CORONARY AIR EMBOLISM AND ENDOCARDIAL DISSECTION AS UNUSUAL COMPLICATIONS OF DEVICE-BASED LEFT ATRIAL APPENDAGE CLOSURE: A WORD OF CAUTION

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Despite our 10-year experience with percutaneous closure of the left atrial appendage (LAA) (JACC 2005), we report 2 unusual life-threatening complications occurring in a 56 year-old man with paroxysmal refractory AF, left atrial enlargement, hypertrophic cardiomyopathy, previous TIA and hypertension. Because of high risk of stroke (CADS2 >4), he underwent LAA closure by AMPLATZER® Cardiac Plug (ACP). Real time video sequences of such complications were accurately recorded.

1) Massive coronary artery embolism. At beginning of the procedure, immediately after deployment of the distal lobe of the device within LAA, ST segment began to rise, firstly in leads II, III and aVF and then in leads V3-V6 indicating a global myocardial ischemia due to a massive distal coronary air embolization as shown by coronary arteriography. Forceful injections of intracoronary contrast medium resulted in immediate resolution of ST segment abnormalities.

2) Atrial dissection with fast-growing thrombus formation in LAA. After resolution of coronary air embolism and during ACP positioning, endocardial dissection with fast-growing thrombus formation occupying most of the LAA space, developed at the impact of the guiding catheter against LAA wall. Thrombus was immediately entrapped by ACP without residual shunt in the LAA, as confirmed by absence of para-device leak, by an appropriate separation between the lobe and the disc with a concave disc apposition. The patient was discharged the following day with a normal ECG and without neurological defects as additionally documented by CT scan. There were no adverse events at long-term follow-up.

Conclusions: At present, the therapeutic choice for device-based LAA closure is greatly limited by the lack of long-term safety and efficacy data. Our experience is unique, clinically important and poses special precaution given the fact that nonsurgical LAA closure strategy is going to be practiced worldwide at increasing rates particularly in the elderly. Therefore, highly specialized centers with well trained operators and staff, both very familiar with using such catheter devices, are required.