Objective(s): Surveillance following endovascular aneurysm repair (EVAR) requires identification of successful aneurysm exclusion. Computed tomography angiography (CTA) is the most commonly used modality for follow-up and can detect endoleaks and aneurysm growth following EVAR. Duplex ultrasound (DU) is also a viable, but less frequently used alternative and few studies have directly compared the two imaging modalities. In this study, we evaluate the efficacy of DU and CTA as imaging modalities for early follow-up of patients undergoing EVAR.

Methods: A total of 26 consecutive patients treated for infrarenal aneurysms with one-month DU follow-up were retrospectively reviewed and compared against a group of 26 randomly selected patients with one-month CTA follow-up. Patient demographics, imaging modality, aortic dimensions, and presence of endoleaks were collected and analyzed.

Results: The mean age in the duplex group was 74.9 SD±1.6 years compared to 74.2 SD±1.6 years in the CTA group (p = 0.76). The breakdown in sex was the same in each group: 19 (73.1%) male and 7 (26.9%) female. 6 (23.1%) patients in the DU group were reinterventions after prior EVAR, compared to 3 (11.5%) patients in the CTA group (p = 0.27). At one-month, endoleaks were identified in 2 (7.7%) patients in the DU group and 5 (19.2%) patients in the CTA group (p = 0.22). No reinterventions were necessary in either group. Three month follow-up rates were 84.6% in the duplex group, compared to 76.9% in the CTA group (p = 0.48). Of the patients with an initial unremarkable one month scan, 1 (5.0%) endoleak with growth was discovered in the DU group and subsequently intervened on, while 1 (6.7%) endoleak without growth was discovered in the CTA group (p = 0.35), and no intervention was necessary. There were no mortalities at 3 months in either group.

Conclusions: DU is a viable option for post-EVAR surveillance and can successfully detect the presence of an endoleak and aneurysm growth. A delayed CTA is still advisable within the first year and when clinically warranted.