



Learning from Others:

Anesthesia
Quality Institute
ANESTHESIA INCIDENT
REPORTING SYSTEM (AIRS)

A Case Report from the Anesthesia Incident Reporting System

Detailed review of unusual cases is a cornerstone of anesthesiology education. Each month, the AQI-AIRS Steering Committee will abstract a case and provide a detailed discussion based on a submission to the national Anesthesia Incident Reporting System. Feedback regarding this item can be sent by email to r.dutton@asahq.org.

Case 2011-1 – Hypotension After Spine Surgery

A 35 year-old woman receives general anesthesia for lumbar laminectomy in the prone position. The case is uneventful until surgical closure, when the blood pressure drops to 70/42 mmHg, the heart rate increases to 110/min, end-tidal CO₂ declines from 33 to 28 cmH₂O, and bispectral index decreases from 50 to 28. The events occur shortly after completion of vancomycin infusion. Vital signs normalize with a fluid bolus, Trendelenberg positioning, and a single 40 mcg dose of phenylephrine. The surgery is completed and the patient is awakened and extubated uneventfully.

In the PACU, the patient complains of pain at the surgical site and inability to move her left foot. Normal pulses are present in the right lower extremity, but absent in the left foot and groin. Sensation is intact in both extremities. Blood pressure falls to 95/66 mmHg, with increase in HR to 110/min.

Discussion

The differential diagnosis of the original intraoperative hypotension includes both serious conditions and transient events:

- Relative anesthetic overdose (decreasing surgical stimulation)
- Parasympathetic overload (a “vagal” episode)
- Hypovolemia: dehydration or hemorrhage
- Tension pneumothorax
- Venous air embolus
- Drug reaction (vancomycin).

Further observation is required because diagnosis may be obscured by supportive care; fluid and vasopressor therapy will improve hypotension but may not correct its underlying cause. In this case, the team maintains an appropriate level of clinical suspicion and the patient is closely observed in the PACU. The differential diagnosis evolves as more symptoms develop, eventually leading to a single unifying explanation.

The patient’s complaint of pain makes relative anesthesia overdose and parasympathetic stimulation less likely, while the timing and pattern of complaints eliminates a vancomycin effect. Venous air embolus is unlikely once the surgical wound is closed. Pneumothorax remains possible, but does not explain the isolated lack of pulses. Recurrent hypotension is consistent with ongoing occult hemorrhage – a possibility during and after spine surgery – and an expanding hematoma could explain the loss of pulses.

Reaction to rapidly changing clinical circumstances is one of the most important skills of the anesthesiologist, but must be guided by imagination (What could possibly cause this?), experience (What has caused this in the past?) and paranoia (What’s the worst thing that could be causing this?) In the case of ongoing postoperative hemorrhage, a rapid response may be needed to forestall an unfavorable outcome. Recommended actions at this point include:

- Immediate communication with the surgeon
- Notification of the O.R. for a potential urgent return
- STAT laboratory assessment (hemoglobin, clotting function)
- Ultrasound assessment of the abdomen (if available)
- Preparation for transfusion (increased venous access, ordering blood products).

Clinical Follow-up

The patient became progressively hypotensive and obtunded, with distention of the left side of the abdomen. Ongoing hemorrhage was diagnosed. The patient was reintubated and a central line was placed while the O.R. was being readied. Red blood cell (RBC) transfusion was initiated and the patient was returned to the O.R. for exploratory laparotomy. A laceration of the left common iliac artery was discovered and repaired. The patient received 6 units of RBC and 2 units of plasma. Subsequent recovery was uneventful.

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