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Case No. 3 - Anoxic Encephalopathy in 3 year old with a Cardiac Arrest During Orthopedic Surgery under General Anesthesia for a Broken Elbow

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CASE NO 3

ANOXIC ENCEPHALOPATHY IN A 3 YEAR OLD WITH A
CARDIAC ARREST DURING ORTHOPEDIC SURGERY
UNDER GENERAL ANESTHESIA FOR A BROKEN ELBOW

Anita Smith, age 3, fell on August 22, 2000 and sustained a L supra-condylar fracture. She was taken to the hospital medical center where an open reduction with internal fixation was to be performed by attending orthopedic surgeon, Dr. Parker. The attending anesthesiologist assigned to the case was Dr. King.

The preanesthesia record documents a "responsive" child with no past history for medications, allergies or anesthetics, NSR, lungs clear to auscultation, weight 22 lbs., BP 94/62, R.R. 26, P 132, T 98.8.

The anesthesia record reflects that anesthetic agents were administered at 1830.

Intraoperative anesthesia notes are:

1. Induction with oxygen and nitrous oxide and sevoflurane by mask.
2. After induction, it is hard to ventilate - unable to ventilate.

LMA Number 2 inserted but still hard to ventilate. Atropine 0.4 g. I.M. on left shoulder and called for help. CPR started with 1 cc atropine -> regular rhythm on EKG.

The orthopedic attending note:

Difficulty with intubation and bradycardia. Code team called. Vascular surgery for IV access/cutdown - atropine administered by anesthesia/code team. Patient intubated - ventilated. Spontaneous EKG activity immediately restored. Pulse oximeter in the high 90's. Patient transferred to pediatric ICU for observation. Surgery canceled.

Intraoperative Nurse Report Note:

Medications: Atropine I.M. 1 cc 1840, 1845
Atropine IV 1850

Laryngeal mask airway was placed to patient by anesthesiologist. O₂ via ventilator administered.

Patient became increasingly difficult to ventilate.

Patient was bradycardic. Code was run at 1845.

Patient was intubated.

Vascular surgeon called to establish vascular access, established R&L foot.

Atropine 1 cc in X2 and 0.4 cc IV administered.

Patient was ventilated and VSs were WNL.

Code ended at 1857. BP 156/74, HR 102, O₂ SAT 100%

Anesthesia was induced without first placing EKG leads or a B.P. cuff. Dr. Parker was then asked to see if he could fix the child's IV. The pulse ox alarm did go off with numbers in the 70s. Dr. King told Dr. Parker the problem was with the machine. After Dr. King re-set the pulse ox alarm there was continued difficulty. Dr. Parker ran out to get help. There still was no IV in place. After another anesthesiologist (Dr. Morris) arrived, Dr. Morris was able to intubate and ventilate.

When Dr. King induced the anesthesia, the child kicked the pulse ox off. The nurse again placed the pulse ox. EKG had not yet been placed. The child had a face mask. It was hard to ventilate as the child's chest was "not moving up very well." An LMA was placed producing no chest movements which Dr. King

attributed to kinking. Dr. King removed the LMA, but the second LMA placement was again unsuccessful.

It was following the second unsuccessful attempt with the LMA that Dr. Morris arrived and intubation was achieved without any problem.

Dr. Morris on arrival in the O.R. called for intubation immediately as Dr. Morris observed the child was pale and cyanotic. A code was called prior to the intubation. Dr. Morris told the nurse to start chest compressions as there was no pulse. Once an IV was placed by the surgeon, IV atropine produced an immediate heart rate and the patient thereafter stabilized hemodynamically.

Anita, in the PICU was diagnosed as having severe anoxic encephalopathy, S/P. cardiorespiratory arrest.

TIME LINE

1830 Induction - Mask

1840 IM Atropine (LMA x2)

1845 IM Atropine → code → chest compressions → intubation

1850 IV Atropine

1857 End of Code