Lower extremity interventions and CAS can be improved and made easier by new better imaging

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Advanced imaging....

Complex lower extremity interventions

PRECISE, INTUITIVE PLANNING ON MR/CT WITH VESSEL ASSIST

- Automatic bone removal
- Vessel segmentation
- Bridge tool enables automatic lumen tracking in occlusion

Complex lower extremity interventions

PRECISE, INTUITIVE PLANNING ON MR/CT WITH VESSEL ASSIST

- Centerline track adjustable
- Accurate lesion length/diameter measurements preop
- Saving 3D volume + virtual track for fusion@procedure

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
Complex lower extremity interventions

START PROCEDURE

• Preop data fusion with live fluoro-images @table using bi-view registration (radiation)
• Dynamic registration compensates movements
• Digital zoom facilitates procedural handlings

GUIDANCE FOR CROSSING/TREATING THE LESION

• 2D/3D fused virtual centerline track guides operator through CTO
• Clear re-entry point view without extra contrast
• Fused virtual markers avoid geographical miss

FINAL FLOW JUDGING WITH BREEZE

• Mask acquisition before bolus
• Table speed control following the bolus
• Autopasted image

• 25 ml contrast media
• Dose Area Product : 36 Gy cm² (mean DAP = 48)

Majewska N et al. Eur J Vasc Endovasc Surg. 2011;41:372-77

Mainly thanks to hybrid room with 2D/3D fusion technology

PROCEDURE

• Technique improvement
• Operator experience
• Patient selection
• Lesion selection
• EPD improvements
• Scaffolding

With minimal contrast / radiation

ADVANCED IMAGING TOOLS

To perform your procedure
To control your procedure

PRECISE, INTUITIVE PLANNING ON MR/CT WITH DEDICATED VOLUME PROTOCOL

• Automatic bone removal
• Vessel segmentation
• “1 click” 3D-reconstruction

To perform your procedure
To control your procedure

START PROCEDURE

• Preop data fusion with live fluoro-images @table using bi-view registration (radiation)
• Dynamic registration compensates movements
• Digital zoom facilitates procedural handlings
Complex CAS interventions

GUIDANCE FOR CROSSING/TREATING THE LESION

• 2D/3D fused carotid image guides operator
• Before passing lesion: re-assessment of 2D/3D-model accuracy
• If necessary, finetuning with dynamic registration
• Gentle “no touch” crossing

Complex CAS interventions

GUIDANCE FOR CROSSING/TREATING THE LESION

• Full confidential stent deployment with fusion-guidance

Complex CAS interventions

FINAL RESULT JUDGING

• 5 cc contrast DSA check (stent + ICA patency)
• 3D cone beam CT (stent wallappositioning + conformability 360°)
• 15 ml contrast media
• Dose Area Product: 8.28 Gy cm²

Mainly thanks to hybrid room with 2D/3D fusion technology

*Majewska et al. Eur J Vasc Endovasc Surg 2011;41:3:372-77

Complex CAS interventions

Conclusion

• The (T)EVAR enthusiasm about advanced imaging can be transferred to complex peripheral arterial & carotid disease
• A fully integrated workflow between planning & intraoperative guidance saves time & increases confidence during complex interventions
• A Discovery IGS740 (GE Healthcare) with advanced imaging tools like Vessel Assist & 2D/3D fusion are key-factors in minimizing radiation dose & contrast media