Objective(s): Duplex ultrasound (DU) is a viable alternative to computed tomography angiography (CTA) for follow-up in patients undergoing standard endovascular aneurysm repair (EVAR). However, the efficacy of DU as a follow-up modality in patients undergoing more complex reconstructions such as fenestrated EVAR (FEVAR) and chimney EVAR (ChEVAR) are not well known.

Methods: A total of 82 consecutive patients undergoing FEVAR and ChEVAR were retrospectively reviewed. Patients' follow-up regimen consisted of a postoperative DU at 1 month followed by CTA at 3 months. Data on aortic dimensions, presence of endoleaks, patency of renal and visceral stents, and postoperative complications were collected and analyzed.

Results: Of the 82 patients, 38 (46.3%) thoracoabdominal aneurysms, 41 (50.0%) juxtarenal aneurysms and 3 (3.7%) suprarenal aneurysms were evaluated. The mean age was 75.6 SD ±1.3 years, and
there were 54 (66.7%) males. The breakdown of procedures included 39 (47.6%) ChEVARs and 43 (52.4%) FEVARs, 10 (12.2%) of which were reinterventions after prior EVAR. The 30-day follow-up rate was 80.3%, of whom 53 (80.3%) patients received an initial duplex. 4 (7.6%) endoleaks without growth, 3 (5.7%) endoleaks with growth were discovered and subsequently intervened on; the other 46 (86.8%) scans were unremarkable. The 3-month follow-up rate was 59.2%, of whom 29 (64.4%) patients received a CTA. Of the patients who initially had an unremarkable 1-month DU, 9 (19.6%) were lost to follow-up; of the remaining 37 patients, 32 (86.5%) had unremarkable 3-month scans, while 2 (5.4%) new endoleaks without growth, 2 (5.4%) endoleaks with growth and 1 (2.7%) visceral branch occlusion were discovered. Sac regression at 3 months was observed in 47.4% of patients, for a mean reduction of 4.8mm. The 30-day mortality rate was 4.9%, and comprised 3 cases of bowel ischemia and 1 intraoperative stroke. There were no mortalities or aneurysm ruptures as a result of a missed finding on the 1-month duplex.

**Conclusions:**
Surveillance following complex endovascular repair requires the assessment of the aneurysm sac for growth, presence of endoleaks, and the evaluation of renovisceral stents. DU can identify these features and is a feasible imaging modality for follow-up of patients undergoing FEVAR and ChEVAR.

**Author Disclosure Block:**

**J. George:** None. **R.O. Tadros:** None. **C. Png:** None. **D.K. Han:** None. **O.E. Fakhoury:** None. **P.L. Faries:** None. **J.F. McKinsey:** None.