

recent article<sup>7</sup> also confirmed the finding of a "notching defect... within the lumen along the tract of the spinal needle at the tip" of the epidural needle in the needle-through-needle technique. This "notching defect" is an accumulation of metallic micro particles detached from its surface, which can be pushed forward by the force exerted to insert the epidural catheter into the epidural space after withdrawing the spinal needle from the lumen of the epidural needle. Cascio and Heath used the Quincke type spinal needle which causes much more friction and metallic micro particles production than the pencil point spinal needles while introducing it through the bent epidural needle's tip. This combination is also not allowed by the FDA.

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#### REFERENCES

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- 2 Harding SA, Collis RE, Morgan BM. Meningitis after combined spinal-extradural anaesthesia in obstetrics. *Br J Anaesth* 1994; 73: 545-7.
- 3 Eldor J, Guedj P. Aseptic meningitis due to metallic particles in the needle-through-needle technique (Letter). *Reg Anesth* 1995; 20: 360.
- 4 Eldor J, Brodsky V. Danger of metallic particles in the spinal-epidural spaces using the needle-through-needle approach (Letter). *Acta Anaesthesiol Scand* 1991; 35: 461.
- 5 Eldor J. Metallic particles in the spinal-epidural needle technique (Letter). *Reg Anesth* 1994; 19: 219-20.
- 6 Carrie LE. Metallic fragments and the combined spinal-extradural technique (Letter). *Br J Anaesth* 1992; 69: 662-3.
- 7 Herman N, Molin J, Knape KG. No additional metal particle formation using the needle-through-needle combined epidural/spinal technique. *Acta Anaesthesiol Scand* 1996; 40: 227-31.

#### REPLY

Reviewing the patient's course in our case report<sup>1</sup> it is clear to see this is a case of bacterial meningitis and not aseptic meningitis. The diagnosis was made based on the appearance, cytology and chemistry of the CSF. The CSF was cloudy, had raised protein concentration, lowered glucose concentration. Cultures from the CSF were negative. Failure to isolate a bacterial pathogen does not disprove a bacterial aetiology because gram stain and cultures may be negative in up to 10% of cases of bacterial meningitis.<sup>2</sup> The CSF to serum glucose concentration ratio in our patient was 0.36. Briem found a CSF to serum glucose ratio of <0.4 to be specific for the diagnosis of bacterial meningitis.<sup>3</sup>

Harding et al.<sup>4</sup> reported two cases of meningitis following CSE techniques. The first case was an aseptic meningitis following a combined spinal-epidural technique for labor analgesia. We did not cite Dr. Eldor's comment<sup>5</sup> to the above case report in our report because (1) the report was not a study but a letter, (2) our patient had a clear-cut case of bacterial

meningitis and (3) most importantly, we do not believe that metallic microparticles induce aseptic meningitis. There is no evidence that such particles cause any problems if inserted into the epidural space, subarachnoid space or any bodily compartment. We have performed several thousand combined-techniques for labour analgesia using the needle through needle technique and this is the only case of meningitis of any type we have seen in our institution.

Dr. Eldor is incorrect when he states that the use of a Quincke needle for a needle-through-needle technique is not allowed by the FDA. There are several prepackaged commercial kits available for performing combined technique using the needle-through-needle technique in which the combination of an epidural needle and a Quincke Spinal needle are used. In order for those kits to be sold they must be approved by the FDA (personal communication- Becton Dickinson Co.).

The combined spinal-epidural using the needle-through-needle technique is a valuable tool for providing regional anesthesia. We should allow an unsubstantiated theory to remove this tool from our arsenal.

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- 1 Cascio M, Heath G. Meningitis following a combined spinal-epidural technique in a labouring term parturient. *Can J Anaesth* 1996; 43: 399-402.
- 2 Feigin RD, Shackelford PG. Value of repeat lumbar puncture in the differential diagnosis of meningitis. *N Engl J Med* 1976; 289: 571-4.
- 3 Briem H. Comparison between cerebrospinal fluid concentrations of glucose, total protein, chloride, lactate, and total amino acids for the differential diagnosis of patients with meningitis. *Scand J Infect Dis* 1983; 15: 277-84.
- 4 Harding SA, Collis RE, Morgan BM. Meningitis after combined spinal-extradural anaesthesia in obstetrics. *Br J Anaesth* 1994; 73: 545-7.
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#### Erratum

Boushra NN. Anaesthetic management of patients with sleep apnoea syndrome. *Can J Anaesth* 1996; 43: 599-616.

Please note the typographic errors as follows:

Page 610, right column, line 2: "≥45 cm H<sub>2</sub>O" should read "> -45 cm H<sub>2</sub>O". i.e.,

ry pressure of > -45 cm H<sub>2</sub>O and sustained head raising

Page 612, 2nd paragraph, line 2: "Microlaryngoscopy" should read "Midline glossectomy", i.e.,

the base of the tongue. Midline glossectomy and lin-