

Letters to the Editor

Epidemic outbreak of liquid ecstasy (GHB) overdoses

Dear Sir:

The emergency department at our hospital has been treating liquid ecstasy (gamma-hydroxybutyrate or GHB) overdose patients quite regularly recently and has dealt with over 500 cases in the last 7 days^{1,2}. The most significant clinical manifestation is CNS depression, however antidotes are not required and good progress is made quickly following simple support treatments³. These overdoses, sometimes, take on epidemic proportions when several patients are referred to the emergency department within a short space of time. Therefore, a description of the characteristics of these GHB overdose outbreaks may be of interest to some people.

From April 2000 to June 2005, our hospital emergency department dealt with a total of 404 GHB overdose cases. The overdose was diagnosed after taking a complete medical history and/or after confirming the presence of GHB in the urine sample which was analysed using a gas chromatography-mass spectroscopy technique. An epidemic outbreak was defined as the admission of 3 or more GHB overdose patients in less than 24 hours.

Fifteen outbreaks of GHB overdose affecting a total of 56 patients (13.86% of the whole series) were identified. The average was 3 cases per outbreak (extreme outbreaks: 3-7). The main outbreak and patient characteristics are shown in Table 1. The dose ingested was difficult to calculate exactly and varied between one and three 10ml bottles throughout the whole night. GHB was detected in urine samples in 22 cases. Toxicology testing in 29 patients showed positive results for other drugs in 24 cases. The other drugs most commonly found were amphetamine derivatives such as ecstasy or MDMA (20 cases), cocaine (14 cases), ethanol (7 cases), cannabis (6 cases) and ketamine (3 cases). When ethanol was detected, levels in the blood ranged from 0.57 to 1.31g/l. Opiates were not found in any of the cases and in one patient GHB, amphetamines, cocaine, ketamine, ethanol and cannabis were all found at the same time.

All patients were referred to the emergency department because of CNS problems: decreased consciousness (89.3%), agitation (1.8%) or instability (1.6%). On admission, blood pressure, heart rate breathing rate and temperature were normal in 38 patients (67.8%) and the most frequent alterations included bradycardia (9 cases), bradypnoea (5 cases), tachycardia (3 cases), tachypnoea, high blood pressure (1 case), and low blood pressure (1 case). Physical experimentation showed, decreased consciousness in 73.2% of patients. Ten

TABLE 1. Epidemiological and analytical-toxicological characteristics of patients (n= 56) who were referred to the emergency department because of a epidemic outbreak (n= 15) of GHB overdose

Year of study (number of outbreaks per year)	2000 (1) 2001 (7) 2002 (1) 2003 (3) 2004 (1) 2005 (2)
Average age of patients (range)	22.9 years (15-39)
Sex	Male 66% Female 34%
Time admitted to the emergency department	0-7 h 59 min.: 71.4% 8-15 h 59 min.: 26.8% 16-23 h 59 min.: 1.8%
Day admitted to the emergency department (number of outbreaks)	Monday (6)* Tuesday (1) Wednesday (0) Thursday (0) Friday (0) Saturday (2) Sunday (4) Bank holiday (2)
Confirmed dose	1-3 ten millilitre bottles
Confirmed presence of GHB in urine sample	22 cases (100% of those tested)
Confirmed presence of other drugs in the urine sample	24 cases (82.8% of those tested)

*100% of patients admitted on Monday were admitted between the hours of 00:00 and 07:59.

cases obtained a Glasgow Coma Scale score of between 10 and 14 points, 15 cases scored between 6 and 9, and 16 cases scored between 3 and 5. The patients admitted with decreased consciousness recovered quickly. 47.6% recovered in less than one hour, 38.1% took between one and two hours, and 14.3% took between 2 and 5 hours. During this time 3 patients showed signs of agitation, 2 had involuntary muscle twitching and 1 nystagmus. Six patients vomited before arriving at the emergency department or during their time in hospital.

