The Least Invasive Approach for Endovascular Repair of Ascending Thoracic Aortic Aneurysm: Technique and the Results

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Disclosures
- On the speaker’s bureau for Endologix/TriVascular, Lombard, Edwards, Medtronic, BARD, Abbott
- Principal co-investigator for the PEVAR Trial
- Principal co-investigator for the LIFE Trial
- Principal co-investigator for MANTA Trial

Common Challenges with Endovascular Repair of Ascending Thoracic Aortic Aneurysm

- Anatomical complexities
  - Coronary, innominate, aortic valve proximity
  - Inner aortic curvature angulation
- Hemodynamic forces
- Respiratory motion
- Device issues
  - Not designed or approved for this indication
  - Large profile delivery systems (22 & 24 Fr)
  - Nose cone too long (requires LV placement)

Purpose
Describe the least invasive technique for endovascular repair of ascending thoracic aortic aneurysm.

Intervention
Due to high surgical risk, the endovascular repair of an ATAA was performed under local anesthesia, conscious sedation, percutaneous approach and RV pacing.
- Percutaneous access with 6 Fr sheaths in rt. and lt. CFAs
- 6 Fr sheath in the left CFV for temporary rapid RV pacing during endograft deployment
- ProGlide for lt. CFA
- Pre-close with Prostar for rt. FA access
- 22 Fr. sheath was placed in the rt. CFA

Patient #1 Clinical Presentation
- 79-year-old male referred for endovascular repair of a saccular ATAA discovered post cardiac arrest (V. Fib.) & ICD placement.
- Co-morbid conditions (Hx of SBE, MV repair, CHF, low LVEF)
- ECHO: 1+ AI, LV EF 28%
- CTA & aortogram showed large saccular ATAA

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4cm
Valiant stent graft (44 mm x 80 mm) was deployed over .035 Lunderquist wire. Aortic valve was crossed using .035 straight tip wire, 5 Fr JR4 catheter and then exchanged for .035 "Lunderquist wire positioned inside LV cavity (technique commonly used for TAVR).

Intervention

Completion angiogram revealed patency of coronary and innominate arteries and no endoleak or increase in AI. The post-procedural course was uncomplicated and the patient was discharged the following day.

Clinical Presentation Patient #2

- 54-year-old male, s/p surgical ATAA repair 5 days prior developed severe precordial CP while coughing. BP 80/60
- EKG: WNL
- Stat CTA reveals large peri-graft pseudoaneurysm

Patient #2 Intervention

Due to recent surgery the endovascular repair of ATAA was performed under local anesthesia, conscious sedation, percutaneous approach and RV pacing at 180 b/min. Uncomplicated post-procedural course and the patient was discharged the following day.

Pt. #2 CTA after one month follow up revealed no endoleak

The Least Invasive Technique for Endovascular Repair of Ascending Aortic Thoracic Aneurysm

To the best of our knowledge, we are reporting the first experience of endovascular repair of ATAA with local anesthesia, conscious sedation, percutaneous approach using RV pacing.

- In high risk well selected cases this technique offers simplified endograft placement and rapid recovery.
- Improvements in endograft design are needed for broader application of endovascular ATAA repair.
THANK YOU