CORRESPONDENCE

Removal of lumbar extradural catheters

Sir,—Morris has suggested [1] that removal of a fixed extradural catheter may be facilitated by placing the patient in the original insertion position. I recently experienced a case where this recommendation was unhelpful.

I was asked to assess a 73-yr-old patient who appeared to have an obstructed extradural catheter after a total hip replacement. The extradural space had been identified earlier at L3–4 via the midline approach with the patient in the left lateral position, and a 16-gauge catheter advanced without any difficulty. The extradural catheter had not posed any postoperative problems and was a fixed catheter. After a study measuring the force required to remove extradural catheters in 100 patients [2], we do not know when the first report of an explosion or fire caused by ether in an operating theatre appeared in Germany, but we may speculate as to why this may have occurred but can make no conclusions based on these isolated cases. The degree of spinal flexion and the position of the patient at the time of insertion of the catheter may be influencing factors. A controlled study is ongoing which I hope will shed further light on this interesting topic.

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Fires and explosions

Sir,—After reading the excellent and extensive review article “A short history of fires and explosions caused by anaesthetic agents”, by Macdonald [1], I wish to add comments or similar reports from the German literature and research on this topic [1].

We do not know when the first report of an explosion or fire caused by ether in an operating theatre appeared in Germany, but the surgeon Johann Friedrich Dieffenbach (1792–1847) from Cologne in the mid-1920s to reduce the risk of fire when ether or acetylene was used in every operating theatre, not only to prevent fires but also to minimize pollution [6, 7].

In addition, German scientists made extensive efforts during the mid-1920s to reduce the risk of fire when ether or acetylene was used by employing active coal filters within the anaesthetic apparatus or circle system [4, 5]. This had also been suggested by the surgeon Fritz Hölscher (1867–1933) from Cologne in 1924 to be used in every operating theatre, not only to prevent fires but also to minimize pollution [6, 7].

It is also interesting that during those years many famous German surgeons published articles on the possible dangerous effects of inhalation agents inhaled on a regular basis [9–11]. It is

NSAID for Caesarean section

Sir,—The findings of Elhakim and Nafie [1] of improved postoperative analgesia together with a 50 % opioid-sparing effect when tenoxicam was used before Caesarean section supports the widely held view that NSAID are effective analgesics in many acute pain states. Their data and discussion relating to adverse effects were, however, less convincing.

A total of 36 % (9/25) of their NSAID recipients required additional oxytocin because the surgeon assessed that there was excessive bleeding during uterine closure, compared with only 16 % (4/25) in the control group. While reported as not significant, the precise P value was given. Two additional articles [2, 3] were cited in support of their contention that preoperative NSAID do not increase postoperative blood loss. In fact, these studies found, respectively, a 46 % [2] and 38 % [3] increase in mean blood loss when NSAID had been given, and in both studies the range was increased almost two-fold; the maximum estimated blood loss after administration of diclofenac for transurethral resection of the prostate was 2449 ml compared with 1269 ml in the control population [3]. Inter-subject variation was high and no statistical differences were found for these variables, although the surgeon’s subjective assessment of increased bleeding after indomethacin was highly significant (P < 0.001) [2].

The report that none of the neonates experienced premature closure of the ductus arteriosus also provides only limited reassurance, when NSAID are known to have this potential. Applying the vital test of confidence to such reports of 0 occurrences in a population of “n” [4], we know that we can be 95 % confident that the true incidence of the problem is less than 3/n (in this case 12 %) and 99 % confident that the true incidence is less than 5/n (here 20 %). In order to maximize the benefit of this controversial class of agents we must recognize the risks and select patients, clinical indications and timing of administration with great care. I would personally not advocate the use of NSAID until after Caesarean section has been safely concluded.

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not surprising that this suggestion was widely accepted by physicians, and industry also recognized the advantages of active coal filters used in anaesthetic devices [12, 13]. The Dräger Company in Lübeck equipped the “narcylene” anaesthetic apparatus of Gauss-Wieland with a coal filter system which also eliminated the unpleasant pungent odour [personal communication J. Haupt, Dräger] [13]. The obstetrician Carl Joseph Gauss (1875–1957) and his surgical colleague Max Tiegel (1877–1952) were very enthusiastic about the improved working conditions inside the operating theatre [14, 15]. Simultaneously, Tiegel himself developed an anaesthetic apparatus for heated ether to improve the anaesthetic properties of this agent [16]. To reduce possible explosive hazards he also integrated charcoal filters into the apparatus [16].

Because of unknown electrostatic phenomena and the reckless use of cautery during operations, several explosions occurred while “narcylene” was being used as an anaesthetic [1, 5]. After that, all “narcylene” machines were temporarily withdrawn in Germany to be checked by the “Chemisch-Technische Reichsanstalt” in Berlin [5, 17]. The probable causes of the explosions were very enthusiastic about the improved working conditions inside the operating theatre [14, 15]. Simultaneously, Tiegel himself developed an anaesthetic apparatus for heated ether to improve the anaesthetic properties of this agent [16]. To reduce possible explosive hazards he also integrated charcoal filters into the apparatus [16].

Despite some technical modifications and additional safety precautions, several more explosions occurred [18–22]. That is why the use of “narcylene” has never become very popular. Nevertheless, these disasters prompted an intensive effort to eliminate anaesthesia-related fire hazards thus improving safety.

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A subtle cause of circle system failure

Sir,—We wish to report a case of failure of a circle system resulting in rebreathing of carbon dioxide, the cause of which was not immediately apparent.

A 24-yr-old, ASA I male was scheduled to undergo diagnostic knee arthroscopy. After induction of anaesthesia he was transferred to the operating theatre. Anaesthesia was maintained with the patient breathing spontaneously 1–2 % isoflurane and 66 % nitrous oxide in oxygen, administered via a circle absorber system (Ohmeda Series 5A Absorber).

Shortly after commencing surgery, the capnograph (Ohmeda 5200 carbon dioxide monitor) indicated an inspired carbon dioxide tension of 1.2 kPa. A visual check confirmed the integrity of the breathing system, including satisfactory movement of the unidirectional valves in the absorber head. The absent absorber switch was in the “on” position. Although the soda lime did not appear to be exhausted it was renewed and the capnograph recalibrated. Despite this, the capnograph still indicated an inspired carbon dioxide tension of 1.2 kPa and moderate hypercapnia. It was concluded that there must be rebreathing from the expiratory limb of the circle system.

A closer inspection of the non-return expiratory valve disc revealed that although the valve was moving with each breath, it failed to completely occlude the orifice for gas flow into the

Figure 1
Expiratory valve assembly showing lateral movement of the disc on the valve seating.
was submitted to the
that my article on techniques of orbital regional anaesthesia [1]
Sir,—In reply to Dr Xifaras’ interesting letter, I should explain
under discussion.
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practical points, but contend that the main message of the editorial, that fuzzy logic is a new way of thinking about clinical data, still stands. We note the wide application of fuzzy logic; a quick scan of today’s newspaper showed several leading electronic devices using fuzzy logic, including washing machines, video cameras and microwave ovens.

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