Eighty-two percent of overdose cases did not receive any treatment. They were only observed and placed in the reco-

very position (on their left side) in coma cases. Hypoglycaemia was ruled out in all cases. Symptoms were treated in six patients (oxygen therapy, plasma expanders, anxiolytics, and antiemetics) and five were treated with antidotes (naloxone and/or flumazenil), however no improvement was observed in their state of consciousness following the use of these antagonists. None of the patients were intubated or put on a ventilator. All made good progress and were discharged from the emergency department between 2 and 9 hours later.

GHB overdose causes acute and transient decreased consciousness and cases are often referred to the emergency department during the course of the weekend. These cases can reach epidemic proportions at times. In our hospital it is the second most common drug related reason for admission, after cocaine abuse⁴. The diagnosis of intoxication is made by evaluating the clinical manifestations and the patient's development given that the testing methods which allow detection of GHB in urine are not available in most emergency department laboratories, there by reducing the possibility of diagnosis⁵ and, subsequently, the quality of care⁶, and represents a new challenge for those who work in the emergency department⁷.

Cases of patients being admitted to the emergency department because of intoxication epidemics are common, especially when they are food-related⁸. However, cases involving patients who have inhaled gases or irritating, suffocating particles⁹ have also been described as have drug-related cases¹⁰. These epidemic outbreaks of GHB overdoses that were dealt with in our hospital, within the context of other sporadic hospital admissions undoubtedly indicate that there is a rise in the use of GMB as a recreational drug in Spain. The risks associated with this drug include deep coma, respiratory depression and bronchoaspiration in cases involving vomiting. Doctors, politicians and society as a whole should make an effort to prevent young people from starting to take these drugs and if they have already started, they should take the necessary steps to break the habit.

7- Nogué S, Sanjurjo E, Espigol G, Miró O. Club-drugs: nuevos retos para los que trabajan en Urgencias. *Med Clin (Barc)* 2005;124:239.

8- Bilbao-Garay J, Hoyo-Jiménez JF, López-Jiménez M, Vinuesa-Sebastián M, Perianes-Matesanz J, Muñoz-Moreno P, et al. Intoxicación por clembuterol. Datos clínicos y analíticos de un brote epidémico en Móstoles, Madrid. *Rev Clin Esp* 1997;197:92-5.

9- Rodrigo MJ, Cruz MJ, García MD, Antó JM, Genover T, Morell F. Epidemic asthma in Barcelona: an evaluation of new strategies for the control of soybean dust emission. *Int Arch Allergy Immunol* 2004;134:158-64.

10- Villalbí JR, Brugal MT. Sobre la epidemia de heroína, su impacto, su contexto y las políticas sanitarias. *Med Clin (Barc)* 1999;112:736-7.

S. Nogué, M. Galicia, M. Amigó, Ò. Miró

Toxicology Department and the Department of Emergency Medicine Emergency Department. Hospital Clínic. Barcelona.

A lucky patient with a foreign body in his neck

Dear Sir:

Penetrating neck injuries are uncommon in the emergency department. They are caused by different things, present themselves in different ways and are generally associated with attacks, accidents or attempts at self harm. Given the vital, functional and aesthetic importance of the neck, each situation needs to be considered carefully and action needs to be taken as quickly as possible¹, although the neck and the foreign body should be immobilised in all cases.

An work-related accident in a 25-year-old male led to the complete insertion of a 7-cm metal nail in the left side of the neck at the level of C5 (Figure 1).

In the initial evaluation the patient only showed mild local discomfort and the airway, breathing, circulation and brain had not been compromised. The patient was taken in a 112 emergency services ambulance to our emergency department^{2,3} and we decided against immobilising the side of the neck to prevent further penetration of the nail. He was transferred

1- Espinosa G, Miró O, Nogué S, To-Figueras J, Sánchez M, Coll-Vinent B. Intoxicación por éxtasis líquido: estudio de 22 casos. *Med Clin* 2001; 117:56-8.

