Correspondence

Intermittent fluid drip suggests misplacement of central venous catheter into the interpleural space

To the Editor:

A 26-year-old patient was transferred to the intensive care unit for elective ventilation after an emergency exploratory laparotomy. For an anticipated long-term fluid administration and central venous pressure monitoring, a central venous line was inserted through a right subclavian approach, after obtaining back flow of blood. At this time an unusual phenomenon was noted: intermittent flow of fluid into the drip chamber. A closer look revealed free flow during the expiratory phase and no flow during the inspiratory phase of the ventilator. With this correlation of flow to mechanical ventilation, interpleural migration of the catheter was suspected. Further, blood could not be aspirated from the catheter and a pleural tap yielded fluid similar to the one being infused (polygelatin). X-ray of the chest confirmed interpleural placement of the catheter tip.

Migration of the catheter into the interpleural space is a known complication of central venous catheterization by the subclavian approach.¹ Failure to recognize misplacement can lead to infusion of a large volume of fluid into the interpleural space, a complication which was avoided by observation of the unusual pattern of flow. This "intermittent flow" of fluid could be due to high positive interpleural pressures (higher than the hydrostatic pressure of the column of fluid in the infusion line) generated by the ventilator during inspiration and preventing flow, while reduced pressures during the expiratory phase allow free flow of fluid into the pleural space. Pressure recordings using a pressure transducer have been described to identify accidental pleural placement of the catheter² but facilities for this may not be immediately available in all clinical settings. Chest x-ray with dye injection through the catheter, computed tomography and magnetic resonance imaging can also confirm catheter tip position but may require moving the patient and access to sophisticated equipment. As observation of this 'drip sign' depends on the hydrostatic pressure of fluid relative to pleural pressure, it may not be present in all cases. However, the authors stress that observation of intermittent flow in relation to cycling of the

ventilator after insertion of a central venous catheter should alert clinicians to possible interpleural placement of the catheter tip.

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References

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High epidural block with chloroprocaine in a parturient with low pseudocholinesterase activity

To the Editor:

We report the case of a 29-yr-old woman who required an emergent Cesarean section for fetal bradycardia. Labor analgesia had been provided uneventfully with the infusion of a mixture of bupivacaine 0.04% and fentanyl 1.66 µg·ml⁻¹ in saline (15 ml·hr⁻¹ for seven hours). For the Cesarean section, 15 ml of 3% 2-chloroprocaine were injected via the epidural catheter and, 20 min later, an additional 12 ml of 2% lidocaine were injected in small increments. Thirty minutes later, the patient complained of shortness of breath and, within five minutes, she was unresponsive to command. Succinylcholine was administered to facilitate endotracheal intubation. The first twitch response could be elicited one hour and 45 min later. The patient was extubated three hours and 45 min after the administration of succinylcholine. After delivery, plasma cholinesterase activity was low (1.3 units·ml⁻¹; normal 2.8-11) with an abnormal dibucaine number (70; normal 77-83). Seven weeks later, pseudocholinesterase activity had returned to normal (4.2 units·ml⁻¹ with a dibucaine number of 84).

The prolonged neuromuscular blockade and, in our view, the high epidural were secondary to decreased pseudocholinesterase activity. Lidocaine was injected to prevent the appearance of surgical pain as chloroprocaine has a short half-life. We believe this