

# Tips from the Top

## Management of Accidental Dural Puncture and Subsequent Headache

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**W**hile the overall incidence of postdural puncture headache (PDPH) remains between 1 and 5 percent after neuraxial anesthesia,<sup>1</sup> the incidence approaches 80 percent when accidental dural puncture occurs with an epidural needle.<sup>2</sup> If a laboring woman experiences accidental dural puncture with an epidural needle, many anesthesiologists advocate giving a small spinal dose of medication (for example, 2.5 mg bupivacaine with 20 mcg fentanyl) through the epidural needle to achieve immediate comfort in the face of a complication. Some of this dose will escape with the outflow of cerebrospinal fluid through the dural puncture and thus be ineffective; however, enough of the medication should enter the subarachnoid space to provide at least initial analgesia.

At the time of dural puncture, there are then two options for providing continuing analgesia. The first and probably most common approach is to remove the epidural needle and replace it at a different interspace. One risk of this approach is causing a second dural puncture. Also, it may be technically difficult, which may have been a contributing factor for the initial dural puncture. With this strategy, all subsequent dosing must be done carefully since the spread of drug may be increased due to intrathecal passage through the dural tear.<sup>3</sup> One major advantage of replacing the epidural catheter is that it can be used postpartum for administration of a prophylactic epidural blood patch (EBP). Advocates of this approach believe that the prophylactic EBP is efficacious and spares the patient from experiencing a headache and the need to undergo a second procedure.<sup>4</sup> A recent study by Scavone, et al. showed that prophylactic EBP did not decrease the incidence of PDPH or the need for therapeutic EBP, but it did decrease the duration and severity of symptoms.<sup>5</sup>

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Some anesthesiologists still replace an epidural catheter after accidental dural puncture but do not feel that prophylactic EBP is indicated. They argue that pro-

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phylactic patches unnecessarily treat approximately 20 percent of women who will not develop PDPH, and that this exposes those patients to the risks of EBP, namely backache, radicular pain and infection.<sup>6</sup> Controversy remains regarding both the volume of blood needed for effective EBP and the timing of therapeutic EBP in relation to dural puncture, but discussion of these topics is beyond the scope of this review.<sup>7</sup> There are successful reports of the use of epidural saline and dextran<sup>8</sup> for prophylaxis and epidural dextran, colloid,<sup>9</sup> and fibrin glue<sup>10</sup> for PDPH treatment, but the standard treatment remains autologous blood.<sup>11</sup>

A second strategy at the time of accidental dural puncture is to place the catheter through the needle into the intrathecal space. The biggest disadvantage of this approach is the risk of inadvertently administering an epidural dose intrathecally. Advantages of a spinal catheter include the provision of rapid and predictable analgesia and anesthesia without risk of patchy blocks from an epidural evidence or local anesthetic toxicity from larger epidural doses.<sup>12</sup> There is some evidence that administering intrathecal normal saline after an accidental dural puncture has occurred may decrease the incidence of PDPH and the need for EBP.<sup>13</sup> There is also evidence that leaving an intrathecal catheter in place for 24 hours may reduce the incidence of PDPH. Ayad et al. found that only 6 percent of patients with intrathecal catheters for 24 hours had PDPH compared to 91 percent who had replacement of the epidural catheter.<sup>14</sup>

When patients refuse EBP or if the procedure is contraindicated by coagulopathy or sepsis, medications may play a role in the treatment of PDPH. Caffeine, a cerebral vasoconstrictor, has been used to treat PDPH with some success.<sup>15</sup> Sumatriptan, typically used for the treatment of migraine, has been reported to decrease PDPH symptoms as well.<sup>16</sup> And while there are case reports of adrenocorticotrophic hormone and its synthetic analogues being efficacious in the treatment of PDPH,<sup>17</sup> a recent randomized trial did not confirm its usefulness.<sup>18</sup>

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