

Strategies For Management Of Massive Intraoperative Airway Haemorrhage Complicating Surgical Pulmonary Embolectomy

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Abstract : INTRODUCTION: Surgical pulmonary embolectomy is an established therapy for acute pulmonary embolism causing right heart dysfunction and haemodynamic instability. Massive intraoperative airway haemorrhage is a rare complication of pulmonary embolectomy. We present our institutional experience with massive airway haemorrhage complicating pulmonary embolectomy and discuss optimal therapeutic strategies. METHODS: A retrospective review of emergent surgical pulmonary embolectomy patients was undertaken. Cases complicated by massive intra-operative airway haemorrhage were identified. Intra- and peri-operative management strategies were analysed and discussed. RESULTS: Of 76 patients undergoing emergent or salvage pulmonary embolectomy, three cases (3.9%) of massive intraoperative airway haemorrhage were identified. Haemorrhage always began on weaning from cardiopulmonary bypass. Successful management strategies involved intraoperative isolation of the side of bleeding, occluding the affected airway with an endobronchial blocker, institution of veno-arterial (VA) extracorporeal membrane oxygenation (ECMO) and reversal of anticoagulation. Running the ECMO without heparinisation allows coagulation to occur. Airway haemorrhage was controlled within 24 hours of operation in all patients, allowing re-institution of dual lung ventilation and decannulation from ECMO. One case in which positive end-expiratory airway pressure was trialled initially was complicated by air embolism. Although airway haemorrhage was controlled successfully in all cases, all patients died in-hospital for reasons unrelated to the airway haemorrhage. CONCLUSION: Massive intraoperative airway haemorrhage during pulmonary embolectomy is a rare complication with potentially catastrophic outcomes. Re-perfusion alveolar and capillary injury is the likely aetiology. With a systematic approach to management, airway haemorrhage can be well controlled intra-operatively and often resolves within 24 hours. Stopping blood flow to the pulmonary arteries and support of oxygenation by the institution of VA ECMO is important. This management has been successful in our 3 cases.

Keywords : pulmonary embolectomy, cardiopulmonary bypass, cardiac surgery, pulmonary embolism

Conference Title : ICCCS 2021 : International Conference on Cardiology and Cardiac Surgery

Conference Location : Sydney, Australia

Conference Dates : December 02-03, 2021