2- Miró O, Nogué S, Espinosa G, To-Figueras J, Sánchez M. Trends in illicit drug emergencies: the emerging role of gamma-hydroxybutyrate. *Clin Toxicol* 2002;40:129-35

3- Ramos J, Plaza J, Nogué S. Sobredosis por éxtasis líquido. *Jano* 2005; 1577:57-69.

4- Sanjurjo E, Montori E, Nogué S, Sánchez M, Munné P. Urgencias por cocaína: un problema emergente. *Med Clin (Barc)* 2006;126:616-9.

5- Sanjurjo E, Cámara M, Nogué S, Negro M, García S, To-Figueras J, et al. Urgencias por consumo de drogas de abuso: confrontación entre los datos clínicos y los analíticos. *Emergencias* 2005;17:26-31.

6- Amigó M, Nogué S, Gómez E, Sanjurjo E, Sánchez M, Puiguiriguer J. Medida de la calidad asistencial que se ofrece a los pacientes con intoxicaciones agudas en el Servicio de Urgencias. *Emergencias* 2006;18:7-16.



Figure 1. The foreign body in the left side of the patient's neck.

slowly in order to minimise accelerations/decelerations and vibrations.

After being re-examined in the emergency department, the ENT specialist on duty advised an emergency cervicotomy to extract the foreign body and check the damage. In order to prevent the foreign body from moving, no image exams were carried out and the patient was taken directly to surgery. The operation was done under general anaesthesia with orotracheal intubation carried out by the anaesthesiologist in the operating theatre.

Surgical examination showed that all the neck structures remained damaged and the nail was extracted without any complications (Figures 2 and 3). The patient was discharged after 7 days, following treatment with the antibiotics ceftriaxone and clindamycin, and no after effects were reported.

When treating neck injuries which involve a penetrating foreign body, clearly there is a risk that extracting the object could cause secondary injuries affecting circulation, nerves or the airway. A classic case is that of the foreign body that is controlling a haemorrhage and acting as a cover for the vascular orifice. If this happens to be the case, it becomes dramatically clear once the object is removed.

Using Fogelman and Stewart's work published in 1956⁴ as a basis, the standard procedure of systematically exploring the neck in injuries affecting the platysma muscle was adopted and a reduction in mortality rates was observed. However, nowadays this type of treatment for patients with penetrating traumas is considered quite controversial because in 40% to 50% of surgical examinations the results are negative⁵, as was the case for our patient. If doctors decide against surgical intervention based on clinical criteria then the patient should remain under observation for 24 hours, according to the Spanish Association of Surgeons⁶.

If the foreign body that has penetrated the patient is in a fixed position (like bars or fences) this should be extracted

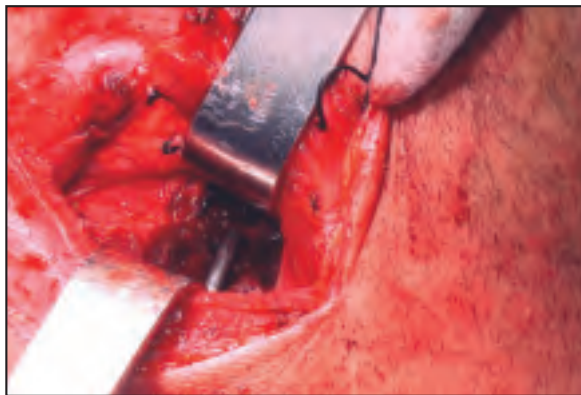


Figure 2. The cervicotomy of the left side of the neck where, deep inside, we can see a fragment of the foreign body.

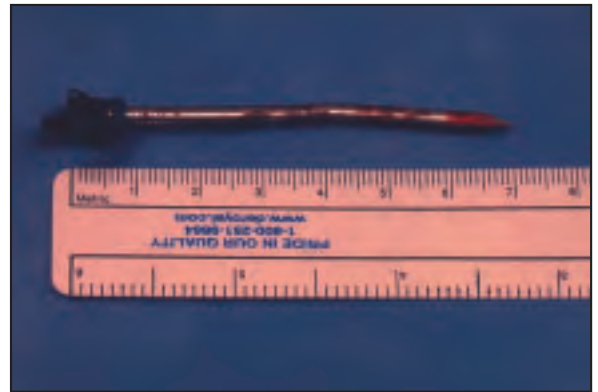


Figure 3. The foreign body that was extracted from the neck injury.

and the risk of complications should be controlled. For that reason, the object is often cut and the patient is brought to hospital where it is removed during surgery⁷.

