

allowed us to study patients under their care, and to Mrs M C Baird and Mrs M Heaney for secretarial help. IAMacL is supported by a grant from Barr and Stroud Ltd.

## References

- 1 Allan R, Dykes P. A study of the factors influencing mortality rates from gastrointestinal haemorrhage. *Q J Med* 1976;**45**:533-50.
- 2 Jones FA. Haematemesis and melaena. *Gastroenterology* 1956;**30**:166-90.
- 3 Cocks JR, Desmond AM, Swynnerton BF, Tanner NC. Partial gastrectomy for haemorrhage. *Gut* 1972;**13**:331-40.
- 4 Johnston SJ, Jones PF, Kyle J, Needham CD. Epidemiology and course of gastrointestinal haemorrhage in north-east Scotland. *Br Med J* 1973;**iii**:655-60.
- 5 Dronfield MW. Medical or surgical treatment for haematemesis and melaena. *J R Coll Phys Lond* 1979;**13**:84-6.
- 6 Kiefhaber P, Nath G, Moritz K. Endoscopic control of massive gastrointestinal haemorrhage by irradiation with a high power Nd-YAG laser. *Prog Surg* 1977;**15**:140-55.
- 7 Northfield TC. Factors predisposing to recurrent haemorrhage after acute gastrointestinal bleeding. *Br Med J* 1971;**ii**:26-8.
- 8 Foster DN, Miloszewski KJA, Losowsky MS. Stigmata of recent haemorrhage in diagnosis and prognosis of upper gastrointestinal bleeding. *Br Med J* 1978;**ii**:1173-7.
- 9 Swain CP, Bown SG, Storey DW, Kirkham JS, Northfield TC, Salmon PR. Controlled trial of argon laser photocoagulation in bleeding peptic ulcers. *Lancet* 1981;**ii**:1313-6.
- 10 Vallon AG, Cotton PB, Laurence BM, Miro JRA, Oses SCS. Randomised trial of endoscopic argon laser photocoagulation in bleeding peptic ulcers. *Gut* 1981;**22**:228-33.
- 11 Jones FA. Problems of alimentary bleeding. *Br Med J* 1969;**ii**:267-73.
- 12 Goldman RL. Submucosal arterial malformation ("aneurysm") of the stomach with fatal haemorrhage. *Gastroenterology* 1964;**46**:589-94.
- 13 Ihre T, Johansson C, Seligson U, Torngren S. Endoscopic YAG-laser treatment in massive upper gastrointestinal bleeding. *Scand J Gastroenterol* 1981;**16**:633-40.
- 14 Vantrappen G, Rutgeerts P, Broeckaert L, Janssens J, Coremans G. Controlled trial of Nd-YAG laser treatment for upper digestive haemorrhage. *Gastroenterology* 1981;**80**:A-57.
- 15 Rutgeerts P, Van Trappen G, Broeckaert L, et al. Controlled trial of YAG laser treatment of upper digestive haemorrhage. *Gastroenterology* 1982;**83**:410-6.

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# SHORT REPORTS

## Safer insertion of pleural drains

In recent years prepacked, sterile plastic tubes with their own central metal trocar—for example, Argyle—have become available for the insertion of pleural drains. They are said to be easy to insert<sup>1</sup> and are claimed to be the most commonly used chest drains.<sup>2</sup> One danger in use is the risk of sudden penetration of the trocar into the chest with consequent damage to vital structures. Such accidents are unlikely to be reported in the medical press, but probably most intrathoracic and upper abdominal organs have been penetrated at some time.<sup>3</sup>

We therefore surveyed current practice regarding chest drain insertion in the Wessex and South Western regions and have devised a simple guard for use during the procedure.

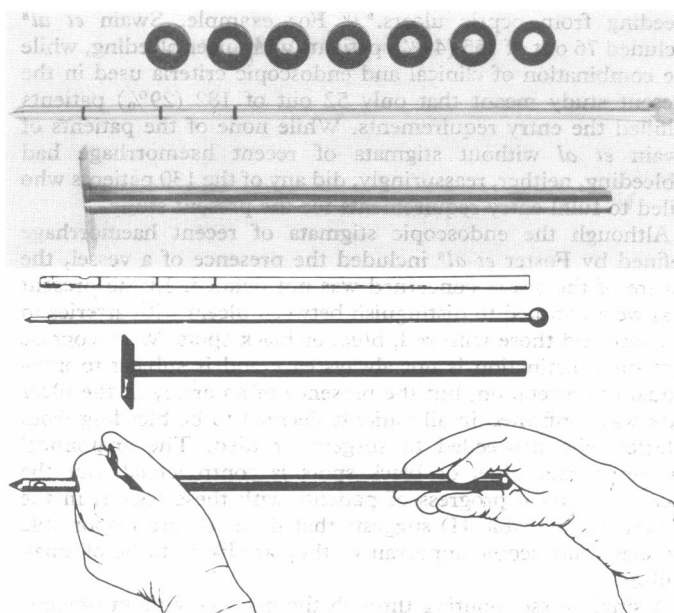
## Methods and results

**Current practice**—All physicians with a special interest in chest disease, and thoracic surgeons in the Wessex and South Western Regional Health Authorities were asked by letter what size and type of chest drain they used to drain pneumothoraces and whether they were satisfied with the drains in use. Nineteen physicians and six surgeons replied (response rate 92%). Eighteen used prepacked Argyle drains, and 14 of these had reservations about their use. Most were concerned about the risk of overpenetration, and several thought that they were difficult to hold and manipulate. All thoracic surgeons believed that the Argyle-type assembly was potentially dangerous, and four favoured the Tudor-Edwards trocar and cannula.

