1547 An Alternative Approach to High-Risk Resternotomy

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Introduction: Resternotomies are associated with substantial perioperative morbidity and mortality. Strategies described in literature mostly involve peripheral cannulation pre-sternotomy. Disadvantages of this technique relate to prolonged systemic heparinisation and cardiopulmonary bypass (CPB) time and the sequelae of hypothermic circulatory arrest. We describe a two-stage approach that potentially reduces the complications associated with high-risk resternotomy.
Method: 3 high-risk patients (from pre-operative CT images) were referred for redo complex aortic surgery. A right mini-thoracotomy incision was first made in the 4th or 5th intercostal space. The right lung was isolated and careful blunt dissection was carried out to mobilise the heart and great vessels attached to the sternum. Once these structures were free, thoracotomy incision was closed. A standard median sternotomy was then performed and central cannulation carried out after systemic heparinisation. Rest of the surgery was performed routinely. In one patient, aortic aneurysm was heavily adherent and attempts to mobilise it fully proved impossible. Resultantly, systemic heparinisation was administered and the patient was cannulated in the right superficial femoral artery and right atrium (via mini-thoracotomy). CPB was instituted and the patient cooled to 28 °C. Right superior pulmonary vein vent was introduced to prevent left ventricular distension from hypothermic ventricular fibrillation. Once the heart and aneurysm were decompressed on full CPB, complete mobilisation was performed safely. All 3 patients survived surgery without major complications.
Conclusions: Meticulous preoperative planning is key to management of high-risk resternotomy. We describe a novel technique which we believe minimises risk of morbidity and mortality in these complex cases.