the lungs of a patient who has a tube in the oesophagus if the proximal end of the tube is brought under the rim of the face masks.

In patients with limited mouth opening, our technique may be easier than insertion of the Oesophageal Vent-Laryngeal Mask, as the oesophageal tube can be moved over to the left side of the mouth. Clearly, further assessment and comparison of these techniques in cases of difficult and failed tracheal intubation would be interesting.

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Sir,—The modified laryngeal mask described by Akhtar [1] reflects a line of enquiry pursued by the inventor of the laryngeal mask airway (LMA) between 1983 and 1987. Figure 1 shows one of the patented designs, which closely resembles Akhtar’s modification, but has a communication between the two cuffs, permitting simultaneous inflation from a single inflation port. The modification, but has a communication between the two cuffs, permitting simultaneous inflation from a single inflation port. The device, which was made entirely from silicone, can be seen in the LMA Museum at the Royal Berksire Hospital, Reading. The reasons for not continuing with this development may be of interest. The addition of an integral oesophageal tube increases the difficulty of insertion, the invasiveness of the procedure and the complexity (and hence the likely price) of the device. Such a development therefore is not likely to be attractive as a general-purpose airway. If it is desired to pass a tube into the oesophagus, this can be done easily after placing a standard LMA using a well-lubricated tracheal tube. The LMA is only moderately inflated (for example 25 ml in a size 4) and the tracheal tube is passed blindly and gently with the head extended. Not only is this easier, but there is a further advantage in that the mask serves to shield the glottis from the tube as the latter is passed downwards, guiding it into the upper oesophageal sphincter. A characteristically high pressure is felt as the tube encounters and passes through the sphincter, so that it is not difficult to judge the level of tube placement.

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Sir,—Thank you for the opportunity to reply to the comments made on the Oesophageal Vent-Laryngeal Mask. The device described is only a prototype that requires refinement to allow better conformation to the oropharyngeal anatomy which could make placement no more difficult than the standard laryngeal mask airway (LMA).

I note Dr Brain’s comments but remember him describing a new modification of the LMA that has a tube attached to the dorsum of the LMA (not penetrating the oesophagus) for the drainage of regurgitated contents, at a conference on “The Use of Laryngeal Mask for Resuscitation” in London, January 13, 1994. Hiccups under general anaesthesia may increase the incidence of regurgitation but two patients that hiccuped in my study did not regurgitate. The presence of the LMA anterior to the oesophageal tube encourages it to slide along the posterior wall of the pharynx and the oesophagus, making tracheal intubation most unlikely. Search for a better design of the LMA (and various other techniques) to prevent regurgitation however, continues.

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Ferrous distortion during MRI

Sir,—The presence of ferromagnetic material in the proximity of magnets during magnetic resonance imaging (MRI) may produce unwanted interference and degradation of image quality [1]. Standard tracheal tubes may become kinked in patients undergoing head and neck procedures or in association with changes in patient position. Reinforced tracheal tubes are used in these situations to prevent intraoperative hypoxemia and increases in airway pressure. We report a case of image distortion caused by a stainless steel reinforced tracheal tube.

A 49-yr-old female presented for stereotactic biopsy of a right temporal space-occupying lesion. Anaesthesia was induced with fentanyl 2 μg kg⁻¹ and thiopentone 4 mg kg⁻¹ and vecuronium 0.1 mg kg⁻¹ was administered to facilitate tracheal intubation with a 7.5-mm cuffed reinforced tracheal tube. Anaesthesia was maintained with nitrous oxide and isoflurane in oxygen and normocapnic controlled ventilation. A stereotactic frame was applied and imaging commenced. However, image distortion was observed. A biopsy specimen of the targeted lesion was reported as normal brain tissue. An open brain biopsy was required to obtain histological specimens which revealed glioblastoma multiforme.

This is the first reported case of a reinforced tracheal tube producing image distortion during an MRI procedure. Image distortion associated with armoured tracheal tubes has major clinical implications. We suggest the use of a nylon reinforced tube when a non-kinkable tube is indicated during MRI procedures. Extra anaesthetic vigilance is warranted because such tubes may be more prone to kinking. This case report confirms previous experience that any metal object, if sufficiently close to the region to be scanned, may cause image distortion [2].

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Fig. 1. One of the patented designs of the laryngeal mask airway.
Dysphoria after extradural diamorphine

Sir,—We report the occurrence of an acute dysphoric reaction after administration of diamorphine into the extradural space. A 51-year-old student who became pregnant with the aid of in vitro fertilization (IVF), was admitted for elective Caesarean section at 36 weeks' gestation. The indications for the section were unstable fetal lie and the patient's age. Her past history revealed that she had suffered worrying nightmares and been sick after a previous general anaesthetic. She was otherwise healthy, did not smoke, and drank alcohol only occasionally. She had taken aspirin until 10 days previously to reduce the risk of pre-eclampsia.

The night before operation, she was given ranitidine 150 mg orally which was repeated the following morning with the addition of metoclopramide. A lumbar extradural block was established with 0.5% bupivacaine 15 ml and fentanyl 100 μg as a slow bolus after it was shown with Hartmann's solution 1000 ml. An extradural catheter was then sited. This produced good bilateral sensory and motor block for Caesarean section to be performed. There was one episode of hypotension (95 mm Hg systolic pressure) which was treated successfully with ephedrine 6 mg i.v. As is standard practice at our hospital, the extradural catheter was used for postoperative analgesia.

