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Advanced Imaging tools (The Vessel ASSIST system from GE) can improve 3D imaging and Fusion and facilitate lower extremity/CAS procedures

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Disclosure slide

- I have the following potential conflicts of interest to report:
  - Consulting
  - Employment in industry
  - Stockholder of a healthcare company
  - Owner of a healthcare company
  - Other(s)

- I do not have any potential conflict of interest

MULTI-MODALITY ADVANCED IMAGING

**Hybrid Room: Discovery IGS 740 (GE Healthcare)**

SUCCESSFUL IN THE LOWER LIMB/CAS AREA

- Preoperative CT angiography
  - 120kV-51mAS acquisition
  - 80 ml dual bolus contrast, 5ml/sec
  - 1mm contiguous slice reconstruction

- Precise planning with Vessel ASSIST
- Accurate guiding during procedure with Vessel ASSIST

PRECISE, INTUITIVE PLANNING ON CTA WITH VESSEL ASSIST

- Automatic bone removal
- Automatic extraction of vascular anatomy & vessel centerline (Real Time tracking)

- In occlusion, bridge tool enables lumen tracking
- Smooth centerline editing/fine-tuning manually by rotating dataset around Centerline
- Guiding through occlusion

To increase technical success rates
To reduce complications
To reduce contrast/radiation
Accurate lesion length/diameter measurements for pre-op device length/diameter selections

Automatic calcification segmentation (helpful during overlay registration)
Adding markers/circles helpful for
- safe access
- avoiding geographical misses
- defining re-entry zones

Saving 3D volumes + virtual track + markers for perop fusion

Vessel ASSIST offers a Bi-view registration mode:
3D model registration with 2 simultaneous displayed, different angled (Accuracy Score), fluoroscopic images
2D-3D Registration at tableside by translating/rotating on correct landmarks (Calcium, bone, previous stents...)

Preop 3D prepared segmentations work synchronously with live intra-operative images
3D markers + vessel overlay to guide perfectly during access to SFA stump
ASSESS YOUR PROCEDURE

- Automatic volume rendering filters and 3D rotational angiography are added to confirm perfect stent/wall appositioning & conformability over 360°
- Final contrast & DAP interpretation/benchmarking with real time dosemapping
  - Total Dose Area Product (Gy·cm²) : 8.28 Gy·cm²
  - Median DAP in the literature for CAS (Gy·cm²) : 42 Gy·cm²
  - Automatic BREEZE mode helps judging your final result with mask acquisition before bolus
  - Final contrast & DAP interpretation/benchmarking with real time dosemapping
  - Total Dose Area Product (Gy·cm²) : 28.9 Gy·cm²
  - Median DAP in the literature for TASC C/D R/ (Gy·cm²) : 46 Gy·cm²

CONCLUSION

- Multimodality advanced imaging with Discovery IGS 740 & software programs like Vessel ASSIST is nowadays essential part of the endovascular armamentarium to treat complex peripheral arterial disease & carotid pathology
- A fully integrated workflow between planning & intra-operative guidance saves time, increases confidence & efficacy, decreases complications, radiation & contrast use