CASE REPORTS

Unusual pattern of injury caused by a pyrotechnic hand held signal flare

D W Oliver, M Ragbir, P J Saxby

Abstract
The case is reported of a man shot with a distress flare from a range of about 3 m. The flare caused a large cavity deep to the pectoral muscles. There should be a high index of suspicion about the extent of the injury in all types of penetrating trauma.

Keywords: distress flare; penetrating trauma

Individuals concerned for their own safety may carry a wide range of devices to deter and repel would be assailants. These may be commercially available or improvised devices. Some unusual patterns of injury can therefore be expected. We report on one such injury caused by a pyrotechnic hand held signal flare (fig 1).

Case report
A 33 year old male was shot with a distress flare over the lower sternum from a range of approximately three metres in an open area. The patient reported seeing a flash of light from the initial discharge of the flare and then burning red smoke coming from his clothing following impact with his chest, this was sustained for several seconds. There were no burns to his hands or inhalation injury. Examination revealed a 1 cm diameter charred penetrating wound over the manubrium sternum (fig 2), the size of the base plate of the flare which was later recovered from the wound. The patient remained haemodynamically stable without evidence of respiratory distress.

Debridement of the wound was undertaken promptly under general anaesthesia. Operative findings were surprising, considering the external appearance. A large cavity had been formed deep to the pectoral muscles, extending superiorly to the second ribs, inferiorly to the lower boarder of pectoralis major, and laterally to the anterior axillary lines. The cavity was lined with a whitish powder and contained burned and devitalised tissue requiring extensive debridement (fig 3). Incisions were made around the lower and lateral borders of the cavity and the wound packed deep to remaining muscle with betidine soaked gauze. Antibiotics were given and the wound dressed daily initially and then at regular intervals until healed.

Discussion
The incidence of penetrating trauma caused by ballistic injury is rising in the United Kingdom. The signal kit pyrotechnic pistol fires a mini-flare and is used in both the military and the civilian setting. Civilian use is primarily as a maritime distress signal. The propellant is a conventional .22 pistol cartridge. The flare is screwed into a hand held pen sized device and a spring loaded trigger used as a firing pin. A red burning flare is projected into the air to a height of approximately 80 m. The flare contains magnesium, strontium nitrate respon-

Figure 1 Hand held signal flare.

Figure 2 Entry wound over sternum.
Gamma hydroxybutyrate—a coma inducing recreational drug

John M Ryan, Ian Stell

Abstract
The effects of γ hydroxybutyrate, a coma inducing recreational drug, are described and illustrated by case reports of five patients presenting to accident and emergency (A&E). All had depressed levels of consciousness. There was strong circumstantial evidence of γ hydroxybutyrate ingestion in all cases, and laboratory evidence in two. All recovered with supportive treatment. γ Hydroxybutyrate has become a fashionable recreational drug. The majority of people who have ingested it will recover spontaneously without long term sequelae but its toxic effects may be dramatic while they last, particularly when it is taken with other drugs or alcohol.

Keywords: γ hydroxybutyrate; seizure; recreational drug; hypothermia

We report five cases of coma arising from misuse of γ hydroxybutyrate, also known as sodium oxybate. This drug, commonly known as GHB, Liquid X, or Liquid Ecstasy, is a non-illegal drug which is used recreationally for its ability to produce euphoria. Toxic effects include drowsiness, headache, nausea, respiratory depression, seizures, and coma. These effects may be more pronounced when taken in conjunction with alcohol and other drugs. Patients usually recover after a few hours of supportive care.

γ Hydroxybutyrate was first reported as a drug of abuse in 1990 in North America and has been available in the United Kingdom, mostly in night clubs and among body builders, since at least 1994. This drug and its toxic effects should be known to doctors responsible for patients who present unconscious or with seizures.

Case reports
All the patients presented to A&E having taken γ hydroxybutyrate in combination with various other drugs or alcohol.

Case 1
A 37 year old woman was brought to hospital after collapsing at home. A witness described a seizure, which was followed by deep uncon-
Unusual pattern of injury caused by a pyrotechnic hand held signal flare.

D W Oliver, M Ragbir and P J Saxby

*J Accid Emerg Med* 1997 14: 258-259
doi: 10.1136/emj.14.4.258

Updated information and services can be found at:
[http://emj.bmj.com/content/14/4/258](http://emj.bmj.com/content/14/4/258)

**Email alerting service**

*These include:*

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

**Notes**

To request permissions go to:
[http://group.bmj.com/group/rights-licensing/permissions](http://group.bmj.com/group/rights-licensing/permissions)

To order reprints go to:
[http://journals.bmj.com/cgi/reprintform](http://journals.bmj.com/cgi/reprintform)

To subscribe to BMJ go to:
[http://group.bmj.com/subscribe/](http://group.bmj.com/subscribe/)