Two and a half hours after delivery, when the patient began to feel uncomfortable, diamorphine 2.5 mg in normal saline 10 ml was administered via the extradural catheter with good effect. However, 85 min later, the patient's skin became extremely cold and clammy, and she was very tearful. She complained of vivid, unpleasant dreams and was very agitated. On examination, cardiovascular and respiratory variables were normal. A BM stix indicated blood glucose concentration greater than 4 mmol litre−1. Following naloxone 400 μg i.v., she became calm and recovered within 5 min. Just over 1 h later, she suffered a similar episode and again responded to naloxone i.v.

After a further 2 h, she was similarly unwell and in addition to a bolus dose of naloxone 200 μg i.v., she was also given naloxone 400 μg i.m. A naloxone infusion of 1.8 mg in normal saline 500 ml was commenced at a rate of 300 μg h−1. The infusion was discontinued after 6 h when the patient had remained well.

Her recovery continued uneventfully until 24 h later when she complained of itching. This was treated successfully with an infusion of naloxone as before. The patient required Co-dydramol tablets and diclofenac suppositories for pain relief over the next few days and she did suffer further dysphoric episodes.

Dysphoria after extradural diamorphine has been described previously with an incidence of less than 1% [1] and others have found a 1% incidence of dysphoria and sedation with extradural morphine [2]. However, there are no details of whether or not an acute state treatable with naloxone occurred. Other accepted side effects of extradural opioids include respiratory depression, pruritis, urinary retention, nausea and vomiting and hypotension [3–6].

The cold and clammy state with vivid dreams and anxiety could have been caused by several mechanisms, including hyperthyroidism, hypoglycaemia, partial seizures and alcohol or drug withdrawal. The patient was previously healthy and there was no history of high alcohol intake. Her blood glucose concentration was normal and the fact that the state was reversed by naloxone makes it likely that the cause was opioid administration. It is interesting that a previous general anaesthetic had produced nightmares in the postoperative period but unfortunately further details of this are not available. The patient had no other history of opioid use.

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The reinforced laryngeal mask airway for adenotonsillectomy

Sir,—We read with interest the study by Drs Williams and Bailey [1] comparing the reinforced laryngeal mask airway (LMA) with tracheal intubation for adenotonsillectomy. We were impressed with the possibility of avoiding the use of neuromuscular blocking agents and tracheal intubation, with its attendant risk of laryngospasm on extubation; this has been assessed as about 20% in children after adenotonsillectomy [2, 3]. The protection afforded from blood contamination of the airway during the initial phase of recovery was attractive. We also foresaw a more rapid turnaround between patients as a result of these factors.

The newly available reinforced LMA's were purchased and we have audited their use by a single experienced consultant over approximately 7 months in 1993. After a cautious start, the new masks were used for all patients undergoing tonsillectomy, adenotonsillectomy or the combination of the two. They were operated on by one surgeon who was unwilling to participate. Anaesthesia was induced in all patients with propofol, preceded by alfentanil 15 μg kg−1, and anaesthesia was maintained with spontaneous ventilation of nitrous oxide, oxygen and enflurane, supplemented by i.v. Omnopon 20 mg (noscapine-free formulation replacing papaveretum). A Humphrey ADE circuit in the A mode was used for all patients weighing more than 12 kg; smaller patients breathed through a Jackson Rees modification of the T-piece. Standard monitoring (non-invasive arterial pressure every 3 min, inspired oxygen and end-tidal carbon dioxide concentration, oxygen saturation and ECG) was used throughout. Brief details of each patient were recorded on the Lewisham Hospital anaesthetic audit form. These forms were retrieved and analysed manually.

One hundred and twelve forms were retrieved. There was a preponderance of younger children (45 were aged 3–6 yr, 37 7–12 yr, 30 13–19 yr); the distribution of males and females was similar. More than 75% of patients were completely satisfactory and all the disadvantages anticipated were realized in full. However, a substantial number (23 (20.5%)) exhibited a degree of respiratory obstruction at some time during operation. This was diagnosed on clinical grounds, principally a change in the ventilatory pattern with indrawing at the suprasternal notch with or without paradoxical movement of the upper chest. Manual assistance of ventilation was provided as required and also contributed to the diagnosis. In virtually every instance the cause of obstruction appeared to be compression of the airway tube between the lower teeth and the Doughty blade of the modified Boyle Davis gag. There was no obvious type of dental occlusion. Although in most patients obstruction became obvious as soon as the gag was opened fully by the surgeon, on a few occasions obstruction commenced later when the position of the head was adjusted slightly. It was often possible to relieve (or render tolerable) the obstruction by substitution of a larger tongue blade or releasing the gag one notch from full opening. These manoeuvres sometimes made surgical access difficult. We also experimented with splitting the vulnerable area of the tube with a 4-cm piece of plastic suction tubing, split lengthways and slipped on under the gag; this was effective but awkward.

On three occasions, the technique was judged unsatisfactory and abandoned and the trachea was intubated, although desaturation (lowest readings 84% and 85%) occurred for a short time in two patients. No other patient suffered significant