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Prolonged bleeding from epidural insertion site

To the Editor:

We wish to report the interesting case report of a patient who developed prolonged bleeding from the skin puncture site during continuous epidural anaesthesia for labour.

The patient is a 35-year-old Gravida II, Para I, who presented in labour with vital signs of BP 140/90, HR 80, temperature 36°C, urine analysis negative. She was in excellent health and was taking no medications. She requested an epidural for pain relief and a 16-gauge Tuohy epidural needle was inserted at the L₄₋₅ interspace after local infiltration and a skin puncture made with a 17-gauge needle. The epidural needle was inserted without difficulty and the catheter was placed without incident. Twelve ml of 0.25 per cent bupivacaine was injected in two doses of 3 + 9 ml. The epidural catheter was fixed with Opsite® and adhesive tape and the patient was comfortable. Prior to the next top-up dose (about one hour), the nurse noted that the patient was "soaked" in blood, the source of which appeared to be the epidural site. The estimated blood loss from this cause was about 200 ml. When the Opsite® was removed and the skin examined, to our surprise, there was a small artery bleeding, and bright red blood was spurting from the skin puncture site. Pressure was applied for ½ hour without effect, so we removed the catheter and placed a purse-string suture around the puncture site. A second epidural was established at L₃₋₄, uneventfully. No further bleeding occurred and no complications arose as a result of the incident. The patient subsequently underwent a Caesarean section. The suture was removed 48 hours later and no

further bleeding was seen. Perhaps an alternative could have been to leave in the first catheter and put a suture around it. Coagulation testing done subsequent to this event was found to be normal.

We have not encountered such a problem before and have not read of it in the literature. We wonder if anyone has been in a similar situation and what others would do. It is not uncommon to see some bleeding at the site of an epidural, but the bleeding is self-limited. This may warrant frequent inspection of the epidural insertion site.

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Epidural blood patch in treatment of chronic headache

To the Editor:

We read with interest the article by Parris¹ regarding the use of epidural blood patch in treating chronic headache which resembled post-dural puncture headache. We recently reported a case of spontaneous low-CSF pressure headache treated successfully with an epidural blood patch² and would like to add our experience in reviewing this condition.

The spontaneous onset of postural headache was first described by Schaltenbrand in 1938.³ He termed the syndrome "spontaneous aliquorrhoea," and proposed three possible mechanisms to explain its occurrence: (1) diminished CSF production, (2) increased CSF absorption and (3) CSF leakage.

Subsequent case reports suggest that leakage is the most likely cause. Nosik⁴ in 1955 was able to demonstrate leakage through a tear in the dural sleeve of a lumbar nerve root during myelography. Labadie in 1976,⁵ using lumbar isotope cisternography was unable to demonstrate an actual site of CSF leakage; however, the rapid disappearance of dye from the subarachnoid space and the rapid appearance of isotope in the bladder suggests that CSF leakage into the epidural space was occurring. Baker in 1983⁶ reported two cases, and one of these was successfully treated with an epidural blood patch. This was the only previous case of spontaneous low CSF pressure headache to our knowledge to have been treated with an epidural blood patch.

Lumbar puncture is usually required for the diagnosis of this condition, and it is unfortunate that this procedure may make the headache worse by increasing CSF leakage.

The vast majority of our medical colleagues have never heard of epidural blood patches for the treatment of low CSF pressure headache and are not aware of its potential value in treating this disabling condition, whether it be of a spontaneous onset, or following lumbar puncture.

We see the benefit of an epidural blood patch as being two-fold in these chronic patients: firstly, it may seal the CSF leak which caused the headache in the first instance; secondly, it will remove the iatrogenic component introduced by the performance of lumbar punctures.

Epidural blood patch is now considered to be a very safe procedure which will produce dramatic relief of low-CSF pressure headache in the majority of cases. The use of this procedure should be considered more often in patients with symptoms suggestive of low CSF pressure.

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REPLY

I would like to thank Drs. Gaukroger and Brownridge for their interesting comments and observations. I agree with most of their comments but I would like to recommend caution regarding their implied widespread use of epidural blood patch for treatment of chronic headache until more definitive research on the mechanism, aetiology and diagnosis of these headaches is

done. The diagnosis of low CSF pressure headache is difficult to make in the absence of a diagnostic lumbar puncture which may, itself, produce such a headache. Consequently, the diagnosis is usually a tentative one of exclusion after evaluating headache patients whose symptoms resemble patients with diagnosed low CSF pressure headache or post-dural puncture headache. It is in those selective patients with negative neurological and radiological studies that I would recommend consideration of an epidural blood patch.

Further, Drs. Gaukroger and Brownridge have correctly postulated that suggested mechanisms of low-CSF pressure headaches may be (1) diminished CSF production, (2) increased CSF absorption and (3) CSF leakage. However, I would like to question their implication that the mechanism of action of epidural blood patch in treating post-dural puncture or low-CSF pressure headache is "to seal the CSF leak which caused the headache in the first instance." Clinical experience indicates that the pain relief is immediate (five minutes or less) and even though the CSF leak is sealed by the blood introduced into the epidural space, the choroid plexus takes several hours to restore the CSF volume to its original state. Consequently, the mechanism of action of epidural blood patch is unclear at this time. One may have to examine newer biochemical hypotheses for a possible answer to the mechanism of action of epidural blood patch.

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Evaluation of the Humphrey A.D.E. system

To the Editor:

I read with interest the article by Artru and Katz.¹ The authors contribute clinically useful material regarding the safe use of the multipurpose A.D.E. system^{2,3} for both spontaneous and controlled ventilation, thereby answering some of the questions posed in an Editorial by Byrick and Rose.⁴ Quite clearly the A.D.E. system needed careful evaluation, especially as our original observation of its greater efficiency in its Mapleson A mode for spontaneous respiration over the definitive Magill (Mapleson A) system was surprising.² However, Dixon *et al.* confirmed our findings⁵ and we are further reassured to see that, yet again, our low values as to the mean fresh gas requirements of the A.D.E. system² have been independently confirmed by Artru and Katz.

I would like to emphasize two points of clinical value. Firstly that we have not observed any differences in the function of the dual lever system (studied by Artru and Katz) and the more recent simpler single lever version.^{2,3} Secondly the FGF of 51 ml · kg⁻¹ · min⁻¹ for spontaneous respiration reported by ourselves² was a mean value; by definition this flow will cause rebreathing in some