Some authors defend the opinion that an x-ray exam of the entire neck injury is necessary⁸. In contrast others believe that a thorough physical exam is crucial because it will help to decide whether to take a conservative or surgical approach⁹. Bell and colleagues emphasise the importance of the CT scan in order to avoid unnecessary examinations and to reduce mortality. Although in this case, it is likely that x-ray interferences would have prevented correct evaluation of the state of the neighbouring structures because the penetrating object was made out of metal. These authors have demonstrated that in their hospitals, by carrying out x-ray exams, only patients with deep wounds who can really benefit from surgery are operated on. Consequently, fewer patients go into surgery and the morbimortality rate has dropped¹⁰.

Arteriography is another technique that is very useful, both in surgical extraction and most importantly in more conservative treatment¹¹.

The mortality rate for these types of injuries is not insignificant and varies between 3% and 9%^{10,12}. Severe complications have also been described such as haemorrhages, strokes, hemiplegias, etc. Thankfully, our patient only ended up with a scar on his neck.

1- Ferreira PC, Santa-Comba A, Barbosa RF, Rodrigues JM, Reis JC, Amarante JM. Cervical impalement injury. *J Craniofac Surg* 2004;15:851-4.

2- O'Connor AE, Cooper J. Case of the month: Complete transection of the trachea and oesophagus in a 10 year old child: a difficult airway problem. *Emerg Med J* 2006;23:156-9.

3- Tallon JM, Ahmed JM, Sealy B. Airway management in penetrating neck trauma at a canadian tertiary trauma centre. *CJEM* 2007;9:101-4.

4- Fogelman MJ, Stewart RD. Penetrating wounds of the neck. *Am J Surg* 1956;91:581-96.

5- Demetriades D, Theodorou D, Cornwell E, Berne TV, Asensio J, Belzberg H, et al. Evaluation of penetrating injuries of the neck: prospective study of 223 patients. *World J Surg* 1997;21:41-7.

6- Jover Navalón JM, López Espadas F. Cirugía del Paciente Politraumatizado. Madrid, Arán Ediciones S.A.: 2001.

7- Rodríguez Gómez E. Cuerpo extraño cervical. Un caso insólito. Acta Otorrinolaringol Esp 2004;55:298-301.

8- Ozturk K, Keles B, Cenik Z, Yaman H. Penetrating zone II neck injury by broken windshield. Int Wound J 2006;3:63-6.

9- Insull P, Adams D, Segar A, Ng A, Civil I. Is exploration mandatory in penetrating zone II neck injuries?. ANZ J Surg 2007;77:261-4.

10- Bell RB, Osborn T, Dierks EJ, Potter BE, Long WB. Management of penetrating neck injuries: a new paradigm for civilian trauma. J Oral Maxillofac Surg 2007;65:691-705.

11- Demetriades D, Theodorou D, Cornwell E 3rd, Weaver F, Yellin A, Vel-

mahos G, et al. Penetrating injuries of the neck in patients in stable condition. Physical examination, angiography, or color flow Doppler imaging. Arch Surg 1995;130:971-5.

12- Danic D, Prgommet D, Sekelj A, Jakovina K, Danic A. External laryngo-tracheal trauma. Eur Arch Otorhinolaryngol 2006;263:228-32.

J.L. Sánchez-Jara Sánchez*, **M.I. Martiño Díaz****,
N. Areso Nieva***, **G. Martín Hernández***,
J. Herrero Agustín*, **J. Gavilanes Plasencia***

**ENT Department. **Emergency Department.*

****112 Emergency Services in Ávila. Ávila Hospital Complex*