Descending aorta replacement through median sternotomy

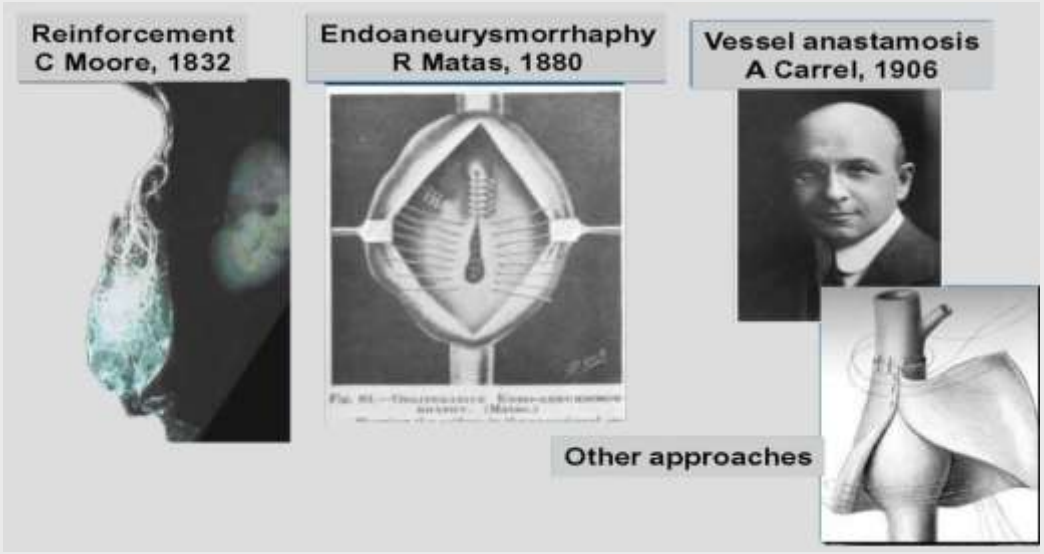
Mitrev Z, Anguseva T, Belostotckij V, Hristov N.

Special hospital for surgery
“Filip Vtori” Skopje - Makedonija

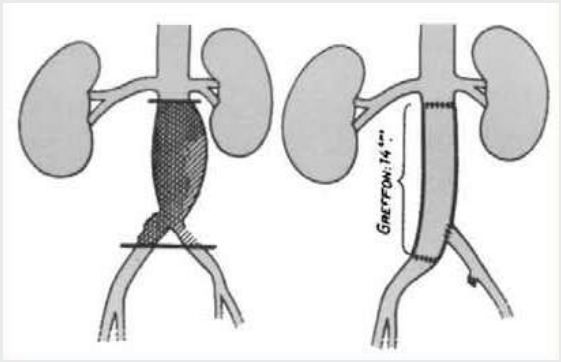
June, 2010

History

Ebers Papyrus (2000 BC)- traumatic peripheral aneurysm
Galen (131-200) – localized pulsatile swelling
Antyllus (-200 AD) first ligated injured aneurysmal vessels



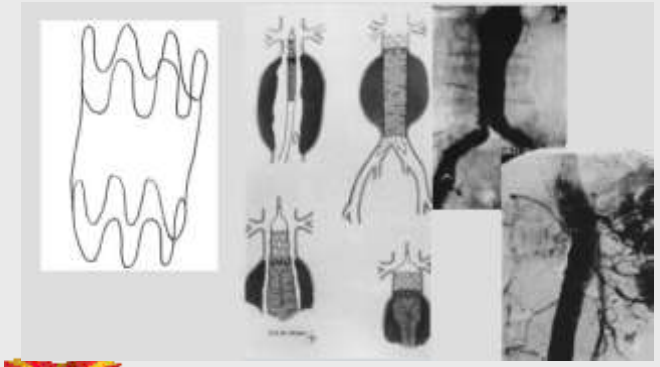
First anurysm resection
1951 Charles Dubost Abdominal AAA
1951 Denton Cooley Ascending AA



