The Role of Transesophageal Echocardiogram in Inferior Vena Cava Invasive Renal Cell Carcinoma

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We propose this case demonstrating the utility of intraoperative TEE in renal cell carcinoma involving the inferior vena cava. This is a case of a 67 year old male who initially presented with recurrent bronchitis and DVT who subsequently underwent chest CT demonstrating an upper pole left renal tumor sixteen centimeters in diameter noted to be invading the inferior vena cava to two centimeters above the diaphragm. Medical history to this point otherwise only significant for type II diabetes mellitus, hypertension, and hyperlipidemia. This patient presented for excision of left renal cell carcinoma, and subsequently underwent open surgical exploration.

On TEE following induction and intubation, the RCC tumor was measured to be three centimeters from the right atrium in a mid-esophageal bicaval view. Invasion was noted in the pancreatic tail and spleen that resulted in an alternate surgeon performing distal pancreatectomy & splenectomy. Following this, the left kidney was mobilized, and dissection made to the diaphragm. At this time vascular surgery was present for attempt to control the vena cava above the diaphragm. Cardiac Anesthesia was present for the case and monitoring with intraoperative TEE as the surgeon attempted to clamp the IVC above the extension of the tumor. At this time we observed on intraoperative TEE a portion of the tumor break off and embolize to the RV. The patient rapidly went into cardiac failure and internal chest compressions were begun by the vascular surgeon. Intraoperative TEE monitoring at this key portion of the case allowed for immediate diagnosis of cause for cardiac arrest and immediate mobilization of the cardiac surgery team for emergent cardiopulmonary bypass.