CHIMNEY TEVAR TO TREAT AORTIC ARCH LESIONS: LONG TERM GOOD OUTCOMES & HOW TO ACHIEVE THEM

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DISCLOSURES

• Consultant / Physician proctoring & education for Cook Medical, WL Gore, Terumo-Bolton
• OFF LABEL use of commercially available devices

CHALLENGES OF THE AORTIC ARCH

• Significant M & M of open arch repairs
• High medical risk patients, urgent / emergent presentations, varied aortic pathologies
• Lack of branched / fenestrated aortic arch devices in USA
• Parallel / antegrade chimney options for arch branches with TEVAR to lower risk ?
• Limited experiences / small cohorts

➢ RETROSPECTIVE AUDIT OF UF experience (2002-15) + personal consecutive series (UF + USF)

TECHNICAL DETAILS

TEVAR placement with AAC retrograde positioning
Rapid ventricular pacing / R atrial balloon → adenosine
TEVAR deployment then AAC expansion and then kissing balloons

POOLED COHORT CHIMNEY / TEVAR

• 44 patients (30 male, 14 female) – prohibitive risk for open arch repair
• 48 % prior aortic tx
• 29 elective, 15 (34%) urgent / emergent

Aortic pathology
- diffuse TAA / TAAA
- chronic TBAD
- acute TBAD
- saccular arch lesion
- secondary TEVAR in arch

Prox TEVAR aortic landing zone
- 12 (27%)
- 20 (46%)
- 31 (71%)

Aortic Arch Branch Management

• L SUBCLAVIAN REVASCULARIZATION (L CCA to SCA bypass) + prox LSA endo → 80 %
• Unplanned arch chimney endoprostheses → 20 %
• 6 cases (14%) dual arch chimneys (innom + L CCA) VS. 38 (86%) single vessel chimneys

Arch chimney endoprostheses
OUTCOMES

• 30 day mortality = 4.5% (2 emergent cases)
• Spinal cord ischemia = 0%
• Stroke = 6.8% (3 cases with unplanned arch chimney, 3/9)
• Follow-up 1 – 40 months, mean 12 mo with CT / duplex imaging
• All arch chimneys patent at last f/u but 3 reinterventions for stent compression (self expanding endografts)
• No aortic ruptures, retrograde dissections, stent migrations, component separations
• 18% reintervention for chimney or aortic endograft / failure lesion exclusion
• 10 (23%) subsequent distal or proximal aortic repairs for additional pathology

OUTCOMES

6 Type 1A / gutter endoleaks (14%) (5 chronic TBAD)
1 open conversion 1 endo tx 4 observed – stable / regression
3 Late conversions (7%) (14 – 29 mo)
for type 1A / FL perfusion (2 pts chronic TBAD)

CONCLUSIONS

• Safe outcomes TEVAR + arch chimney + LSA revasc / exclusion
• Durable midterm patency of arch chimneys → 2-3 cm parallel to aortic device, balloon expandable endograft
• Less optimal outcomes for chronic TBAD – shorter arch fixation length, less parallel chimney, TEVAR compression in TL, more type 1A / gutter leaks, persistent FL perfusion – TAA growth – prox fixation destabilization?