# PostScript

## LETTERS

### A load of hot air

Despite the widely held belief that air powered weapons are ''toys'' there are numerous reports in the popular press and medical literature that their use is associated with significant risk of injury. This is highlighted by the case of a 16 year old female who presented to the emergency department following being shot in the neck by an air powered rifle. She displayed no signs of upper airway obstruction and was haemodynamically stable but complained of increasing tightness around her neck. Examination revealed extensive surgical emphysema and a 5 mm entry wound overlying her cricoid cartilage that ''whistled'' on respiration; there was no exit wound. *x* Ray revealed a metallic foreign body at the level of C6 in the prevertebral soft tissue.

Urgent ear, nose, and throat (ENT), and anaesthetic opinion were sought and the airway was secured following rapid sequence induction. The patient was then transferred to the intensive care unit (ITU). Panendoscopy on day 3 found the cords to be normal with granulation over the entry wound. The patient was extubated and discharged on day 5 with ENT follow up.

There may be as many as four million air powered weapons in the UK and there use is certain to impact on emergency health services[1]—for example, the number of criminal offences involving air weapons is increasing from 7568 in 1995 to 10 103 in 2000, which accounted for 60% of all firearm offences in 2000.[2] There is a corresponding increase in number of associated injuries (1410 in 1995 *v* 1977 in 2000) and in fact 20% of air weapon offences cause injury.[3]

Severity of injury depends on the site of the wound, shape of missile, degree of fragmentation, and the extent of cavitation. This in turn is proportional to surface area of impact, tissue density, and the velocity of the missile. Air powered weapons are capable of producing muzzle velocities of 900 ft/sec, which is comparable to many hand guns. Wounding capability may be increased by the use of hunting pellets, ''dieseling'' (oiling the barrel to cause explosive propulsion of the missile), and ''piggybacking'' (firing two pellets together). Velocities required to penetrate tissues vary but are well within the limits of air powered weapons—for example, skin at 245 ft/sec, bone at 350 ft/sec, and ocular penetration at only 130 ft/sec.[4] The risk of injury is well supported by numerous reports of ocular, cranial, vascular, thoracic, and abdominal injuries, some of which are associated with fatalities. Therefore air weapon injuries should be treated as low velocity gun shot wounds depending on the site of injury and any subsequent migration of the missile following appropriate resuscitation.[1]

In light of recent high profile firearm incidents gun laws are set to tighten, including measures to limit the use of air weapons. Despite this it is important that health workers in the emergency setting are aware of the risks posed by the use of air powered weapons.

**A Hudson**
Anaesthetic Department, Princess of Wales Hospital, Bridgend, CF31 1RQ, UK; anthonyhudson@doctors.org.uk

#### References

1 **Ceylan H**, McGowan A, Stringer AD. Air weapon injuries: a serious and persistent problem. *Arch Dis Child* 2002;**86**:234–5.
2 **Criminal Statistics England and Wales**. 8th December 2000. http://www.archive.official-documents.co.uk/documents/cm50/5001-t3-3.htm (accessed 4 April 2005).
3 **Criminal Statistics England and Wales**. 8th December 2000. http://www.archive.official-documents.co.uk/documents/cm50/5001-t3-7.htm (accessed 4 April 2005).
4 **Bond SJ**, Schnier GC, Miler FB. Air-powered guns: too much firepower to be a toy. *J Trauma* 1996;**41**:674–8.

### Unusual complication of an organophosphate poisoning

A 50 year old female patient presented to the emergency room (ER) approximately 5 h after ingestion of an insecticide and showed signs of weakness, dyspnoea, sialorrhoea, and diaphoresis. Gastric lavage was carried out and activated charcoal administered as first aid measures.

Tachycardia, muscle weakness, fasciculations, and rales on auscultation of the chest were noted on examination. A serum cholinesterase of 161 units/L was also encountered. The mentioned symptoms disappeared after 6 mg IV atropine plus 0.03 mg/kg.h$^{-1}$ infusion, which was retired in a 12 h period. Pralidoxime was not available. Sertraline and clonazepam were prescribed by the psychiatrist. Relapse of cholinergic symptoms was observed on the second day following admission.

