

Combined Aortic Arch Replacement and Descending Thoracic Aortic Repair

ICD-10-PCS Code Application

Joseph S. Coselli, MD

Professor, Vice Chair and Chief, Division of Cardiothoracic
Surgery, Baylor College of Medicine
Texas Heart Institute

Scott A. LeMaire, MD

Professor of Surgery and of Molecular Physiology and Biophysics Vice Chair for
Research, Michael E. DeBakey Department of Surgery
Baylor College of Medicine
Texas Heart Institute

Patient Population

- Disease of the aorta, the large artery that carries blood from the heart through the chest and abdomen, can lead to two different conditions
 - Aortic aneurysm, balloon-like bulge in the aorta, that leads to weakness in the vessel wall that can rupture or dissect
 - Aortic dissection, a split in the layers of the artery wall, allowing blood to leak in between them
- These conditions can eventually cause rupture the aorta with fatal bleeding inside the body
- Dissections and ruptures are the cause of most deaths from aortic aneurysms

www.cdc.gov/heartdisease/aortic_aneurysm

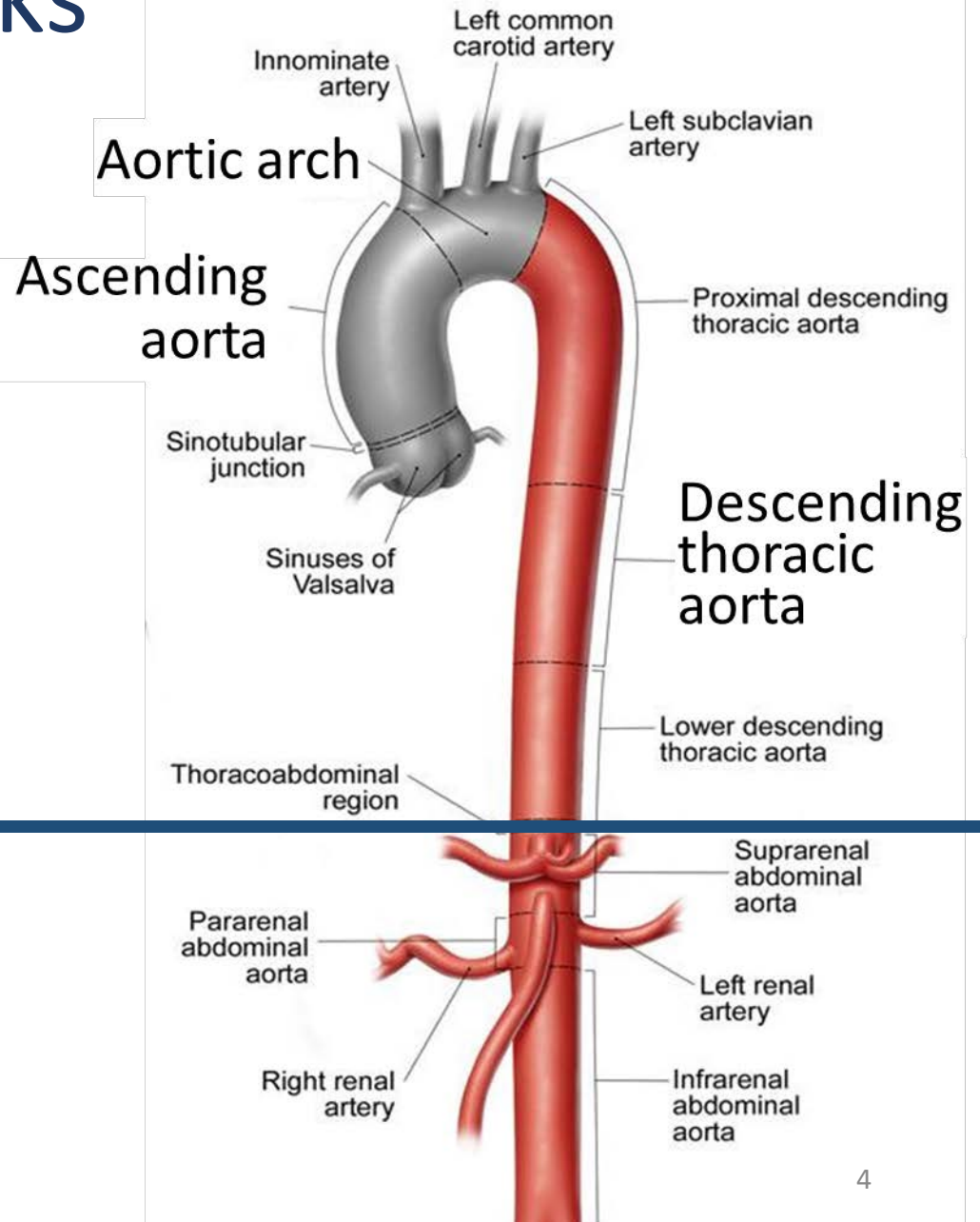
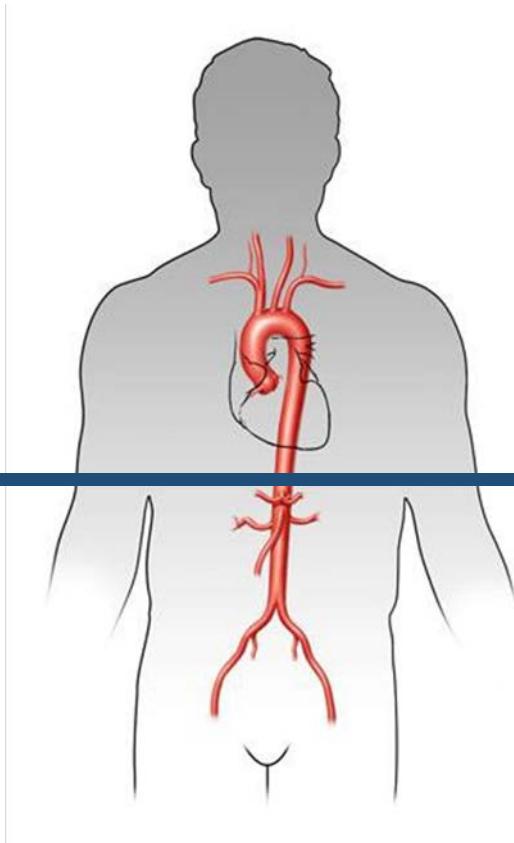
Patient Population (2)

- The Society of Thoracic Surgeons Adult Cardiac Database reported 14,364 thoracic aortic aneurysm procedures for 2017
- Primary Indications
 - Diseased and/or damaged aortic vessels
 - Complex and diverse aortic arch diseases or trauma
- Surgery is the only effective treatment for aneurysms
 - Combined disease of the aortic arch and the proximal descending thoracic aorta remains a surgical challenge

Aorta Landmarks

Thoracic

Abdominal

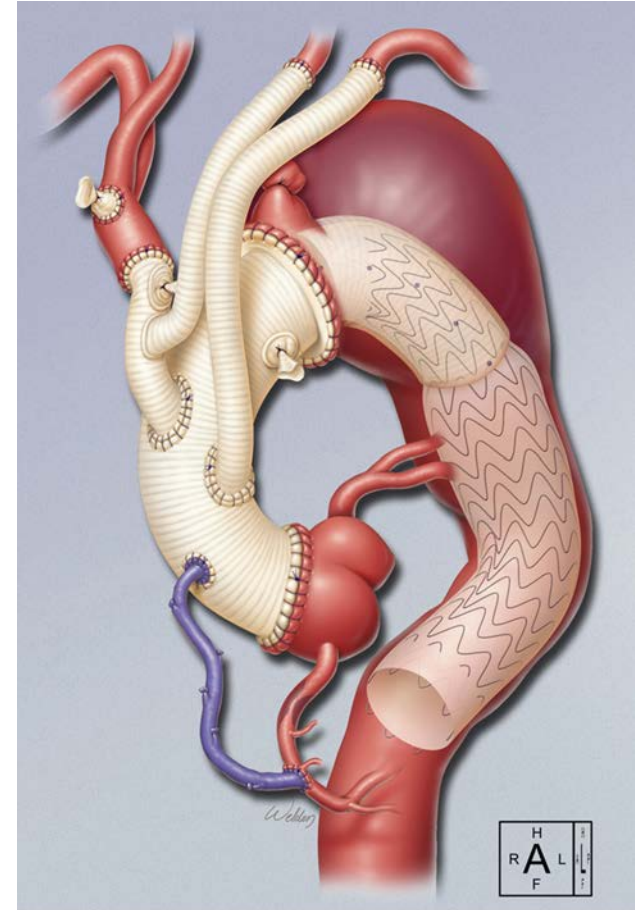


Potential ICD-10-CM Diagnoses

ICD-10-CM Code	Description
I71.00	Dissection of unspecified site of aorta
I71.01	Dissection of thoracic aorta
I71.03	Dissection of thoracoabdominal aorta
I71.1	Thoracic aortic aneurysm, ruptured
I71.2	Thoracic aortic aneurysm, without rupture
I71.6	Thoracoabdominal aortic aneurysm, without rupture
I71.8	Aortic aneurysm of unspecified site, ruptured
Q87.40-Q87.418	Marfan syndrome
S25.00X- S25.09X	Injury of thoracic aorta

Aortic Arch Repair/Replacement

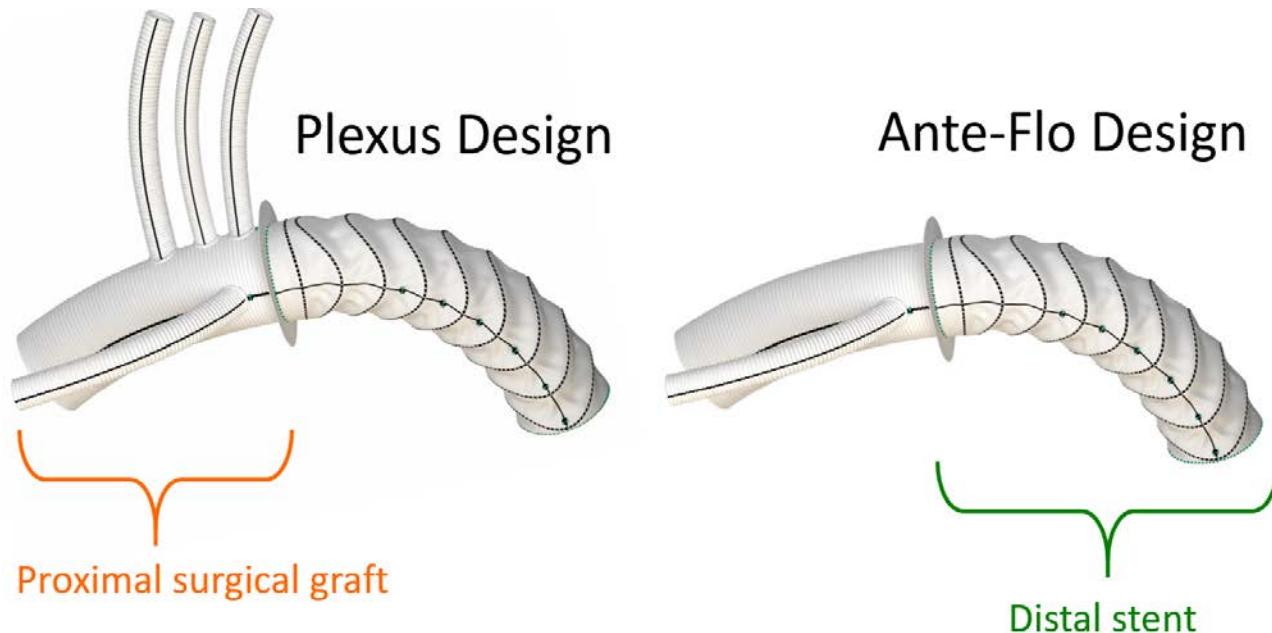
- Technically very challenging with high risk of death and stroke
- When disease of the arch extends into the descending thoracic aorta, two-stage repair is commonly required
 - First stage entails replacement of the ascending aorta and transverse arch with elephant trunk (ET) graft (woven polyester branched graft)
 - Second stage entails replacement of the descending thoracic aorta with an intraluminal graft delivered via an open or endovascular approach



