Correspondence

The prediction of effect of lumbar epidural anesthesia

To the Editor:

Epidural anesthesia occasionally fails to provide adequate surgical analgesia. Evaluation of the effectiveness of epidural anesthesia is required at an early stage following the administration of local anesthetics. The increase in pulse amplitude from the toe has been utilized as an index of the degree of sympathetic block and may aid in the early detection of successful epidural block.¹ Single electric stimulation provides a more reliable predictor of the adequacy of sensory block.² We assessed the clinical efficacy (sensory block, motor block and sympathetic block) during the early stages of epidural block.

Eleven patients undergoing epidural block with 14 mL 2% lidocaine with 1:200000 epinephrine at L4–5 or L5–S1 were studied. Pain threshold after single electric stimulation was performed at L2 and S1. Motor block was evaluated by the Bromage scale. Sympathetic blockade was assessed by plethysmographic waveforms from the toe. Patients were divided into two groups based upon whether the pain threshold did (group A) or did not (group B) reach 60 mA within 20 min.

Demographic data was comparable between groups. The threshold significantly increased after ten minutes compared with zero minutes in each group ($P < 0.05$). The threshold of L2 region in group A was significantly higher than in group B at 15 and 20 min ($P < 0.01$) while the threshold of S1 region in group A was significantly higher than in group B at 20 min ($P < 0.05$). The amplitude of plethysmographic waveforms significantly increased after five minutes ($P < 0.05$) and the Bromage scale significantly increased at 20 min in group A ($P < 0.05$; Figure). These results might suggest that the significant increment of the amplitude of plethysmographic waveforms within five minutes is one of the predictive factors of successful lumbar epidural block.

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FIGURE A, Changes of pain threshold induced electric stimulation in L2 and S1 region. The threshold significantly increased after ten minutes compared with zero minutes in each group ($P < 0.05$; symbols were not shown). ** $P < 0.01$; compared with 15 and 20 min between L2 region of group A and L2 region of group B. # $P < 0.05$; compared with 20 min between S1 region of group A and S1 region of group B. B, Changes of amplitude of plethysmographic waveforms. There were no statistically significant differences between the two groups. \$ $P < 0.05$, compared with zero minutes in group A. C, Changes of Bromage scale. There were no statistically significant differences between the two groups. + $P < 0.05$, compared with zero minutes in group A. Values are mean $\pm$ SD.

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Favourable evolution of a deep humeral thrombophlebitis after paraffin oil injection

To the Editor:

To our knowledge, the effects of *iv* injection of paraffin oil had not been reported prior to our recent publication.¹ We wish to report on the long term follow-up of this unusual case.

A young man, age 18 yr, injected himself 2.5 mL of paraffin oil in the right humeral vein. Thrombophlebitis and thrombosis of the deep humeral vein ensued, treated initially with *iv* heparin, dexamethasone and antibiotics. Oral anticoagulant and anti-inflammatory treatment was pursued orally after discharge. The patient abandoned the treatment five months later. On follow-up 13 months after the event, clinical examination was essentially normal and a repeat phlebography showed a 50% reperfusion of the venous vasculature. (Figure).

Paraffin oil is irritating for the skin and mucous membranes. Its subcutaneous injection results in tissue necro-

sis and abscess formation.^{1–4} Ingestion and/or inhalation of the substance can lead to coma.^{4,5} Despite the *iv* injection of 2.5 mL of paraffin oil, no effects on the central nervous system were noted, possibly because the intense pain on injection limited the amount infused.

The subcutaneous injection of petroleum distillates produces vein thrombosis by contact.³ Direct *iv* injection resulted in more severe and extensive deep vein thrombosis. Despite therapy and partial recuperation of the venous circulation, thrombosis of the humeral vein was irreversible. Had the patient pursued treatment, venous reperfusion may have been more complete. However, functional recuperation was good.

We believe prompt and sustained treatment with anti-coagulants and anti-inflammatory drugs contributed to the favourable outcome observed in this case.

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FIGURE Phlebography 31 days and 13 months after the injection of paraffin oil in the right humeral vein: the deep humeral vein remained thrombosed. On follow-up at 13 months, the radial, inter-osseous and cubital veins were reperfed.

Lightwand intubation using the Trachlight: a brief review of current knowledge¹

To the Editor:

I enjoyed reading the review by Agrò *et al.* concerning intubation with the Trachlight™ lighted stylet.¹