(3) "Tender" should be "Tender on palpation" to distinguish it clearly from "painful".

It should always be remembered that most of these signs are time related and that, if an infusion is continued with some of these signs, more will develop. Also, the signs may not always be 100% reliable as erythema is not so obvious with dark skin and some patients have transient tenderness or a single tender spot from the time of cannula insertion. Therefore signs such as those listed are only a guide to the development of infusion phlebitis.

Finally, we would like to make a comment about statistics used in studies on phlebitis which have usually been less than optimal. The main problem is that the number of infusions decreases with time as a result of some infusions failing and others being stopped as they are no longer needed. An analogous situation occurs with cancer, where patients can die from cancer or be lost from the study (for various reasons, including death from other diseases) at any time. The "Life Table" method is appropriate for this situation and it has been used by Allcutt, Lort and McCollum (1983) in a trial of infusion phlebitis. A clear description of this method is given by Peto and colleagues (1977).

When the pathophysiology is more clearly understood, the adoption of an acceptable definition with clear cut diagnostic criteria would be of great benefit. This may be worthy of discussion at a suitable venue, for example at a World Congress of Anaesthesia.

G. B. H. Lewis
J. F. Hecker

REFERENCES

EXTRADURAL BLOOD PATCH
Sir,—The recent article "Extradural blood patch—why delay?" (Quaynor and Corbey, 1985) was most interesting. Immediate treatment of the headache that often follows dural puncture is to be commended. However, although in their 7 patients there were no complications associated with immediate blood patch, other workers have not been so fortunate (Abouleish et al., 1975; Abouleish and Bryant, 1984). It may be there is another solution. I report a patient in whom the headache disappeared following injection of local anaesthetic down the Tuohy needle (rather than extradural catheter).

A healthy 28-year-old full term primigravida requested extradural analgesia. A 16-gauge Tuohy needle was introduced at L3/4, using loss of resistance to air. Unfortunately, on removing the glass syringe, CSF was seen to drip from the needle. It was removed and re-inserted successfully at L2/3.

During this second insertion the patient began to complain of a pounding headache. Despite this disconcerting development, 0.5% bupivacaine 10 ml was given slowly down the Tuohy needle, and then 4 cm of catheter inserted. Ten minutes later, as the block began to take effect, the patient's headache started to fade. After a further 10 min it had gone completely. Unfortunately, she was now left with pain in her buttocks and left thigh. More bupivacaine was administered gradually and another 10 ml was needed to alleviate all her pain.

Two hours later a healthy infant was delivered by forceps. The maximum height of blockade as determined by ethyl chloride spray was to T4 on the right and T2 on the left. The patient was nursed flat for 24 h and then allowed up. She was discharged after 5 days with no recurrence of her headache.

The early onset of this patient's headache was rather atypical. Standard texts described the usual onset as the following day (Bromage, 1978). Even so, headache within 2 h is not uncommon (Rice and Dabbs, 1950; Abouleish and Bryant, 1984; Reynolds, 1984).

Extradural saline has been used to treat post-lumbar puncture headache with a success rate of 50–70% (Rice and Dabbs, 1950; Crawford, 1972) However, the saline was usually administered via a catheter, and blood patch is less successful via this route (Crawford, 1980). I injected through the needle to save time, but may have also inadvertently treated her headache. Therefore, those headaches that come on during the administration of a continuous extradural could be managed initially with saline or local anaesthetic down an extradural needle, and a blood patch used if this fails.

J. BARGROFT
London

REFERENCES

Sir,—Thank you very much for the opportunity to comment on this case report. Our first comment is that this provides further evidence that inadvertant dural puncture alone does not give sufficient grounds to abandon extradural anaesthesia.

The immediate onset of headache following dural puncture is unusual and in this case could possibly be related to the irritant effect of air that may have been injected to the cerebrospinal fluid. Whether or not the presence of local anaesthetic per se, in the extradural space is beneficial, other