

Poster #: 6

**Title of Abstract:** Utility of Iodine Extracted Images from Single Source Dual-Energy CTA to evaluate the Success of Endovascular Repair of Abdominal Aortic Aneurysm

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**Modality:** CT

**Organ System:** GI

**Intro:** ssDECT benefit vascular imaging but has introduced workflow challenge to process and interpret multiple dataset. Iodine Extracted images combine the unique features to efficiently yield pertinent information for EVAR exam.

**Purpose:** To investigate if the iodine-extracted (IE) images from DE-CTA can enable confident assessment of stent patency and endoleak following endovascular repair of abdominal aortic aneurysm (EVAR).

**Methods Used:** In this IRB approved prospective study, 51 consecutive patients with EVAR had follow-up CTA exam using ssDECT (GE discovery CT750 HD). The arterial (25-30 sec) and delayed phase (60 sec) DECT datasets were processed to create material density iodine extracted images (IE) and virtual monochromatic (VMC) images at 50 and 70 keV. Three-experienced radiologist independently evaluated only the IE images to assess stent patency and endoleak detection. The diagnostic evaluation based on combined unenhanced, multiphase enhanced and processed VMC images served as the reference standard for comparison of performance and interpretation time. Number of endoleak detected on IE images were compared to that detected on all other images.

**Results of Abstract:** All readers made their interpretations in 51 cases using IE except in 4 cases for R1 and 2 cases for R2, review of other image datasets was demanded but their interpretations remained unchanged. 15 endoleaks were confidently detected on IE images by all readers including those in 4 patients with Onyx embolization for type 2 endoleaks. Although arterial phase IE images detected all 15 leaks, in 3 patients delayed phase IE images were helpful. Average time spent per case was 5.34 minutes for IE images alone in comparison to 21.30 minutes for the entire processed DECT dataset.

**Discussion:** Review of ssDE-CTA rendered IE images alone can enable confident assessment of stent patency and endoleak detection in patients with EVAR.

**Scientific and/or Clinical Significance?** ssDECT benefit vascular imaging but has introduced workflow challenge to process and interpret multiple dataset. IE combine the unique features to efficiently yield pertinent information for EVAR exam.

**Relationship to existing work** A simplified approach for evaluation of post EVAR DE-CTA of abdomen for improving workflow changes introduced by dual energy CT

N/A