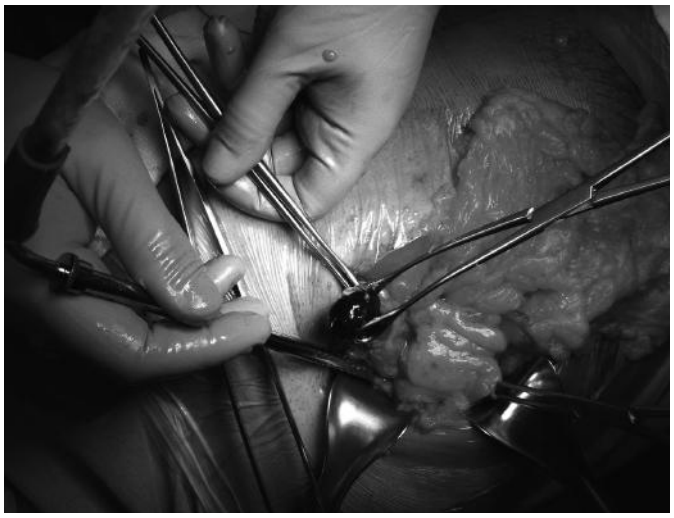

Fig. 3: Gastric foreign body extraction through small gastrotomy.

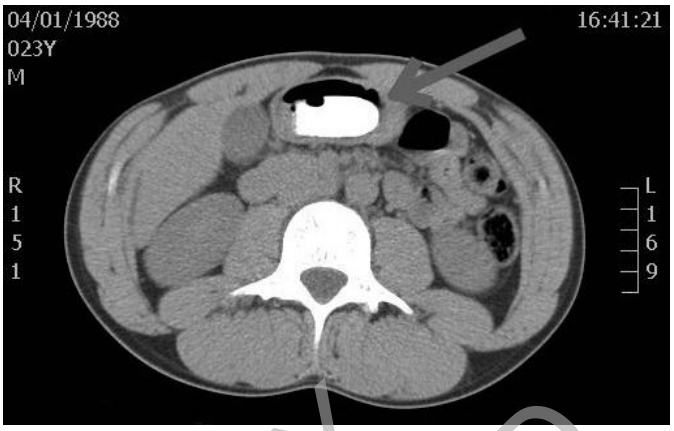

Fig. 4: Gastric foreign body with air bubble, CT scan axial reconstruction.

The second patient almost had the same characteristics: male, aged 23, Tunisian origin, he was carried to the emergency room of our hospital in a coma state with blood positivity both for opiates and cocaine. Naloxon was administered with partial neurological recovery. Abdominal X-ray and subsequent CT scan showed a gastric foreign body with small air bubble in its context, raising the suspect of a drug packet ingestion. The patient was then admitted to the Department of Gastroenterology. Physical examination was innocent, with the exception of a slight epigastric pain. Following an episode of desaturation and respiratory failure, the patient was transferred to the ICU, and than treated by oxygen therapy and continuous Naloxon infusion. Desaturation, hypercapnia, hypotension and chest rigidity required oro-tracheal intubation, assisted mechanical ventilation and circulatory support with adrenaline. A reassessment through CT scan indicated partial dissolution of the packet in presence of hyperdense material with air bubbles within the gastric antrum in continuity with multiple round and filiform hyperdense images going from the cecum-ascending colon to the rectum (Fig. 4), interpreted as parts of the foreign body unfolding. The scan also revealed free fluid around the gallbladder and in the Douglas and multiple areas of basal pulmonary consolidation bilaterally. These findings lead the surgeons to operate in emergency a gastrotomy was performed, then the foreign body was manually extracted, appearing grossly intact and that was consigned to the State Police the envelope contained 3 grams of cocaine. The patient remained under observation in ICU until the fourth post-operative day, when he moved to our department with complete neurological recovery, afebrile and negativity to drug tests. He continued antibiotic infusion preventive therapy for opioid withdrawal with clonidine and haloperidol up to his discharge on the tenth post-operative day, in good clinical conditions and with complete resolution of the parenchymal lung thickening described at the preoperative imaging. Despite the remarkable antibiotic coverage, the patient developed an infection of the surgical wound, treated with outpatient dressings and completely resolved in a couple of weeks.