**Development of guard**—The purpose of the trocar is to aid passage of the drain through the chest wall. It is withdrawn once the chest wall is traversed, and the drain can be advanced with little fear of damage to vital structures. If undue force is used, however, the trocar may overpenetrate and plunge deeply within the chest. The guard was designed to prevent this overpenetration. As a preliminary, we measured the chest wall thickness in 57 cadavers (42 men and 15 women, mean ages 62 (17-85) and 71 (42-83) years, respectively) at the two common sites of insertion—namely, the second intercostal space in the midclavicular line, and the fourth intercostal space in the midaxillary line. Mean thicknesses at the two sites were  $30.2 \pm \text{SD } 15.9$  and  $31.9 \pm 14.7$  mm, respectively, in the men and  $29.9 \pm 10.9$  and  $31.4 \pm 11.9$  mm, respectively, in the women.

**Description**—The guard consists of a stainless-steel tube of 1.4 cm internal diameter, with a flange of 7.7 cm at its distal end. There are two lengths, 19 cm and 35 cm, for use with 25 cm and 40 cm drains, respectively. With the drain assembly passed down the centre of the guard, the knob on the end of the trocar abuts the end of the tubular part of the guard with roughly 7 cm protruding distally. This distance may be varied by first inserting any, or all, of a series of nylon and molybdenum washers over the drain (figure).

**Method of insertion**—The skin site is prepared in the usual fashion, and using local anaesthesia a stab incision is made down to the pleura and opened. The drain and trocar assembly is passed down the centre of the guard and held with the butt end within the palm of the right hand. The palm of the left hand sits on the distal end of the guard, with the middle and index fingers straddling the protruding drain and trocar just beyond the flange (figure). Held thus, manipulation is comfortable and easy. On entering



Drain and guard assembly, and method of holding assembly at insertion (no washers used).

the pleural space, the guard and trocar may be simultaneously withdrawn and the drain advanced. We have used this guard on 14 occasions with no difficulties. It has also been used by several other junior staff, including house officers. All have found it easy to use and are happier that the risk of accidental internal damage is diminished.

## Comment

Thoracic surgeons in particular have asserted that safe insertion of intrapleural drains requires a formal dissection through the chest wall and pleura so that no force is used when the assembly is passed through. This view is borne out by the comments of the surgeons replying to our survey. It remains, however, a counsel of perfection and in our experience is not followed by many doctors. Chest drains are often inserted by relatively junior staff, sometimes in difficult circumstances, when the temptation to push harder than is prudent may be difficult to resist. One common method of guarding against overpenetration of the trocar is to cross-clamp the assembly with arterial forceps.<sup>2</sup> These instruments are not designed for such purposes

and may easily displace. Our guard is simple and easy to use even in inexperienced hands. In addition, it is reusable, easy to sterilise, and requires no alterations to existing equipment. Its use should minimise the risk of damage to internal organs during the insertion of pleural drains.

We are most grateful for the help and encouragement from the respiratory physicians and thoracic surgeons in the Wessex and South Western Regional Health Authorities. We also thank the department of medical engineering at the Bristol Royal Infirmary for manufacturing the guard and for their helpful advice during its development, and the departments of medical illustration at Southmead Hospital, Bristol, and the Bristol Royal Infirmary.

Patent applied for. Guards are available from JEH.

<sup>1</sup> Anonymous. Spontaneous pneumothorax. *Br Med J* 1976;iii:1407-8.

<sup>2</sup> Firmin RK, Welch JD. Insertion of a chest drain. *Hospital Update* 1980; 6:481-6.

<sup>3</sup> Firmin RK, Tolhurst-Cleaver C. Safe intrapleural drainage. *Anaesthesia* 1980;35:79-80.

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## Importance of asking about glaucoma

Chronic simple glaucoma is a fairly common disease of middle and old age. Patients are largely free of symptoms in the early years, and visual loss may be severe before it is noticed. Compliance with treatment, as in other chronic and asymptomatic diseases, is poor,<sup>1</sup> and it is therefore important to encourage patients to take their drugs regularly. Patients admitted to hospital for non-ophthalmic reasons do not always seem to receive their prescribed eye drops. I undertook this study to determine the extent of this problem and to suggest a remedy.

### Methods and results

All doctors working in the outpatient department of the Western Ophthalmic Hospital and its outlying clinics were asked to compile data concerning hospital admission for patients with chronic simple glaucoma.

