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Spontaneous spinal hemorrhage complicating anticoagulant therapy

To the Editor:

We report a relatively rare but potentially devastating hemorrhagic consequence of anticoagulation therapy that can lead to spinal cord injury (SCI). The precise incidence of SCI from intraspinal hematoma is unknown, though it is clearly low.^{1–3} Spinal anesthesia is a risk factor for this complication.⁴

A 61-yr-old man was taking acenocoumarol 4 mg orally following an aortic valve replacement. The prothrombin time (PT) was maintained at 1.5 times the control value. Four years after the operation, he complained of severe neck pain, numbness and weakness of the legs and headache with sensory deficits and urinary retention. No trauma occurred in the days preceding his neurologic symptoms. Acenocoumarol therapy was discontinued, and 10 mg of vitamin K were administered intravenously. A C7–D4 subdural hematoma was revealed by magnetic resonance imaging (Figure). Anticoagulation was reversed immediately with 250 mL of fresh frozen plasma (FFP) and an emergency decompressive laminectomy performed to remove the D1–D3 subdural hematoma. Postoperative recovery was complete ten days later.

Unlike intracranial hemorrhage, which is usually subdural, intraspinal hemorrhage usually occurs in the epidural space. Intraspinal hematomas have been associated with the use of oral anticoagulant agents and heparin, antiplatelet therapy, trauma, straining, and

FIGURE The C7–D4 subdural hematoma revealed by magnetic resonance imaging.

lumbar puncture.^{2,3} Typically, the first complaint is of severe pain, often with a radicular component. Neurologic deficits follow intraspinal ruptures. Although they usually progress over several hours, they may develop in minutes or days and should be investigated immediately. There is no difference between spontaneous and anesthesia-related spinal hematomas.⁴

Suspicion of intraspinal bleeding establishes a crisis situation. The decisions made at the discovery of the first signs and symptoms will ultimately determine

outcome. Anticoagulant and antiplatelet drugs should be discontinued. Reversal of anticoagulation is readily accomplished by administering commercially available prothrombin complex containing concentrates of factors II, VII, IX, and X. Alternatively, FFP may be used. Phytomenadione should be given at the time plasma or prothrombin complex is infused because they have a short duration of action. Recent studies have indicated that very large volumes of FFP are required to correct the PT in urgent situations.⁵

Prompt radiological assessment is mandatory. Confirmation of the hematoma may be made by magnetic resonance imaging, computed tomography scans or myelography.¹ The presence of intraspinal bleeding dictates emergency decompressive laminectomy and evacuation of the hematoma to prevent or minimize permanent neurologic deficits caused by SCI. Spontaneous remission of an intraspinal hematoma has been reported only rarely.

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Lidocaine or fentanyl applied to the surgical wound during spinal surgery produces potent postoperative analgesia

To the Editor:

Epidural delivery of local anesthetics by an indwelling catheter after spine surgery has been used to reduce postoperative pain but efficacy is limited.¹ We tested the effect of fentanyl or lidocaine applied directly to the surgical site for postoperative analgesia. Thirty patients scheduled for spinal surgery (laminectomy, laminoplasty, foraminotomy, discectomy, posterolateral fusion) were randomly assigned to one of three groups. Group 1 ($n = 10$) received 50 μ g fentanyl intravenously during wound closure. Group 2 ($n = 10$) received 50 μ g fentanyl diluted with saline to a final volume of 10 mL sprinkled onto the exposed surface of the wound just before closure. Group 3 ($n = 10$) received topical lidocaine 1% 10 mL. Postoperatively, a diclofenac suppository was given when patients requested analgesia. Visual analogue pain scale (VAS) was measured by an examiner blinded to group assignment over the first 48 hr post-surgery (higher scores reflect a more severe pain). There were no statistical differences in the demographics of patients among groups. Overall, 48 hr VAS scores were significantly higher in Group 1 compared to other groups ($P < 0.01$; Figure left). All patients of Group 1 required postoperative analgesia, while three patients of Group 2 and five patients of Group 3 never requested postoperative analgesia. Postoperative consumption of diclofenac was significantly higher in Group 1 compared to other groups ($P < 0.01$; Figure right). Time to first request for analgesia was significantly shorter in Group 1 (190 min) compared with Group 2 (477 min) and Group 3 (520 min; $P < 0.05$, each). Postoperative blockade of peripheral nociceptive signals to the spinal cord by locally applied lidocaine or fentanyl to the wound would have blocked postoperative pain-exaggeration mechanisms.² We believe that this simple and inexpensive technique can be applied for postoperative pain control in most surgery cases to improve postoperative analgesia.

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