On day 4, tremor and cogwheel rigidity were observed followed by mask-like facies and a positive Babinski sign. On the day 6 after admission, neuromuscular respiratory failure developed and she was mechanically ventilated for 18 days (until day 24). As expected after prolonged ventilation, minor postural instability and dysarthria were observed following extubation, but no parkinsonian features were present. As her muscle weakness improved she was discharged on day 27. No agent to facilitate ventilation or any anti-parkinson drugs was needed.

An acute cholinergic phase followed by intermediate syndrome in organophosphate poisoning was diagnosed;[1] however, tremors, dysarthria, cogwheel rigidity, and mask-like facies are unusual accompaniments following organophosphate intoxication.

These cardinal features of Parkinson's disease (TRAP—tremor, rigidity, akinesia–bradykinesia, and postural instability) were described for the first time by Bhatt *et al* in 1999.[2] However, Davis *et al* (1978) suggested that agricultural workers may be at risk for the late development of parkinsonism in a crop duster with numerous episodes of acute organophosphate intoxication and chronic organophosphate exposure.[3]

Bhatt *et al*[2] described five patients who developed parkinsonism following different circumstances of exposure (one following ingestion of dimethoate, two following household fumigation, and two following entry into a previously fumigated environment) and suggested a dose dependent relation. The response to levodopa in these patients was poor.[2]

A 17 year old patient described by Shahar and Andraws (2001) developed extrapyramidal symptoms following treatment with atropine, toxogonin, and mechanical ventilation. She recovered completely following amantadine treatment.[4]

In the 81 year old woman described by Arima *et al* (2003), the diagnosis of parkinsonism was made on day 9 but the extrapyramidal manifestations were noticed on day 6.[5] This patient too suffered a severe acute cholinergic syndrome, which required treatment with large doses of atropine and 2-pyridine aldoxime methiodidie. This patient responded well to biperidine (5 mg/day) and recovery was complete in 8 days.[5]

This case report reiterates the likelihood of symptoms and signs of parkinsonism developing following organophosphate poisoning. In our patient, the signs were noted following a severe acute cholinergic phase but prior to the development of the intermediate syndrome and recovery was complete when mechanical ventilation was stopped on day 24. It is necessary to observe patients for parkinsonian signs, particularly following recovery from a severe cholinergic phase.

**A J Tafur, L Gonzalez, L A Idrovo, A Tafur**
Hospital Luis Vernaza, Guayaquil, Ecuador; alfonso_tafur@hotmail.com

#### References

1 **Senanayake N**, Karallede L. Neurotoxic effects of organophosphorus insecticides. An intermediate syndrome. *NEJM* 1987;**316**:761–3.
2 **Bhatt MH**, Elias MA, Mankodi AK. Acute and reversible parkinsonism due to organophosphate pesticide intoxication. *Neurology* 1999;**52**:1467–71.
3 **Davis KL**, Yesavage JA, Berger PA. Single case study: possible organophosphate-induced parkinsonism. *J Ner Ment Dis* 1978;**166**:222–5.
4 **Shahar E**, Andraws J. Extrapyramidal parkinsonism complicating organophosphate insecticide poisoning. *Eur J Paediatr Neurol* 2001;**5**:261–4.
5 **Arima H**, Sobue K, So M, *et al*. Transient and reversible parkinsonism after acute organophosphate poisoning. *J Toxicol Clin Toxicol* 2003;**41**:67–70.

### Fit for the road?

We read with interest the study by Frampton of emergency physicians' knowledge of DVLA guidelines.[1]

Following a national questionnaire survey of lead clinicians in UK Accident and Emergency departments in 2003 (41% return), we found results consistent with those in Frampton's study: correct driving advice was given in 97% post seizure, 75% post transient ischaemic attack (TIA), and 65% post unstable supraventricular tachycardia (SVT) in our study.

We also looked at musculoskeletal injury, for which no national guidance is available,[2] and found there is little consistency in advice

being given to patients with short lived (<3 months) musculoskeletal injuries on safe driving.

We would advocate the development of simple guidance on driving safely for patients with short term musculoskeletal injury:

- lower limb—ability to stand on injured limb and raise body with plantar flexion (braking/clutch/accelerator safety), and
- upper limb—ability to grip with equal force to the uninjured side and fully pronate and supinate the forearm (steering wheel safety).

We would also reinforce the importance of emergency department doctors being aware of the existing medical restrictions to driving.