Frozen Elephant Trunk

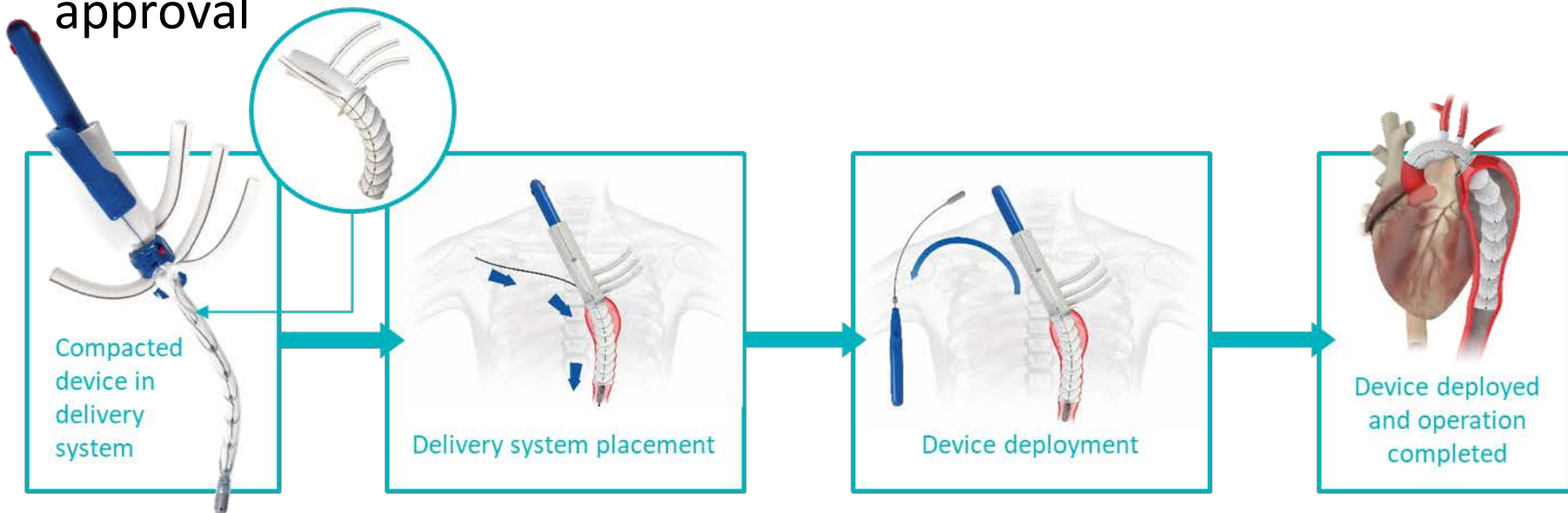
Thoraflex Hybrid Device

- A single device that permanently replaces the ascending aorta and aortic arch and repairs the descending thoracic aorta in a **single** procedure
- Typically performed by a cardiothoracic surgeon during a ~6 hour open surgical procedure
- The descending thoracic aorta is repaired by placing the distal stent of the device in an antegrade transluminal approach through the transected aorta and into the descending thoracic aorta



Thoraflex Hybrid Device (2)

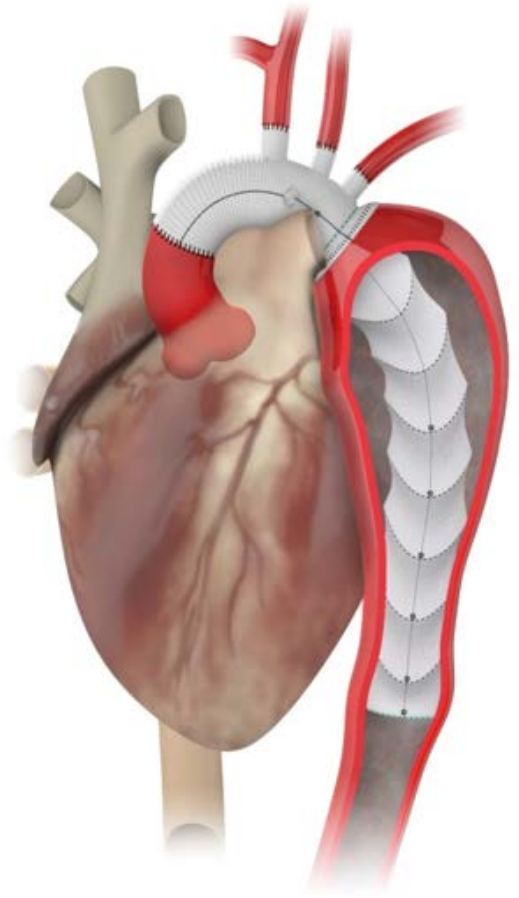
- The device is secured by suturing an integral collar portion of the product to the distal native aortic remnant
- The ascending aorta and aortic arch are then resected and replaced with the proximal, non-stented portion of the device
- The device is currently in an IDE clinical trial to secure FDA approval



Thoraflex Hybrid Device (3)

Combines two surgical procedures into one

- Open surgical repair/replacement of the descending thoracic aorta by introducing the device's distal stent transluminally into the descending thoracic aorta, followed immediately by...
- Open surgical repair to remove and replace the diseased or damaged ascending aorta and aortic arch with the proximal graft section of the device



Thoraflex™ Hybrid Device

- Where would the device be documented in the medical record for individuals (e.g., medical coders) to identify?
 - In the dictated operative report
 - In the OR nursing records
- What are the different naming conventions for the device?
 - Thoraflex Hybrid
 - Hybrid Device
 - Terumo Aortic Hybrid Device
 - Terumo Hybrid Device

Summary

- Thoracic aortic aneurysms (abnormal bulges in a weakened wall of the aorta) and aortic dissection (tears in the aortic wall) can cause a variety of symptoms and often life-threatening complications
- When the disease extends into the descending thoracic aorta, a two-stage repair is commonly required
- The Thoraflex Hybrid device replaces the ascending aorta and aortic arch, and repairs the descending thoracic aorta in a single procedure
- Current ICD-10-PCS codes do not uniquely identify the use of the Thoraflex Hybrid device and does not allow for accurate reporting and outcomes tracking