distinct from the site of surgery, it was presumably related to the insertion of the intercostal catheter. One of the benefits of this analgesic technique is that it circumvents the problem of low-dose heparin administration before operation, which for many anaesthetists contraindicates the extradural approach. The significance of this patient's anticoagulation after operation is uncertain, but may have been a factor in prolonging the bleeding even though the coagulation profile was almost normal at the time of insertion of the catheter. We do not feel that minor degrees of anticoagulation contraindicate this technique, but clearly there is the potential for bleeding should vascular damage occur.

The technique of insertion of the needle and catheter as described above may bring them in close proximity to the intercostal vessels, and it may be possible to damage these structures with the needle or the catheter. As the drug is injected to the extra-pleural space and spreads along this plane (Nunn and Slavin, 1980) an alternative approach may be to insert the catheter above the rib instead of below, again tracking around the rib as described above, and we are evaluating this approach at the present time.

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REFERENCES

Sir,—I am glad of this opportunity to reply to Professor Baxter and his colleagues who have used the technique of continuous intercostal nerve blockade for analgesia both during and after operation. I look forward to their forthcoming paper on the subject. I note that they too experienced a “give” on insertion of the Tuohy needle, which I attributed to piercing of the posterior intercostal membrane, but which they attribute to pleural puncture. I, too, was initially concerned that the “give” might signify puncture of the pleura, but since analgesia proved to be adequate in these patients after cholecystectomy, I considered that this must not be the case. Furthermore, in a subsequent study in cadavers (Murphy, 1984) wherein I studied the extent of spread of dye using this technique, the “give” was not accompanied by pleural perforation. There is, however, an interesting point of difference between our two techniques: in the technique described by O’Kelly and Garry (1981) the Tuohy needle was inserted at the angle of the rib, whereas Professor Baxter used the mid-axillary line. Referring to Nunn and Slavin’s anatomical study (1983) it would seem that “The posterior injection site is close to the angle of the rib where the internal intercostal muscle is replaced by the posterior intercostal membrane. This membrane is clearly shown in the posterior but not the lateral sections.” It may well be that a “give” in the mid-axillary line does indeed indicate pleural puncture, but that a “give” at the angle of the rib indicates posterior intercostal membrane puncture.

With regard to the direction of insertion of the Tuohy needle, I too now angle the needle so that it pierces the posterior intercostal membrane somewhat obliquely (30–40° medially) since the extradural catheter threads more easily using this modification.

A massive haematoma following intercostal nerve blockade, such as the one described, must be very unusual. I hope not to experience such a phenomenon.

D. F. MURPHY
Dublin

REFERENCES

Sir,—We were interested in Dr Murphy’s (1983) experience of the satisfactory use of continuous intercostal nerve blockade following cholecystectomy.

We have assessed the effect of a smaller volume (15 ml) of bupivacaine with 1:200000 adrenaline injected via an extradural catheter inserted through a Tuohy needle into the 8th intercostal space in 10 patients undergoing cholecystectomy through a subcostal incision. Pain was measured by a 0–10 cm linear analogue scale. Venous blood was withdrawn from five patients at intervals following injection to determine the bupivacaine concentration in plasma.

Our findings suggest that this method provides satisfactory pain relief (mean pain score 2.4 ± 0.4). Venous plasma concentrations of bupivacaine were well below the toxic range (fig. 1). The mean duration of blockade was 247 ± 52 min. No adverse effects were encountered. Radiological and clinical examination for pneumothorax was negative in all cases.

In the light of this encouraging experience, we are investigating further the potential of this technique for pain relief following cholecystectomy and, in particular, to determine the effect on the frequency of pulmonary complications after operation.

N. S. MORTON
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REFERENCES

Sir,—I was glad to read of Dr Morton’s and Mr Cuschieri’s experience using this technique. In particular, I was encouraged to see such low plasma bupivacaine concentrations after the injection, since it lends further credence to the safety of the technique.

D. F. MURPHY
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CHLORMETHIAZOLE INFUSION IN ELDERLY PATIENTS UNDERGOING SPINAL ANAESTHESIA

Sir,—The usefulness of clormethiazole edisylate (Heminevrin) administered by fast-loading infusions to achieve light sleep before the institution of extradural blockade for surgery has been
CORRESPONDENCE

1.51

667

Time (min)

50

60

Fig. 1. Venous plasma concentrations of bupivacaine following extradural injection of bupivacaine 15 ml with adrenaline 1:200,000.

reported by Schweitzer (1978) and Marley and Ward (1980). We would like to report on experiences with a slow-loading infusion of clonothiazole when used for similar purposes in elderly patients.

