A 37-year-old male presented in the ER with left chest pain and RUQ cramping and pain. Patient was tachycardic with an irregular blood pressure. CT scan of the abdomen/pelvis region and a CT scan of the chest was performed revealing a large hypervascular mass within the right adrenal fossa measuring 7.4 X 5.8 X 7.4 cm. The hypervascular tumor invaded into the IVC and extended into the right atrium. The right atrial mass measured 6.0 X 4.8 X 5.1cm displacing but not obstructing the anterior coronary sinus. Additional studies were positive for pheochromocytoma.

The vascular surgeons began with a midline incision. They mobilized the tumor away from the kidney and the liver, which was engorged consistent with the patient’s significant IVC obstruction. Circumferential control of the IVC between the adrenal vein and hepatic veins, and between the adrenal vein and renal veins were obtained. A median sternotomy was performed and a pericardial well was made. The patient was systemically heparinized with 20,000 units of heparin. An 18Fr EOPA aortic cannula was placed in the ascending aorta. Followed by a 20Fr venous cannula in the SVC and a 17Fr percutaneous venous cannula was placed in the right common femoral vein. The patient was then put on bypass. Cannulation of both the SVC and IVC allowed manipulation of the IVC and the clamps to optimize drainage of the surgical sites as needed. This allowed for shorter and safer bypass run. The tumor stalk within the IVC was transected. Attention was then turned to the abdomen where the tumor was palpable within the IVC below the level of the hepatic veins. The inferior IVC was clamped proximal and distal to the tumor. Intrapерicardial control of the IVC was released, and the hepatic veins were then allowed to drain into the IVC at the diaphragm and into the RA. The IVC was opened and resected with the adrenal gland.

Once the vena cava was closed, clamps were released and the patient was weaned from cardiopulmonary bypass.

Pheochromocytoma is a rare tumor that comes mainly from adrenal gland chromaffin cells. These cells synthesize, metabolize, store and sometimes secrete catecholamines. Most are benign and curable, but prevalence of malignancy is estimated to occur at rates of 5-26%. There is currently no cure for malignant pheochromocytoma, therefore most treatments are palliative helping reduce tumor burden and prolong survival.

Without treatment, survival is less than 50%. Resection of a primary tumor can help reduce toxic circulating catecholamine exposure to the cardiovascular system and organs.

The RA mass and IVC tumor were successfully resected. A right adrenalectomy and right lower lobe resection were successfully performed. Fortunately the right kidney and liver were not invaded and were preserved. The patient remained hemodynamically stable throughout the procedure and was in stable condition when transported to ICU. The patient’s total length of stay was 12 days. A multidisciplinary approach to treating this patient led to an improved patient outcome. The perfusionist working with vascular and surgical surgeons and oncology were able to successfully give the patient an improved long term outlook and living standard.

References