Double Jeopardy in a Neonate: Acute Limb Ischemia Following Damus–Kaye–Stansel Procedure

Background

Complex congenital heart defects such as double outlet right ventricle (DORV) with aortic arch interruption require early surgical correction to maintain systemic and pulmonary circulation. The Damus–Kaye–Stansel (DKS) procedure, often combined with arch repair and systemic-to-pulmonary shunt creation, carries significant postoperative risks. While hemodynamic instability is common, acute limb ischemia is a rare but potentially limb-threatening complication in neonates.

Materials and Methods

A 1-month-old male with DORV, subpulmonic ventricular septal defect, malposed great arteries, and interrupted aortic arch (Celoria–Patton Type A) underwent DKS procedure, aortic arch repair, PDA ligation, modified Blalock–Thomas–Taussig shunt, and atrial septectomy.

Results

Immediately postoperatively, the right lower extremity was pale, cool, and pulseless with absent Doppler signals. Contributory factors included intraoperative cardiac arrest, high-dose inotropes, low cardiac output state, and arterial/venous lines in the affected limb. Management involved urgent anticoagulation with unfractionated heparin, removal of invasive lines, and gradual weaning of vasoactive agents. Wound care prioritized preservation of viable tissue, avoiding aggressive debridement. Serial vascular assessments demonstrated progressive return of distal perfusion, with restoration of triphasic Doppler flow.

Conclusions

Acute limb ischemia, though uncommon after complex neonatal cardiac surgery, warrants high clinical suspicion. Early recognition, prompt removal of precipitating factors, and anticoagulation can allow complete recovery without surgical intervention. Vigilant postoperative vascular monitoring and multidisciplinary coordination are essential to prevent irreversible limb injury