Forty elderly patients (mean age 70 yr (SD 8 yr)) were premedicated with oral diazepam 10 mg, 2 h before urological procedures under spinal analgesia to T10, achieved with 0.5% heavy cincocaine hydrochloride. Clonothiazole edisylate 0.8% was administered by a loading infusion of 5 ml min⁻¹ to achieve a state of sedation whereby patients appeared to be asleep, yet were easily awakened to obey commands. This required a mean time of 18 (SD 7) min and was easily performed with a 100-ml burette and a side connection to an i.v. cannula. The infusion rate was then adjusted to 2.0 (SD 1.2) ml min⁻¹ to maintain the same clinical state of sedation.

Complete intraoperative amnesia was achieved in all patients without retrograde amnesia. Although the clinical sedation appeared an ideal accompaniment for neural blockade, side-effects, principally restlessness (10%) and sneezing (60%), were observed.

From the published reports, it would seem that these side-effects can be overcome by increasing the loading infusion rate (Marley and Ward, 1980) or by using the clonothiazole as a component of total i.v. infusion (Kristoffersen et al., 1982; Christensen, Andreasen and Kristoffersen, 1983). The latter, however, would mean a loss of the two principal advantages of clonothiazole,—the ability to maintain verbal contact with the patient undergoing regional anaesthesia, and the presence of brisk reflexes and airway maintenance. We have found it preferable to use a controlled regimen to produce a sedative accompaniment to neural blockade and to induce general anaesthesia only when the side-effects affected surgery. This was required in 10% of the patients included in this study.

Mean blood concentration of clonothiazole (edisylate) obtained 30–45 min after the commencement of the infusion and at the desired clinical state of sedation was 4 (SD 1.6) mg litre⁻¹. This was considerably less than that measured at the same clinical state in younger patients (8.3 (SD 2.9) mg litre⁻¹) (Seow, Mather and Cousins, 1984). This observation, coupled with the reported decreased clearance of clonothiazole in the elderly (Nation et al., 1976), suggests that dose requirements of clonothiazole in elderly patients should be regulated by careful titration of response.

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REFERENCES


**ACCIDENTAL DURAL PUNCTURE**

Sir,—We read with interest the recent article “Accidental dural puncture: immediate or delayed blood patch” (Christensen and Lund, 1983). However, we disagree with their conclusion that it is safe to inject local anaesthetics into the extradural space following an immediate extradural blood patch (EBP). The failure of EBP to prevent post-lumbar-puncture cephalgia indicates persistence of the fistula between the subarachnoid and extradural spaces. The failure rate of an immediate EBP is too high (71%) (Loeser et al., 1978). Moreover, the recurrence of the communication between the two spaces can occur after an initial closure of the dural rent; and this recurrence, which occurs only during 48 h, is highest in the first 24 h (Abouleish et al., 1975). Thus, following an immediate EBP, the extradural injection of a local anaesthetic carries a real danger, as illustrated by the following case report.

At 2 pm, September 26 1982, a 24-year-old full-term primigravida presented at the labour suite with ruptured membranes. At 4 am, the following morning, an attempted extradural block at the L3–4 space resulted in an inadvertent dural puncture. An immediate EBP was administered to prevent post-lumbar-puncture cephalgia. An extradural catheter was then placed at the L4–5 space. At 4.30 am, a test-dose of 1.5% lignocaine 3 ml with 1:200 000 adrenaline was injected, followed by 0.125% bupivacaine 8 ml. Subsequent extradural injections were 0.25% bupivacaine 10 ml at 7.57 am, 0.25% bupivacaine 5 ml at 10.52 am, and 0.25% bupivacaine 5 ml at 11.45 am. All injections produced satisfactory analgesia without any complication.

At 1 pm, the patient was taken to the delivery room for forceps delivery. A top-up dose of 3% chloroprocaine 10 ml (specific gravity 1.020) was administered slowly during close observation is safe after the delivery. In those cases conservative treatment with increased fluid, and nursing in the extradural space. Second, no neurological deficit followed. Thus, the safety of chloroprocaine (Abouleish, 1982) is reiterated.

**REFERENCES**