Information was requested from 200 patients regarding hospital admissions for non-ophthalmic reasons since starting treatment for glaucoma. Forty-nine had been admitted to hospital a total of 77 times. Treatment charts and admission notes were requested from the 29 hospitals concerned. No information was available on 20 admissions, either because no records were available or because the hospital did not reply to repeated letters of request. Copies of the relevant notes were obtained for 57 admissions.

The correct eye drops were prescribed in 36 of these 57 admissions. In the remaining 21 cases, however, no eye medication was prescribed even in the eight cases where a history of glaucoma had been given. The average length of these 21 admissions was nine days (range 1-30 days).

### Comment

The prevalence of chronic simple glaucoma rises from 0.02% of those in their 40s to 10% of those over 80 years old.<sup>2</sup> The proportion of these receiving treatment is unknown, but chronic simple glaucoma is one of the commonest diseases seen in ophthalmic outpatients. A large number of patients with glaucoma will be admitted to hospital for various reasons each year.

In this survey 37% of those admitted did not receive correct medication. This was often because no history of eye disease was obtained, though in eight cases no treatment was given despite a history of glaucoma. The fact that many patients neglected to give a history of glaucoma may indicate their disregard for the problem.

While one or two weeks without treatment are not likely to cause appreciable visual impairment, continued treatment in hospital is most important. Compliance with treatment in this group is known to be low and the failure of a doctor to prescribe eye drops may encourage the patient in his belief that the drops are unimportant and may worsen compliance in the future.

Three conclusions may be drawn from this survey. Firstly, the ophthalmologist must increase his efforts to educate patients with chronic simple glaucoma and so improve compliance with treatment. Secondly, all medical staff must encourage patients to use previously prescribed drugs.

Lastly, since glaucoma is a common disease affecting the elderly—who are often admitted to hospital—every houseman should include in his history taking a specific question about glaucoma alongside those about hypertension and diabetes.

<sup>1</sup> Ashburn FS, Goldberg I, Kass MA. Compliance with ocular therapy. *Surv Ophthalmol* 1980;24:237-48.

<sup>2</sup> Crick RP. Computerised clinical data base for glaucoma—ten years' experience. *Research and Clinical Forums* 1980;2(1):29-41.

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## Rhabdomyolysis and systemic infection

Rhabdomyolysis is a well-recognised but underdiagnosed cause of acute renal failure. Most cases are secondary to trauma or ischaemia. More recently cases of non-traumatic rhabdomyolysis have been reported in comatose patients after overdoses of narcotics, sedatives, and alcohol,<sup>1</sup> where pressure-induced ischaemia may be responsible. Rhabdomyolysis secondary to sepsis has not been recognised often despite early reports in patients with severe lung infections.<sup>2</sup> We report three cases of rhabdomyolysis in patients with severe fungal and bacterial infections.

### Case reports

**Case 1**—A 57 year old Nigerian man with glucose-6-phosphate dehydrogenase deficiency was admitted for investigation of acute renal failure. One year before admission a non-Hodgkin's lymphoma with autoimmune haemolytic anaemia was diagnosed. In the week preceding his admission to hospital he complained of severe headache, fever, and a productive cough. Investigations showed severe haemolysis, haemoglobinuria, and acute renal failure. One week after admission his condition deteriorated; he became increasingly breathless and complained of severe myalgias. Bronchoalveolar aspergillosis was diagnosed by aspiration at bronchoscopy. Rhabdomyolysis occurred at the same time as the chest infection (table); a striated muscle biopsy confirmed the diagnosis. After treatment of the aspergillus infection with amphotericin B his clinical condition improved transiently and muscle enzyme values returned to normal. His condition subsequently deteriorated and he died from a cardiorespiratory arrest.

*Serum concentrations of creatinine phosphokinase, phosphate, calcium, and potassium in three patients during the acute infectious episodes*

Case No	Infection	Creatinine phosphokinase (IU/l) (normal range 0-200)	Phosphate (mmol/l) (normal range 0.70-1.25)	Calcium (mmol/l) (normal range 2.10-2.60)	Potassium (mmol/l) (normal range 3.8-5.0)
1	Bronchoalveolar aspergillosis	40 000	3.92	1.58	5.1
2	<i>Staph epidermidis</i> bacteraemia	13 600	2.89	2.01	7.0
3	<i>Legionella pneumophila</i> pneumonia	11 130	2.43	1.69	4.8

*Conversion: SI to traditional units—Phosphate: 1 mmol/l  $\approx$  3.1 mg/100 ml. Calcium: 1 mmol/l  $\approx$  4 mg/100 ml. Potassium: 1 mmol/l = 1 mEq/l.*

**Case 2**—An 18 year old Vietnamese man was admitted after a road traffic accident. On admission he was comatose with a right haemopneumothorax. A chest x-ray film showed a diffuse bilateral pulmonary infiltrate. As his respiratory function deteriorated mechanical ventilation was started and broad-spectrum antibiotics given. One week after admission two episodes of hypotensive septicaemia occurred and he developed acute non-oliguric renal failure. Ten days later and while on peritoneal dialysis he had a further septicaemic episode; *Acinetobacter* spp and *Staphylococcus epidermidis* were