A 61-year-old female presented at the emergency department with chest pain and shortness of breath. The initial electrocardiogram was negative for ischemia; however, cardiac enzyme levels were mildly elevated with an initial serum troponin I level of 1.15 ng/ml. The patient was admitted for non-ST-segment elevation myocardial infarction and begun on intravenous heparin infusion. Transthoracic echocardiography showed a left ventricular outflow tract mass (LVOT), with morphological characteristics suggestive of a myxoma (A and B). Coronary angiography demonstrated mild nonobstructive coronary atherosclerosis of the distal left anterior descending artery. Non-ST-segment elevation myocardial infarction secondary to embolization from the LVOT mass was suspected and the patient underwent LVOT mass resection. Intraoperative transesophageal echocardiography displayed a 2 × 1.5 cm mass arising from the basal interventricular septum and protruding into the LVOT. The pathology of the specimen revealed the mass to be a papillary fibroelastoma (C and D). The post-operative course was uneventful.