

## World Cardiology Summit 2020: The Anesthetic Management of a Patient on VA ECMO Undergoing a Hemicolectomy

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### Introduction :

Veno-Arterial extracorporeal (VA ECMO) presents brief mechanical help to the affected person with cardiac and/or respiratory failure in instances of cardiogenic shock or coronary heart failure. VA ECMO genuinely decreases cardiac work and reduces oxygen consumption whilst presenting enough organ perfusion. ECMO is a bridge to recovery, left ventricular help machine (LVAD) implantation or eventual cardiac transplantation. ECMO requires non-stop systemic heparin anticoagulation in any other case thrombosis can take place in the oxygenator and circuit main to devastating issues together with embolism and death.

We current the case of a until now healthful forty four 12 months historic patient who suffered a ST elevation myocardial infarction (STEMI) tricky by means of left foremost coronary artery (LMCA) dissection and cardiogenic shock. This dissection was once special due to the fact it was once now not the end result of iatrogenic injury. Spontaneous coronary artery dissection (SCAD) is an rare motive of acute coronary syndrome that is accompanied with the aid of a excessive morbidity and mortality rate, and can require emergent placement on VA ECMO [4]. While on systemic anticoagulation, the affected person was once discovered to have a bleeding colonic adenocarcinoma which required pressing resection. An anesthetic sketch was once formulated which would preserve hemodynamic stability, whilst balancing giant fluid shifts in the perioperative period. Successful anesthetic administration of this complicated affected person facilitated an uneventful intraoperative course.

### Case Description :

A forty four year-old woman with no widespread previous scientific records or household records introduced with substernal chest ache and tachycardia with coronary heart charge of 110-120 beats per minute. An electrocardiogram (EKG) confirmed ST elevations in leads I, aVL, V2-V5. The affected person was once identified with an acute STEMI and underwent a cardiac catheterization at an backyard hospital. During the procedure, there was once situation advancing wire previous the left anterior descending (LAD) lesion. However, the blockage used to be sooner or later capable to be ballooned and a drug-eluting stent (DES) was once placed. The affected person skilled diminished blood strain (SBP 60's millimeters Hg), tachycardia (110 beats per minute), and decline in oxygen saturation to 80%. She grew to be unresponsive and used to be intubated. A great dissection took place to the ostial circumflex whilst intervention on the LAD used to be performed. A repeat angiography confirmed LMCA/ left circumflex artery dissection. The affected person due to this fact went into cardiogenic shock with systemic blood pressures in the 40's mmHg and grew to be unresponsive. Advanced cardiac existence aid (ACLS) was once initiated. She used to be intubated, and acquired intravenous epinephrine with an multiplied intellectual status. Given her low blood pressures, an intra-aortic balloon pump (IABP) was once positioned and a dopamine infusion was once started.

She used to be then emergently transferred to University health facility and positioned on VA ECMO. A bedside echo used to be big for left ventricular dilatation and dysfunction. Her ejection fraction used to be referred to to be 15%, with anterolateral wall akinesis. There used to be no ventricular septal defect and no valvular abnormalities. For her persisted hypotension, she was once positioned on a levophed infusion. Her lactate stage was once extended to eleven millimoles per liter. The affected person suffered substantial blood loss from her cardiac catheterization and bilateral groin catheter sites, and was once transfused for a hemoglobin of 7.1 grams per deciliter. She then developed loss of motor feature advert loss of temperature sensation in her decrease extremities bilaterally. A computed tomography angiogram (CTA) of her stomach was once bought to rule out a spinal wire infarction, however by the way confirmed a element of intussusception of the ascending colon involving the hepatic flexure and proximal transverse colon. A colonoscopy tested a in part obstructing bleeding mass in the ascending colon (Figure 1). Due to the improved hazard for bleeding throughout the hemicolectomy, her systemic anticoagulation used to be discontinued.

The affected person was once scheduled for an open proper hemicolectomy. On arrival to the working room, she used to be receiving 0.02 mcg/kg/ min norepinephrine, 0.03 mcg/kg/min epinephrine, and forty mcg/ kg/min propofol to keep blood stress of 106/70 mmHg. Her temperature was once 35.6 stages Celsius. Her get right of entry to consisted of a

multilumen get admission to catheter (9 French MAC) which used to be positioned in the left interior jugular vein. Activated Clotting Time (ACT) used to be 157 seconds at the starting of the case. She was once already intubated and her generic anesthesia proceeded with three mg midazolam and a hundred mg rocuronium for muscle relaxation. Maintenance of anesthesia used to be finished with isoflurane and propofol infusions with re-dosing of rocuronium and boluses of fentanyl as needed. No extra pressors had been commenced at some point of the case. Central venous stress and pulmonary artery strain have been measured consistently to display quantity status. Serial arterial blood gases have been received to decide fluid fame and want for blood transfusion. Intraoperatively, the affected person was once resuscitated with 1.3 liters of crystalloid, five hundred milliliters of colloid (5% albumin) and 1 unit of packed crimson blood cells to deal with a hemoglobin of 7.3 grams per deciliter. Her urine output used to be 900 milliliters for the case. Blood loss used to be estimated to be much less than a hundred milliliters with extremely good surgical hemostasis. The affected person remained intubated at the give up of the case. Her hemoglobin at the give up of the case was once decided to be 10.6 grams per deciliter. She used to be taken to the Cardiac Surgical Intensive Care unit intubated and in steady condition. She used to be efficiently weaned off ECMO on submit operative day (POD) four Nevertheless, her elaborate clinic path necessitated placement of a brief LVAD on POD 29 due to failure to wean off non-stop excessive dose inotropes and pressors. Two months postoperatively, she suffered a cardiac arrest and expired notwithstanding resuscitative attempts.

**Conclusion :**

With the growing range of sufferers requiring ECMO, greater sufferers on ECMO will require noncardiac surgery. Managing a affected person on ECMO requiring noncardiac surgical operation can be a hard task. This affected person populace is normally acutely ill, with an standard dismal prognosis. Nevertheless, noncardiac surgical treatment can be performed effectively if there is a higher perception of the outcomes the ECMO circuit has on the physiology of the physique and pharmacology of the anesthetics.