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A reply

We would like to thank Dr Asai for his interest in our study. In a study of fibreoptic oral intubation Dr Asai found the exact opposite to us, that cricoid pressure decreased the incidence of impingement. As he used a bimanual cricoid pressure technique, Dr Asai wonders if this factor could explain the difference in outcome. We did indeed use the single-handed cricoid pressure technique in our study and apologise if we did not make this clear. However, apart from this there were other significant methodological differences between the studies. The fibre-optic scope and the gum elastic bougie (GEB) differ considerably in their physical characteristics; we used a larger tracheal tube (9 mm vs 8 mm for males and 8 mm vs 7 mm for females); and we railroaded the tube with a laryngoscope blade in the vallecula to imitate a rapid sequence induction.

We also appear to be studying a different phenomenon. In Dr Asai's study the main finding was the tendency of the fibroscope to bend and herniate into the oesophagus. It is not difficult to see how cricoid pressure, by compressing the oesophageal inlet, could prevent this happening and aid intubation. The greater stiffness of the GEB does not allow it to bend in this fashion. Furthermore, we speculate that the greater stiffness of the GEB may cause greater obstruction when the tube snags the glottis because it is less likely to bend to overcome a marginal impingement than the more flexible fibroscope.

The opposing outcomes in the two studies are interesting, but the methodological differences between them

makes it difficult to draw a meaningful conclusion.

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Pressure palsy mimicking brachial plexus injury after mastectomy

In a recently published report, Wijayasiri et al. reported a case of hereditary neuropathy with liability to pressure palsies (HNPP) after breast surgery [1]. We report a similar case. A female patient presented with a newly developed 3-cm breast lump in the upper outer quadrant of the left breast. Invasive ductal carcinoma was diagnosed by fine needle aspiration and a modified radical mastectomy and complete axillary lymph node dissection was performed. On the evening of surgery the patient complained that she could not move her left arm, and reported intense tingling in her upper limb. She could not flex the elbow, and a neurological evaluation revealed that the left biceps reflex, together with isotonic/isometric contraction, were markedly reduced (grade 0–1+). The triceps and brachioradialis reflexes were slightly impaired, and power in the fingers was very slightly reduced. Sensation (pain, touch, and temperature) was reduced in the C5 and C6 dermatomes. There was no personal or family history of liability to pressure palsies. A brachial plexus injury seemed unlikely as care had been taken with respect to the brachial plexus intra-operatively, and the surgeon was experienced, having performed more than 2000 mastectomies. Following the neurological assessment, the adhesive skin traction bandage was removed to allow full examination, at which point the patient noticed that the feeling of her arm improved and tingling partially resolved. Twenty minutes later, sensation was fully restored and flexion of the elbow was possible again.

It appeared that the bandage had been too tight and had triggered neurological symptoms mimicking a postmastectomy

complication by an external pressure effect. Genetic testing for HNPP was recommended but the patient refused, perceiving the event as minor. This case differs from that reported by Wijayasiri et al. as it was characterised by an extremely rapid recovery and the importance of an external iatrogenic cause – the surgical dressing.

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Anaesthetic management of patients with Takotsubo cardiomyopathy

We read with interest the report on Takotsubo syndrome during induction of general anaesthesia by Jabaudon et al. [1]. There is increasing evidence supporting the phenomenon of stress-induced cardiomyopathy [2]. We, too, have encountered cases fitting the diagnostic criteria for Takotsubo syndrome that resulted in transient cardiomyopathy. As described in the report, the syndrome mimicked an acute coronary syndrome with cardiac enzyme elevation, and presented a significant challenge for the anaesthetists managing these patients peri-operatively. Reports of recurrence of the syndrome [2] warrant examination of our management.

As the syndrome appears to be stress-related, management should aim to attenuate the stress response peri-operatively. There is insufficient evidence to favour regional or general anaesthetic techniques. An alternative to high dose opioids is the α_2 adrenergic agonists dexmedetomidine or clonidine. These agents can be started pre-operatively without causing respiratory depression

and produce excellent sedative effects [3]. They exert a central sympatholytic action, improving haemodynamic stability in response to tracheal intubation and surgical stress and reduce general anaesthetic and opioid requirements. Furthermore, they may be beneficial in the prophylaxis and treatment of peri-operative myocardial ischaemia [4]. The role of magnesium in attenuating the stress response is also worth considering. Magnesium plays an important role in many physiological processes such as regulation of blood catecholamine concentrations, particularly adrenaline and noradrenaline [5].

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Accidental use of glucose solution in an arterial cannula flush system

We read with interest the tragic case of the elderly patient who died from

neuroglycopenia after accidental use of a 5% glucose solution in a peripheral arterial cannula flush system [1]. The authors should be commended for their honesty and openness. Such incident reporting is invaluable in helping to reduce the persistent and common problem of drug administration error through the adoption of system changes [2].

One of the error-producing conditions discussed was the similar appearance of 5% glucose and 0.9% saline flush solutions and product labelling being obscured in the pressure bag. This made it difficult to distinguish between the two solutions. Heparinised saline flush has red labelling on the bag that serves as a 'red flag' to alert users to its unusual content. The authors of the report commented that several years ago their unit changed from using heparinised saline flush as this caused problems with measurement of coagulation parameters. Ironically, if the red-labelled heparinised saline bags had continued to be used, this incident might not have occurred.

This unfortunate case illustrates that changing a complex medical system to reduce one risk may introduce other hazards. Perhaps a further development of the colour-coding scheme for intravenous fluids solutions may reduce the risk, as it does for syringe labels.

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Tissue adhesive as an alternative to sutures for securing central venous catheters

Tissue adhesives have been used in the past for a wide range of applications,

including wound and laceration closure [1], repair of gastric varices [2], incisional hernias [3], retinal detachment [4], and for securing epidural catheters [5]. They have numerous advantages over traditional sutures [6], with the potential to reduce complications associated with traditional methods for both the patient and doctor. They are safe (having been tested extensively in a wide range of areas) and cost effective, with less need for local anaesthetic and dry dressings. They prevent the need for painful suturing and suture removal with the potential for significant reductions in percutaneous injuries from suture needles and better cosmetic results for the patient [7]. They are tough, durable, have high mechanical strength and can remain in place for a number of days. In addition, such agents have intrinsic bactericidal properties [8], another advantage in the context of long-term catheters used in ICU where catheter-related infections are a common problem.

Here we describe the use of Histoacryl[®] tissue adhesive (B Braun, Sheffield, UK) to secure a standard three-port femoral central venous catheter in an obese male burns patient. To our knowledge such use of tissue adhesives has not been described before. It is, however, an obvious application for these agents (with all the advantages described above), especially in individuals in whom suturing may be difficult due to positional or anatomical reasons, or in whom the catheter is required to stay in for a long period of time, as with our patient. After insertion, the catheter is coated sparingly with a thin layer of adhesive to anchor it at the insertion point and wing tips (Fig. 5) and then held in place for about 30 s while the adhesive sets. This is much less time consuming than using sutures. The adhesive can safely be removed at any time using acetone if necessary, for example for repositioning. Otherwise, it starts to loosen naturally after 5–10 days, and washes off with soap and water [9].

We have secured over 30 lines using this glue with complete success and have undertaken a successful volunteer study securing epidural catheters (abstract