Central line placement complicated by intraoperative hemothorax

Brittany Brown MD, Michelle LeRiger MD, Greta Duncan-Wiebe MD

Department of Anesthesiology, University of Nebraska Medical Center, Omaha, NE 68198

Introduction
Hemothorax is a rare but potentially devastating complication associated with central venous access with an incidence of 0.2% and at least 8 fatalities reported in the literature. Immediate diagnosis and prompt collaborative treatment are necessary for effective resuscitation.

Case Presentation
- 2 yo, 10.5 kg female
- Recently diagnosed with NK cell acute lymphoblastic leukemia
- Pancytopenic, febrile with positive blood cultures and concern for typhlitis
- Presented for CT scan and placement of central venous access
- Induction, intubation and CT scan occurred without incident
- PICC line attempted but unsuccessful
- Patient transferred to OR for fluoroscopy guided subclavian line placement by pediatric surgical team
- During dilation, the patient became acutely hypotensive and hypoxic with a simultaneous decrease in end-tidal CO2

Intraoperative Record

Resuscitation Timeline

<table>
<thead>
<tr>
<th>Time (min)</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1444</td>
<td>End-tidal CO2 diminished and pulses were no longer palpable</td>
</tr>
<tr>
<td></td>
<td>Thoracic decompression with frank blood aspirated</td>
</tr>
<tr>
<td>1455</td>
<td>IV found to be non-functional and epinephrine given via ETT</td>
</tr>
<tr>
<td>1505</td>
<td>Return of spontaneous circulation and compressions discontinued</td>
</tr>
</tbody>
</table>

Keys to Anesthetic Management
- High index of suspicion for hemothorax or tension pneumothorax during placement of central venous access
- Utilization of endotracheal tube for pharmacologic support during emergency when intravenous access is compromised
- Massive Transfusion Protocol: our patient required 410 mL PRBCs, 218 mL platelets and 213 mL FFP demonstrating need for easily accessible and readily available blood products
- Effective and continuous communication with surgeons and OR staff during times of intraoperative emergencies

References