Case Report: Thermal injury from Argon Beam Coagulation (ABC) during separation of Omphalopagus conjoined twins – a case report

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Introduction: Surgical separation of conjoined twins requires significant coordination and planning amongst surgeons, anesthesiologists, nursing and support staff. There are over 170 cases reported in the literature and survival has improved significantly over the past two decades. Spitz and Kiely1 report their experience for elective separation of conjoined twins to be 80%. Reported complications from anesthetic and surgical management allow teams to anticipate and provide special attention to airway management, positioning, fluid resuscitation, and temperature.2, 3 Because of alterations in the operating room (OR) environment to accommodate equipment and personnel, the anesthesiologist must be vigilant to maintain safety standards. We report a case of thermal injury during the course of omphalopagus conjoined twin separation.

Methods: The operative plan, patient issues, and precipitating events leading to the thermal injury were reviewed. Careful evaluation prior to surgery demonstrated a shared abdominal wall, a shared liver with separate circulations and biliary systems. The patients each had electrocautery grounding pads placed on their backs, but had a single grounding pad in the middle of their back for the Argon Beam Coagulation (ABC). Once surgery was underway and the anterior dissection occurred, the ABC device was used to separate the liver and minimize blood loss. At the time of hepatic division, only a posterior bridge of skin remained. The intensity of the unipolar ABC device combined with the decreasing distributive surface provided a conductive energy accumulation and ultimately a burn in the residual bridging skin. Twin A (with less grounded area) experienced no problem. Twin B (with the most grounded area) experienced a full thickness skin burn to the lateral abdominal wall.

Results: Twin A returned to the intensive care unit (ICU) post-op without problem. Twin B also returned to the ICU after undergoing combined burn excision with primary closure of the abdomen by the plastic surgeon involved in the case. Both infants survived surgery without additional incident or sequelae. They were discharged home simultaneously and have continued to do well. Because the burned area was excised with the closure, no additional scarring was incurred.

Discussion: Conjoined twin surgery is a challenging and rewarding process for patients, families and health care teams. Because these surgeries are relatively rare, it is important for care givers to share their experiences. Our case represents a rare but important complication from electrocautery grounding in conjoined twin separation.

References: