Promises And Current Limitations Of Ascending Aortic Endograft Treatment

Ralf R. Kolvenbach
Conflict of Interest: None
Contraindications

Aortic Valve incompetence
Coronary artery disease requiring CABG
Congestive Heart failure NYHA III - IV
TEVAR Ascending Aorta

- Transoesophageal Ultrasound
- Intraoperative Coronary-angiography
- Inflow Occlusion
- Transvalvular Manipulations
Transvalvular Manipulation is essential

Illustrated techniques for transapical aortic valve implantation
Anson Cheung1, Kevin M. Lichtenstein2
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Ascending Aortic Pseudo Aneurysms

- Previous Ascending repair = ideal case

![Diagram of ascending aortic pseudo aneurysm with tubular landing zone](image)
True Ascending Aneurysms  The real Challenge
Technical Issues: Graft Kinking

Consider Transapical Approach

Illustrated techniques for transapical aortic valve implantation
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True Ascending Aneurysm
Optimal Length of the graft
Embolizing ascending aortic thrombus
Thrombus
Pseudo Aneurysm
Pseudo Aneurysm after CABG
TYPE A Dissection and PAU - ideal case
Type A Dissection: retrograde or Clamp related after CABG

Combination: Bare Metal + Medtronic Graft
Type A Dissection. Emergency Treatment - Bridging Procedure
Active Graft Fixation
Aptus Stapler
Supraaortic Approach for Stapler
Results

- Patients: 30
- Mortality: 2
- Stroke: 1
- MI: 1
- Type I Leak: 2
- Techn. Success: 28/30
- Mortality + MAE: 12.1%
- TAVI: 26.0%
- Aneurysms: 9
- Pau: 3
- Dissection: 5
- Thrombus: 3
- Patients: 30
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Endovascular management of ascending aortic pathology

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Background: Endovascular treatment of the ascending aorta is particularly challenging because of the anatomic features of this aortic segment. Only patients with extensive disease or those with severe aortic regurgitation or severe end-organ dysfunction can be considered for an endovascular procedure. We report our results in a series of patients with aneurysms or transection/bulbus, patent thoracic, or dissecting/bulbus who were scheduled for stent grafting.

Methods: Only patients with ascending aortic pathology who were entered to open surgery were treated with an endograft. When preoperative computed tomography imaging showed severe calcification of the aortic arch or descending aorta, temporary clamping of the celiac trunk before wire and catheter introduction was performed. An extracorporeal bypass from the right arm to the left femoral artery with a roller pump was established and maintained during the procedure. The endograft was placed across the aortic valve into the left femoral artery and deployed in a retrograde fashion. At the end of the procedure, transthoracic echocardiography and, if necessary, coronary angiography were performed in the operating room immediately after stent deployment in the left vertebral or the left subclavian artery.

Results: Twenty-five patients were scheduled for open graft surgery of ascending aortic pathology. In five cases because of discrepancy in length measurements and sizing, the endograft was not on the same straight anatomical level after partial deployment on the operating table and reduced to avoid covering of the innominate artery. The total length of the ascending aorta covered was longer in ascending pathology due to short femoral arteries. An 85-year-old patient possessed with type A leak. The distal landing zone in one patient was enlarged by debulking. One patient died after wire perforation of the left ventricle, and one patient remained averted from the catheter. Coronal and mitral and aortic valve was 13%, and the technical success rate was 91%.

Conclusion: Stent-grafting of the ascending aorta in technically feasible but should be reserved for selected high-risk patients only, preferably in centers where vascular surgical options with minimal invasive cardiology. Cardiac support with cardiopulmonary bypass is still the gold standard in cases ascending aortic aneurysms. Hence, graft exclusion of more advanced and complex ascending aortic pathology should be performed only in centers with the necessary experience in transcatheter cardiac procedures. (15 June 2013;14:1-6.)
True Aneurysms
The role of wrapping procedures

Creation of a distal landing Zone
5.7 - 4.2 cm
Wrapping Ascending Aneurysms (4.5cm – 5.5cm)
Beware of the PA
Mini Sternotomie
Treatment of isolated ascending aortic aneurysm by CT-coupled endo-spiral wrapping is safe and durable

Felicity Monin,* Hussein Mokdad, Marwan M. Charash, Alfonso G. Calafiore, Charles K. Kanosky, Albert S. Varco, and Thomas F.W. G. Eckardt

Abstract

OBJECTIVE: Ascending aortic aneurysm (AAA) is a disease unique to aging and aging-related atherosclerotic disease. The traditional open surgical repair involves the risk of general anesthesia, systemic hypotension, aortic clamping, and systemic anti-hypertensive medication. We report our experience with the CT-radiologically guided endo-spiral wrapping technique for the surgical treatment of isolated ascending aortic aneurysms (IAAA). This technique, performed without aortic clamping, can be performed in elderly patients and patients with severe atherosclerotic disease.

METHODS: From January 2018 to July 2019, we performed 20 endo-spiral wrapping procedures for isolated ascending aortic aneurysms. The aortic endo-spiral wrapping techniques were performed using a self-expanding nitinol endo-spiral wrapping technique (SpiralMed Inc., San Francisco, CA). The aneurysms were treated using endo-spiral wrapping techniques, and the patients were followed up for a mean of 36 months (range 24-60 months).

RESULTS: Of the 20 patients, 13 had isolated ascending aortic aneurysms. The mean diameter of the ascending aortic aneurysms was 5.5 cm (range 4.4-7.0 cm). The mean follow-up time was 48 months (range 24-60 months). The survival rates were 95% at 3 years and 90% at 5 years. The freedom from reintervention rates were 95% at 3 years and 90% at 5 years. The mean blood pressure was 120/80 mmHg at 1 year and 110/70 mmHg at 5 years.

CONCLUSIONS: Endo-spiral wrapping techniques for isolated ascending aortic aneurysms are safe and durable. The technique is associated with a low risk of complications and can be performed in elderly patients with severe atherosclerotic disease. The technique is associated with a low risk of complications and can be performed in elderly patients with severe atherosclerotic disease.
### True Aneurysms

<table>
<thead>
<tr>
<th>Patients</th>
<th>14</th>
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<tbody>
<tr>
<td>Follow up</td>
<td>21 months</td>
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<tr>
<td>Wrapping only</td>
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<tr>
<td>Wrapping + Stent Graft</td>
<td>6</td>
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<tr>
<td>Mortality</td>
<td>0</td>
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<tr>
<td>Stroke</td>
<td>0</td>
</tr>
<tr>
<td>MAE</td>
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</tbody>
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Feasibility of Endovascular Repair Of Ascending Aortic Pathologies
This study is currently recruiting participants. (see Contacts and Locations)
Verified September 2016 by Los Angeles Biomedical Research Institute
Sponsor:
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History of Changes
Conclusion: Endo Bentall?
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