Replaced aorta with 15cm homograft

No standard repair

Endovascular Aortic Repair
Juan C. Parodi



Indications for operation

Symptomatic

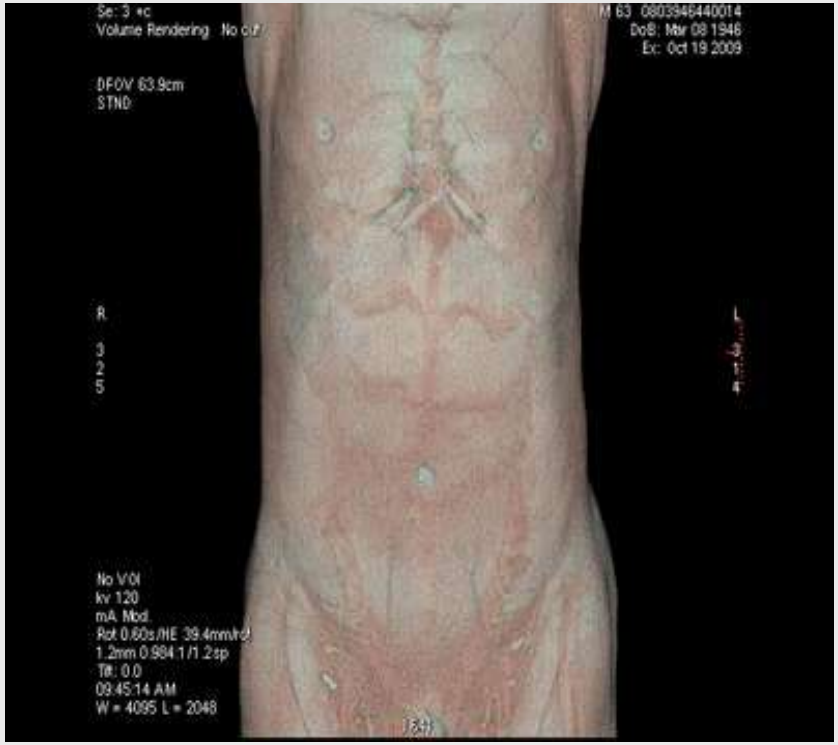
Acute enlargement

Rupture

Morbidity

- **Postoperatively**
  - **Bleeding 8-10%**
  - **Paraplegia (early,late) – 13-15%**
  - **Organ ischaemia-10-12%**
  - **Renal failure 5-7%**

Perioperative morbidity up to 50%



Mortality

Elective 5 to 20 %

Emergency 20 to 60 %

TAA is diagnosed in 5.9 to 10.4 per 100,000 people per year

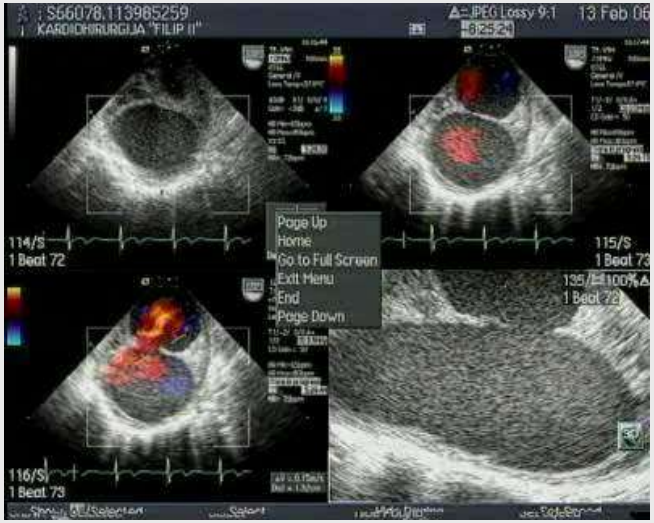
Mortality and Morbidities of Open Surgical Repair

