CHEST WALL RECONSTRUCTION FOLLOWING THE SEPARATION OF THORACO-OMPHALOPAGUS CONJOINED TWINS WITH CADAVERIC RIB GRAFTS

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Keywords: thoracic surgery, plastic surgery, cadaveric bone graft

Background: The surgical management of congenital twins is immensely challenging, necessitating extensive collaboration across multiple medical specialties. Once separated, additional life-sustaining procedures are often indicated to maintain the form and function of vital organs. In the case of thoraco-omphalopagus conjoined twins, care must be taken to properly restore the physiologic and mechanical integrity of the chest wall. However, as autologous cartilage and bone are often limited in the pediatric population, alternatives must be considered. Herein, we detail the reports of a pair of thoraco-omphalopagus twins who both underwent successful chest wall reconstructions using cadaveric bone grafts.

Materials/Methods: Female twins, "A" and "B," presented at 4 years of age with anterior chest wall defects secondary to partial resection of their shared sternum during primary separation. Twin A presented with two titanium plates, one of which had broken since placement during separation. Twin B, who did not undergo titanium plating, presented with a tracheostomy received after separation. Twin A underwent removal of both plates in favor of two MatriGraft® (LifeNet Health, Virginia Beach, VA) cadaveric bone grafts. Twin B received three graft segments with an autologous omental flap providing soft tissue coverage.

Results: Prior to chest wall reconstruction, both twins' heart beats were visible from the skin. As a result of reconstructive efforts, both cases of sternal defects were resolved, and Twin B is now scheduled for tracheostomy decannulation. No postoperative wound complications were reported in either twin. A two week follow-up revealed well healing midline incisions.

Conclusions: This report demonstrates a unique application of cadaveric bone graft for secondary chest wall reconstruction in thoraco-omphalopagus conjoined twins. Reconstruction provided physical protection and support capable of strengthening mechanical function necessary for improved respiration.

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