Three other patients came to our attention with a history of body packing but were managed conservatively. A 40 year old male, referred to have introduced three drug packets in the rectum was admitted in good clinical conditions, stable vital signs and negative abdominal objectivity. X-ray evidenced the foreign bodies within the rectum. The patient has been treated with cathartics, achieving the expulsion of the three containers (handed over the police) two days later and the dicharge the following day. The second non surgical case was a 20 years old male, African origin, admitted to the Department after voluntary ingestion of some drugs containers, localized with a plain X-ray in the colon. He was in good clinical conditions, with no signs of intoxication or abdominal pain, peristalsis was present. He was then treated with cathartics and expulsion of the foreign bodies occurred the following day. As in the other cases, the body packer and the recovered drug were consigned to the police. The last patient, a 33 years old tunisian male, was admitted in good clinical conditions after the radiological findings of two foreign body in the colon. He was treated in the same manner: cathartics, expulsion of the packets and delivery to the police after a negative radiological control.

Results

We treated five so-called body packers in a period of 1 year. Two out of five demanded a surgical management because of signs of drug intoxication and underwent surgery, consisting of laparotomic gastrotomy and packet removal. Both needed some days of permanence in ICU, in order to stabilize vital parameters and to recov-

er from drug poisoning; one of them developed the infection of the surgical wound.
The three remaining patients were managed conservatively, since they did not present neither signs of poisoning nor gastrointestinal complications, with successful retrieval of the packets in short time and without complications.
No one was underwent endoscopic treatment.

Discussion

The drug use is steadily increasing in Europe and Italy is one of the most involved countries. In that last decade, USA and Europe have also witnessed the emergence of the new and worrying phenomenon of professional body packers, whose first description is dating back to 1975 [4].
Body packers are mostly young men of poor socio-economic conditions, immigrants, unemployed and far from family. Drugs are concelead sometimes just in few packets, some others within hundreds of them [2], and hidden in any corporal cavity [5-7].
Control of intestinal transit, following the need to delay or promote packets expulsion, is often obtained through the aware use of constipating [8-9] and cathartic [7] agents.
Body packers do not generally coincide with neither pushers nor consumers, but are a standalone category of people swallowing packets, mostly condoms filled with drugs as cocaine or heroin [2]; yet every drug is suitable for this type of transport.
People hiding drug packets into rectum or vagina, are more properly classified as *body pushers*, while *body stuffers* is the appellation of those who conceal on themselves drugs to avoid it to be found on the occasion of a police inspection [10].
Evidence that this practice is assuming the form of a well organized work is given by the increasing accuracy in composing packets containing the drugs to be carried. Dedicated machines have in fact been fabricated, that can press the drug in containers made of multiple latex layers standardizing weights and measures. The substances transported with such a system are extremely varied, although in most cases it comes to cocaine and heroin. The transport of the first substance is certainly the most profitable but also the most dangerous as there is no antidote.
Even if cases of body packing are becoming more and more common, no accepted worldwide guidelines are available.
The emergency physician may be confronted with two scenarios with respect to the clinical state of the patient, paving the way for completely different diagnostic and therapeutic settings. Symptomatic patients may present to the emergency room with two main symptomatic syndromes: drug poisoning after packet's breakage, as in the case of our first two patients, or acute abdomen with occlusive or perforative origin.
In case of drug poisoning we can distinguish two different clinical presentation: coma, bradypnea, miosis, and reduced peristalsis are the features of opioid heroin poisoning, and they fastly recover after Naloxon administration. On the other hand irritability, hypertension, tachycardia, mydriasis and dysphoria are features of cocaine poisoning, and no antidote exists for these patients.
The first step of the management is the patient's vital signs stabilization, then the diagnostic work up usually starts with a plain abdominal x-ray that is informative of the packets presence, number and position [11] with a reported sensivity of 74-100% [12]. They may appear as radiopaque foreign bodies and sometimes a tiny amount of air trapped between the envelope's layers may present as "double-condom" sign [6,8,13]; stool, urinary stones (especially in the bladder) and abdominal calcifications can lead to false-positive findings [2].
In the event of intestinal obstruction, air-fluid levels should normally be observed upstream the stop constituted by the foreign body, while bowel perforation typically shows as sub diaphragmatic sickle-shaped air collection.
If first line investigations highlight images suspected as foreign bodies, the execution of a CT scan should be considered [11,14-17] and could show the pathognomonic sign of the "stack of coins" [8]. MRI has been also considered as an useful tool in recent studies, but we believe its use to be very unlikely given its slowness and its unusual availability in emergency [18].
Both our patients were subjected to abdominal CT scan, revealing partial dissolution of drug enclosure, surrounding air bubbles and hyperdense material in the gut.
With regard to the emergency treatment, in case of poisoning (as it was in some patients we treated) and/or in case of acute abdomen due to bowel occlusion or perforation, once the vital signs are stabilized and the foreign body located, patients should undergo the surgical removal of the foreign bodies with an emergency procedure [11,14]. The operation is commonly performed through a traditional median laparotomy, since a gentle, careful and accurate manual exploration of the all gut is required; conversely a laparoscopic approach could miss a packet and/or could lead to its damage when grasped by a laparoscopic forceps.
In the event of more foreign bodies localized all over the gut, in the past various Authors suggested to perform multiple enterotomies [19]. Nowadays, there is wide accordance on the performance of a single enterotomy through which gently extract all the foreign bodies[11,14-20]; the rationale for such procedure is minimizing the risk of multiple suture dehiscence, but the danger of damaging the intestinal mucosa thus causing bowel perforations should be considered [14,15]. Rarely the foreign bodies can be slide towards the anus [15].
In the immediate postoperative period, considering the persisting risk of intoxication related complications, the patient should be monitored in ICU.
The most common complications associated with surgi-

cal drug packets removal are wound infections, anastomotic leakage and fascial suture dehiscence [14-21]. In our experience, we recorded in one out of two cases an infection of the surgical wound, conservatively treated.
Whilst at first endoscopic approach was widely discouraged in relation to the high risk of intraprocedural breaking, some latest studies reported successful endoscopic removal of intragastric packets [22]. At the date however, the endoscopy-related benefits are wearied by the risk of rupture of the grasped packets and by the consideration that the endoscopy could remove just small volumes of drug [14,15,23,24]; therefore endoscopic removal is not recommended. Since the risk of rupture also appears to be increased by the attempt to manually extract the packages deeply hidden in the rectum, the practice of manual extraction of packages deeply hidden in the rectum is to avoid [14,25,26].
All the mentioned reasons explain the rising involvement of surgery in the management of body packers. Since the number of these subjects is increasing and the role of endoscopy remains limited, surgeons have to consider this kind of situations. Surgeons can play different roles in the management of these patients: surgery is indicated whenever in presence of repeated attacks of drug toxicity often due to partial or complete damage of the packet's envelope (as in our experience), in case of radiographic evidence of packet retention in the stomach or in the more limited cases of intestinal obstruction or perforation[14].
If the patient is asymptomatic, management should be conservative [11,27-29] and based on the use of cathartics in order to accelerate intestinal transit, (at best osmotic cathartics, since mineral oil or paraffin could potentially dissolve latex and are therefore prescribed [28-30]).
Typically the patient is supposed to drink 2 liters / hour of polyethylene glycol, which in the event of non-cooperation, may be administered through a nasogastric tube already in the ICU.
The Hospital patient's dicharge can be proposed in presence of good clinical status, with particular reference to absence of typical drug-related signs of intoxication, and when all drugs packets have surely been expelled or removed. A X-Ray study of the bowel, in association with two[2] or three free [25] stool samples after elimination of the last packet, is mandatory before the discharge.
We delineated a diagnostic and therapeutic flow chart (Fig. 5) for the clinical management of body packing according to other authors experience [14,25,31] and our little experience.