	Range %
Operative Mortality	
Ascending Aorta	3-5
Aortic Arch	6-19
Thoracoabdominal	10-15
Neurological complications	
Stroke	2-3
Paraparesis/Paraplegia	3-15
Renal Failure	5-10
Cardiac Event	5-30
Respiratory Failure	20-30

1. Kouchoukos N T et al. Surgery of the Thoracic Aorta. N Engl J Med 1997:336;1876-1888.2.
2. Svensson L, et al. Variables Predictive of outcome in 832 patients undergoing repairs of the descending thoracic aorta. Chest 1993;104: 1248-1253.
3. Crawford et al. Surgical treatment of aneurysm and/or dissection of the ascending aorta, transverse aortic arch, and ascending aorta: factors influencing survival in 717 patients. J Thorac Cardiovasc Surg 1989:98;659-674.
4. Clouse et al. Improved prognosis of thoracic aortic aneurysms. JAMA 1998:280:1926-1929
5. Svensson LG, el al. Experience with 1509 Patients undergoing thoracoabdominal aortic operations. JVS 1994: 17(2):357-68

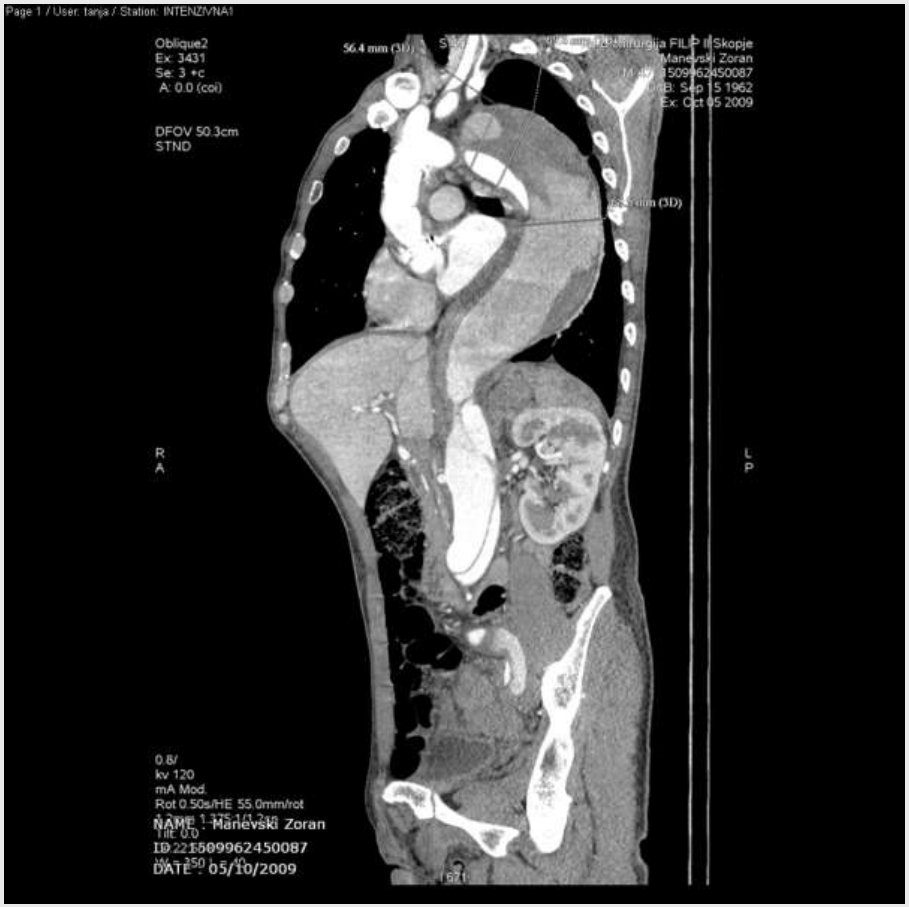
Investigations

- **Hx**
- **Examination**
- **Cardiac evaluation**
  - **ECG,**
  - **Not exercise test,**
  - **Angiography? CABG pre aneurysm**
- **Aneurysm evaluation,**
  - **Echo (TOE),**
  - **CT,**
  - **MRI,**
  - **? Aortography**