**M J Shepherd, A Wass**
Consultant, Accident & Emergency Dept, Pinderfields General Hospital, Wakefield; matt.shepherd@midyorks.nhs.uk

**P Gilligan**
The Leeds General Infirmary, Accident & Emergency, 1 Far Moss, Alwoodley, Leeds, LSI7 7NU, UK

### References

1 **A Frampton**. Who can drive home from the emergency department? A questionnaire based study of emergency physicians' knowledge of DVLA guidelines. *Emerg Med J* 2003;**20**:526–30.
2 **DVLA**. DVLA guidelines at a glance. http://www.dvlagov.uk/at_a_glance (accessed 1 Dec 2003).

## BOOK REVIEW

### Symptoms and signs of substance misuse

M M Stark, J P-James. 2nd ed, 2003, £12.50, pp 64. ISBN 1-84110-106-0

This is a very handy booklet, intended to provide concise and readily accessible facts about symptoms and signs of commonly used drugs. As mentioned in the introduction, its targeted audience is not the experienced A&E doctor or nurse, but healthcare professionals working in other environments, as well as public sector workers who often come into contact with persons under the influence of drugs. The booklet is also of particular use for partners, parents, or friends of people suspected of taking drugs.

The sections of the booklet are concise and helpful in establishing sequentially the various important aspects to consider in substance misuse. It starts with methods of administration and aspects of harm minimisation and risk reduction, and describes the various legal statutes and requirements. It gives an accurate table of the medical and health complications of substance misuse. One serious potential complication that can lead to death is not mentioned—that is, rhabdomyloysis, where an opiate user falls asleep after an overdose and remains unconscious in the same position, leading to muscle necrosis and potential death. The section on substance detection would be useful for enforcement agencies in monitoring drug profiles for potential prosecutions or healthcare professionals in monitoring detoxification programmes.

The booklet then goes on systematically to describe individual drug groups. The sections on management of some of the drugs are scant, but as mentioned above, this booklet is not targeted at medical doctors working daily in this field. The section on barbiturates does not cover the treatment of the acute intoxication.

The sections at the back of the booklet describing the Glasgow Coma Scale is helpful, but it would be more valuable if the authors had included the scores at which concern should be raised and the individual user is at risk.

**C Perez Avila**

## COURSE REVIEW

### Medicine in remote areas

Course run by ex+med UK Ltd; http://www.ex-med.co.uk.

I enjoy my creature comforts at least as much as the next man (or woman). Why, then, had I ended up in the woods in the cold and dark, lugging someone on a stretcher (that we had to make ourselves) over ditches and between trees? Two reasons: firstly, I wondered if I might learn something on this course that would be useful if called out as part of a mobile medical team at a major incident, and secondly, I enjoy walking and felt I should have some preparation in case I came across someone injured on the hills.

Did I regret going? Only when I saw the state of the local nightclubs. I have previously been told that the single most important thing for effective teaching is to have credible teachers. On this criterion, the instructors on this course could not score any more highly. They have treated casualties in some of the most inhospitable environments there are; their knowledge is not derived from reading but has been gained the hard way. They are also good at teaching and at maintaining the balance between having fun and learning.

There is some didactic teaching (in specially refurbished accommodation) but I found the most useful sessions were the practical ones. Although I have previously (successfully) taken two different prehospital trauma courses, I learned a lot on this course. This was not just useful for work as part of a mobile medical team or for prehospital work; I learned things I have since used in the A&E department (and when I have shown others, they really have said ''wow!'').

I would recommend this course to anyone working in A&E provided they do not mind the cold or the rain too much. For people who have an interest in expedition medicine or in outdoors pursuits (and those who cannot find a good excuse for getting out of being part of a mobile medical team) this is a first rate course. If you go on this course I can confidently tell you that you will return with extra skills and knowledge and have fun acquiring them.

**R Hardern**

## CORRECTION

doi: 10.1136/emj.2004.18002corr1

In the paper titled Access block causes emergency department overcrowding and ambulance diversion in Perth, Western Australia (*Emerg Med J* 2005;**22:**351-354) an error has been spotted on page 353. In table 2 the 95% CI under ED occupancy, for sea surface temperature should read: -0.79 to -0.19. The journal apologises for this error.