Conclusions

Body packing represents an emergent social problem, which can sometimes occur as surgical emergency. First line approach is standard radiography, completed by CT scan in case of persistence of diagnostic uncertainty or in the suspicion of complications.
Asymptomatic patients should be kept under ICU observation in the expectation of spontaneous passage, mostly fastened by cathartics administration. Drug couriers

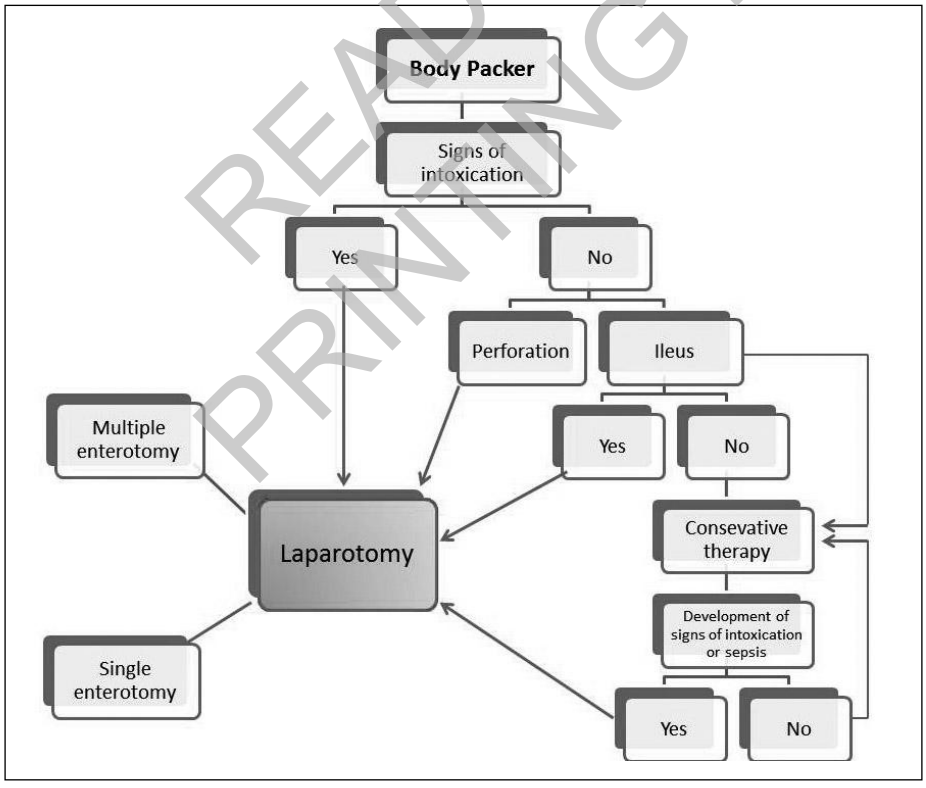

Fig. 5: Diagnostic and therapeutic flow chart for the clinical management of body packing.

showing signs of toxicity not manageable by conservative approach or suffering by acute abdomen should undergo prompt surgical removal preferably by means of single enterotomy, while remaining under strict scrutiny for vital functions. Although endoscopic removal should be feasible, it is widely accepted that it bears more risks than benefits and it is actually contraindicated. It appears, by our experience and the review of the international literature, a primary role of surgery in this emerging disease.

Riassunto

Il "body packing" è un modo di trasportare pacchetti di droga all'interno delle cavità corporee. In Europa, come ha sottolineato l'ultimo report dell'Osservatorio di Bruxelles, ci sono 74 milioni di consumatori di sostanze stupefacenti. L'Italia è in pole position e Perugia è stata considerata come una "capitale" del commercio di droga. I "body packers" usualmente ingeriscono i pacchetti contenenti la droga, sebbene in letteratura sia riportato anche il trasporto all'interno di retto o vagina. La gestione dipende dal fatto che il paziente sia o meno sintomatico. Il trattamento chirurgico è indicato in presenza di sintomi da intossicazione non controllati dal trattamento medico, in caso di evidenza radiologica della presenza degli ovuli ritenuti nella cavità gastrica, segni di ostruzione o perforazione intestinale. È inoltre importante sottolineare che, in un contesto multidisciplinare, la gestione del paziente sintomatico che deve essere portato in sala operatoria è mirata alla stabilizzazione dei parametri vitali ed in genere viene demandata ai medici della Terapia Intensiva.
In questo lavoro presentiamo l'esperienza del nostro centro con la gestione dei "body packers" sia chirurgica che conservativa.

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