Investigations

64MSCT



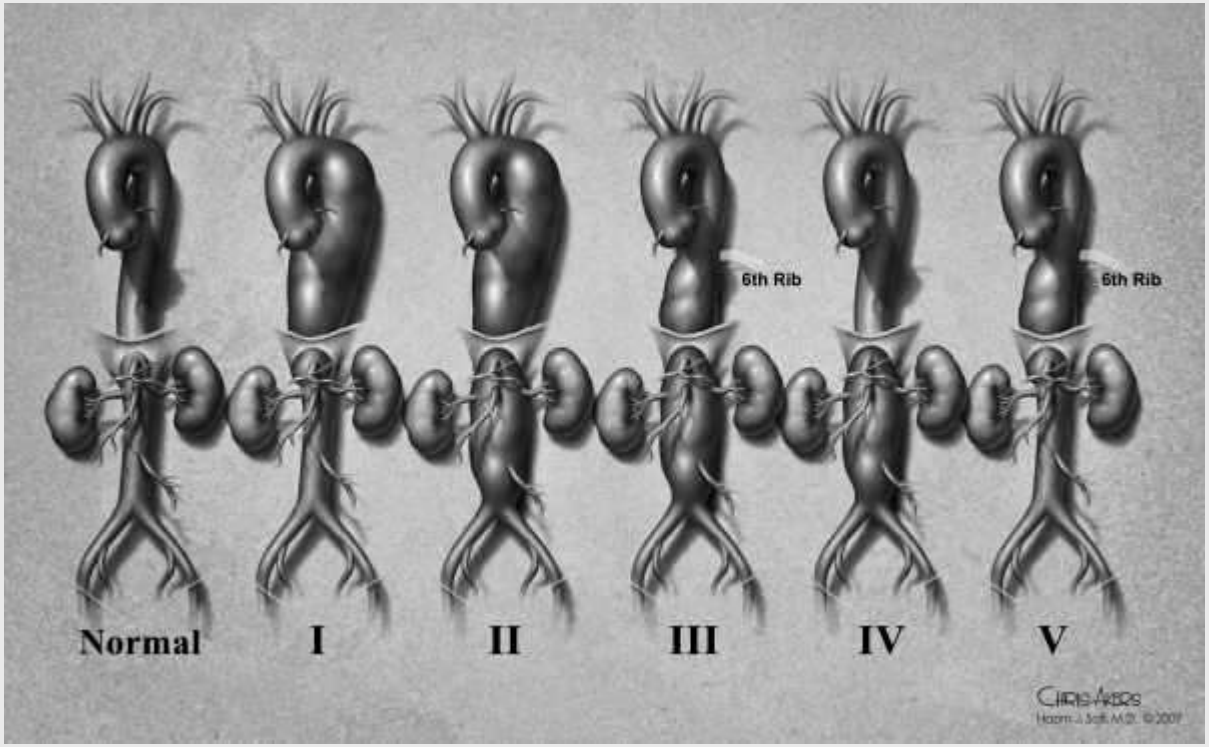
MR

Cardiosurgery - Skopje

No standard surgical techniques and approaches

- **Distal perfusion**
  - **Total CPB DHCA**
  - **Total CPB with moderate hypothermy and branch cannulation reperfusia**
  - **Partial CPB LA – Fem artery;normothermy**
  - **Arteri-shunt-aorto-femoral**
  - **Off pump thoracoabdominal surgery- no circulatory support**
- **Spinal cord protection**

Crawford - classification



Case Presentation – History of Present Illness

A 66-year-old man, dysphagia, brethless perid, chest pain, fatigue.

