Coronary artery-left atrial appendage fistula: an unusual complication of Watchman Implantation

Background: Left atrial appendage occlusion (LAAO) with WATCHMAN™ device (WD) is an effective alternative to oral anticoagulation to reduce thromboembolic risk in patients with atrial fibrillation (AF) and increased bleeding risk. Although rare post WD vascular complications have known to occur, none have reported the involvement of coronary arteries.

Case History: A 74 years old male with past medical history of chronic AF, large left-sided subdural hematoma and successful closure of his left atrial appendage with a WD presents with worsening heart failure. Patient was referred for right and left heart catheterization. Coronary angiogram showed Left main and triple vessel coronary artery disease including distal left main, ostial LAD, and severe ostial to proximal RCA and PDA. It also revealed a possibly anomalous connection of the proximal left circumflex artery to left atrial appendage (Figure 1). Right heart catheterization suggested mild group 2 pulmonary hypertension and preserved cardiac output. The patient underwent coronary artery bypass graft times 4 and was eventually discharged home. The fistula was not repaired as it was not hemodynamically significant.

Discussion: Although there are case reports of rare post WD vascular complications such as delayed PA perforation, tamponade, and LAA-great cardiac vein fistula formation, no reports of coronary-LAA fistula have so far been documented. We hypothesize that pressure from the edge of the device onto the left circumflex artery led to gradual erosion and formation of the fistula. While this fistula was not hemodynamically significant, a potentially larger fistula or perforation of the left circumflex artery by similar mechanism could have resulted in serious complications such as heart failure or tamponade.

Figure 1: Screenshot from coronary angiogram (RAO Caudal view) showing persistent staining of Left atrial appendage after contrast injection