Anesthesia for Total Resection of Giant Cranial Oral Facial Teratoma in a Newborn

Author(s): Ingrid Fitz-James, Eric Villafane, Johanna Schwarzenberger

Affiliation(s): The Morgan Stanley’s Children’s’ Hospital of New York, Columbia University of New York

**Introduction:** Teratomas in the newborn present as midline tumors, which occur in the sacrococcygeal area (>50%), cranial (40%) and cervical area (5%). Early surgical resection is indicated to prevent malignant degeneration of these rare benign tumors. Antenatal diagnosis via MRI and ultrasonography may be incidental, or secondary to maternal polyhydramnios. Craniofacial and cervical teratomas may present with extensive involvement of the airway and require a staged multidisciplinary approach if deemed operable.

**Methods:** The lesion was diagnosed at 20 weeks gestation as giant facial mass with airway involvement by ultrasonography. Airway examination and tracheostomy took place at a planned ex-utero intrapartum treatment (EXIT) procedure, during a scheduled cesarean delivery at 37 weeks. To obtain intraoperative control of the blood supply, a pre-operative cerebral angiogram demonstrating patency of major venous sinuses and sub selective embolization of feeding vessels originating from the right external carotid artery was performed at 15 days of age. The possibility of thromboplastin release of devitalized brain tissue was anticipated thus coagulation parameters were closely followed preoperatively. Anesthesia consisted of sevoflurane through a Shiley 3.5 neonatal tracheostomy. When it was demonstrated that positive pressure ventilation was effective through the tracheostomy, vecuronium was used as paralytic and remifentanil infusion was added. Full noninvasive monitoring, central venous, arterial and peripheral venous access was obtained. Hourly acid base, hemoglobin, urine output and sponge count and 4 hourly assessment of bleeding parameters d-dimer, fibrinogen, INR, APTT was agreed upon by the transfusion and hematology service. Blood products were dispensed without insistence on laboratory results by the blood bank. Parameters for administration of recombinant activated factor VII were agreed upon.

**Results:** During a 19 hour procedure, a complete resection of the mass, equal in size to the face of the 3.4 kg 17 day old male was performed. Profuse bleeding occurred at the time of resection of the intracranial and intra-oral components without hemodynamic instability. Total transfusion requirements were 750 ml of washed packed red blood cells, 230 ml of fresh frozen plasma, 60 ml of hyper spun platelets, 20 ml of cryoprecipitate and 625 ml of lactated ringers. Preop hemoglobin was 12.7, post op 13.8, intraoperative nadir 5.3. Preop ABG PH 7.39,PCO2 41, PO2 46 , BE 3, HCO3 28 Postop ABG PH 7.30, PCO2 40, PO2 111, BE-6, HCO3 20

**Discussion:** Cranio-cervical teratomas with airway involvement have high associated mortality. Intrapartum utero placental circulation and maintenance of gas exchange while securing the airway, delineation of the mass, anticipation of massive blood loss, control of temperature and coagulation parameters are essential. Visualization of the patients through the use of clear drapes allowed uninterrupted surgical activity and complete continuous visual assessment of the patient.

**Refs:**
3. Hullett BJ et al Pediatric Anesthesia 2006