A 50-year-old woman with a history of prior resection of an abdominal pheochromocytoma presented with hypercalcemia and hypertension. Several relatives had been previously diagnosed with pheochromocytoma. T2-weighted magnetic resonance imaging revealed a tumor in the interatrial groove (A). Tumor blush arising from the left circumflex coronary artery was visualized by coronary angiography (Online Video). On surgical resection, the tumor (2.4 × 2.4 cm) involved the left and right atria, extending to superior and inferior pulmonary veins and into the superior vena cava. The tumor was resected with adherent atrial walls. The patient underwent reconstruction of her atria, interatrial septum, and the superior vena cava using a double-patch technique with glutaraldehyzed pericardium. Surgical pathology was consistent with pheochromocytoma (B). Post-operative recovery was uneventful, with improvement in hypertension. Although the patient tested negative for the RET mutation, diagnosis of multiple endocrine neoplasia type 2A is considered a strong possibility.