Anesthetic considerations and management for a patient with compression of the carina and bilateral mainstem bronchi

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A 73 year old male with newly diagnosed esophageal cancer presented to our hospital’s MICU with progressive shortness of breath, which worsened with recumbence. Computed tomography of the chest revealed a 4.5 x 5.4 x 7.4 cm esophageal mass impinging on the trachea, carina, and bilateral mainstem bronchi, with near complete obliteration of the proximal left mainstem bronchus. The MICU team requested that the patient be electively intubated for airway protection late in the evening. Given that the patient was not in respiratory extremis, the overnight anesthesia team deferred the request until a more comprehensive plan for surgical intervention in an operating room could be planned, with input from a cardiothoracic surgeon and anesthesiologist. The patient was taken to the operating room the next morning for elective tracheal Y stent placement. Major anesthetic concerns included whether general anesthesia and the change from negative to positive pressure ventilation would further increase the possibility of complete airway collapse, as well as the feasibility of rigid bronchoscopy for airway rescue given the extent of compression of both mainstem bronchi. After a detailed discussion among the three disciplines, a strategy was agreed upon to keep the patient spontaneously breathing under sedation, with insertion of two 5 French femoral sheaths for easy facilitation of vено-venous ECMO in the case of complete airway collapse. A perfusion team was available on standby. Sedation was achieved with propofol and fentanyl. The Y-stent was deployed via rigid bronchoscopy with confirmation by flexible bronchoscopy and x-ray. Subsequent imaging on the patient’s return to MICU showed poor aeration of the left lung, suggesting that the stent had migrated and was obstructing the left mainstem bronchus. Two days after the initial Y-stent deployment, the stent placement was revised, again, under sedation. This case highlights many of the intricacies inherent in a complex airway case and the impact of multidisciplinary planning and communication to ensure safe care of these patients.