Ultrasound - massive aortic thoracic aneurysm

Past Medical History – positive for HTA

Case Presentation

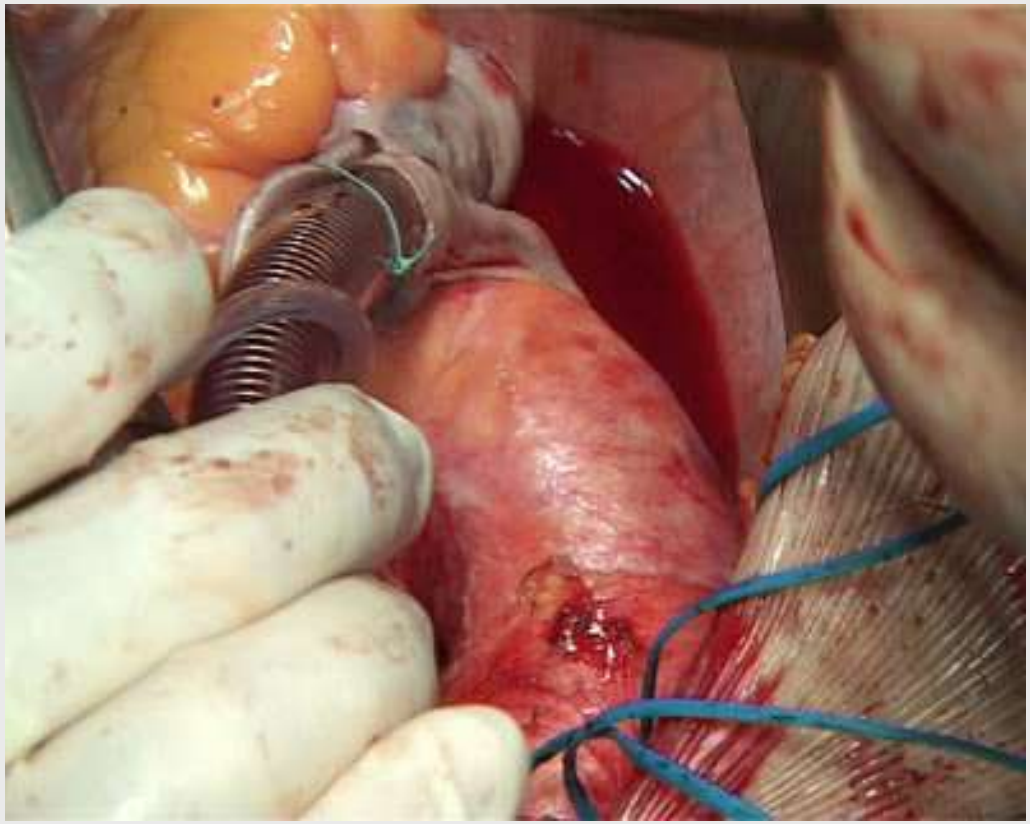
All laboratory parameters such as

- Serum electrolytes
- Coagulation panel
- Complete blood cell count
- C-reactive protein
- Thyroid function tests
- Liver enzymes – increased

64 MSCT

-Sy vena cava sup. compression
-urgent intubation
-urgent surgery

Thoracoabdominal aneurysm- surgical technique through median sternotomy partial CBP - normothermy



Surgery
- median sternotomy
- right subclavian cannulation
-right femoral artery cannulation
-exclussion of the aneurysm

Clinical Course

- **The CT angiogram showed reformation of the thoracic part of the aneurysm**

- **18days respiratory machine**
- **percutaneus tracheotomy**
- **29th day decanulation**
- **38th day discharged**
- **Complication- amputation of the distal phalanga of the left II finger**

Conclusion

Median sternotomy is feasible in repair of DAA.

It provides good exposure of the thoracic aorta with optimal position for proximal and distal aortic clamping, and it is better tolerated by patients regarding postoperative recovery.

Questions ?