



University Heart Center
Hamburg

GERMAN
AORTIC CENTER
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Development of the Aortic Arch and Aortic Arch Variants

Tilo Kölbel, MD, PhD

German Aortic Center Hamburg
University Heart Center
University Hospital Eppendorf



6th International Meeting
on Aortic Diseases

New insights into an old problem

September 12-14, 2018

Les Comtes de Méan - Liège - Belgium

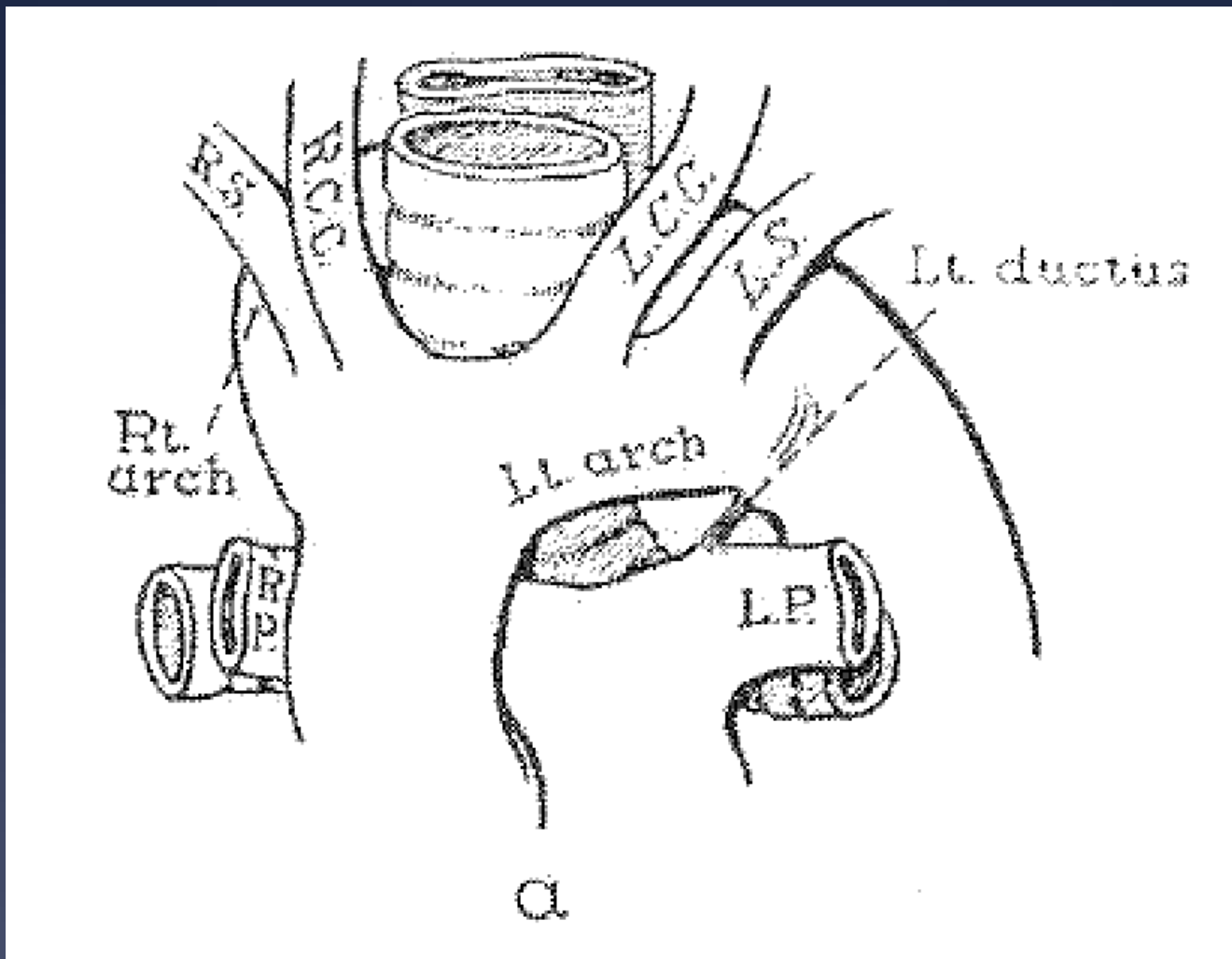


Disclosures

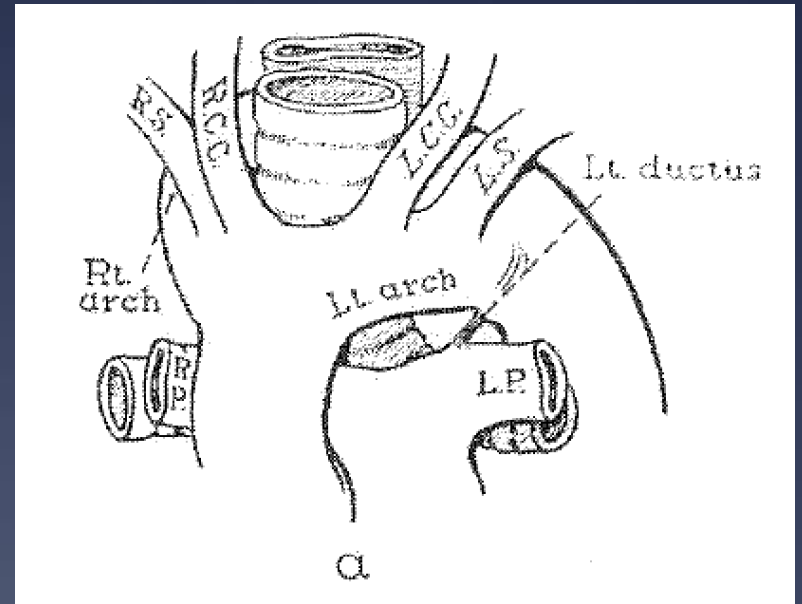
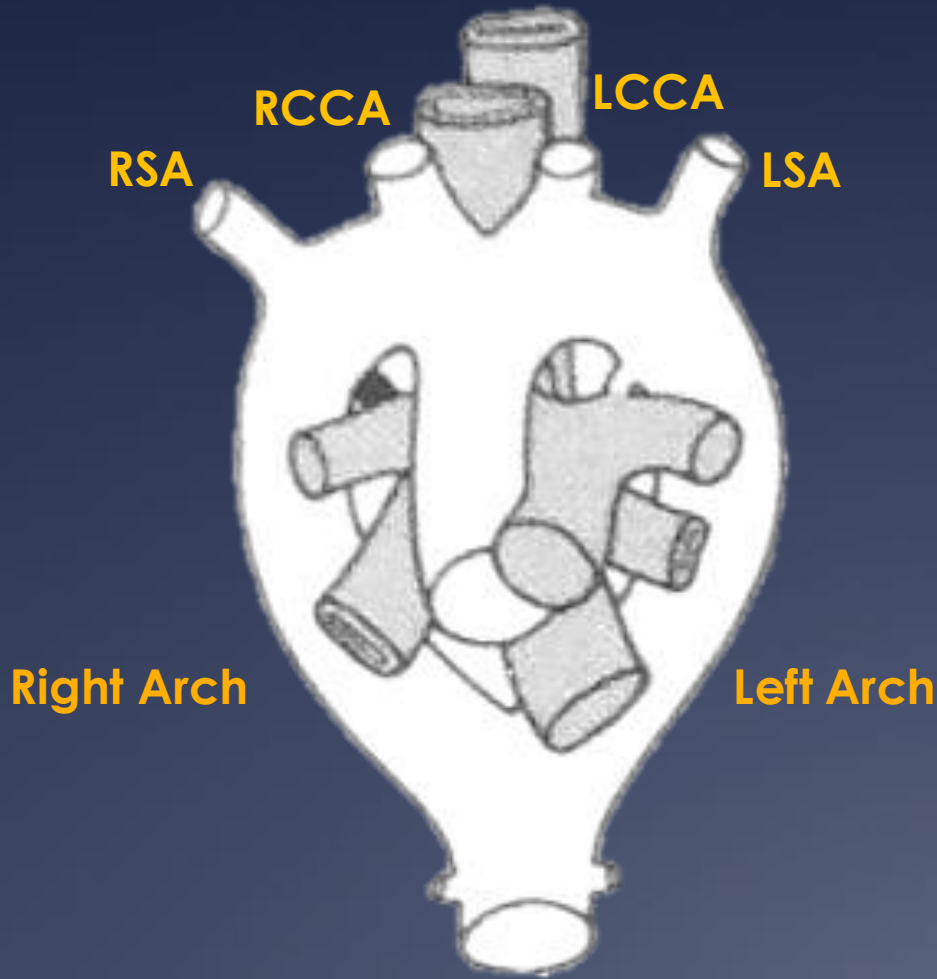


- * Research-grants, travelling, proctoring speaking-fees, IP, royalties with Cook.
- * Consultant with Philips
- * Shareholder Mokita-Medical GmbH
- * IP, Consultant with Terumo Aortic

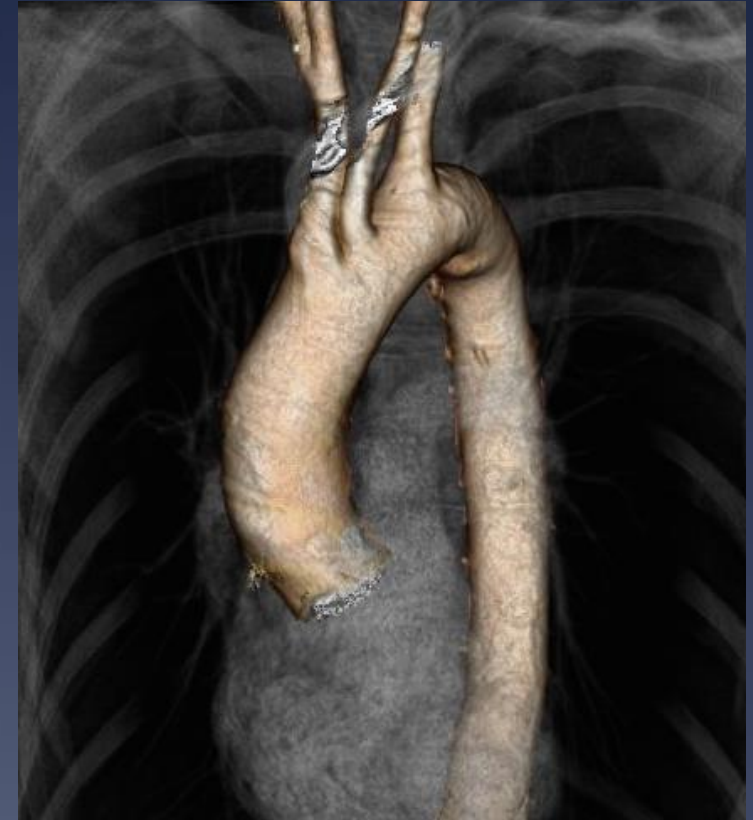
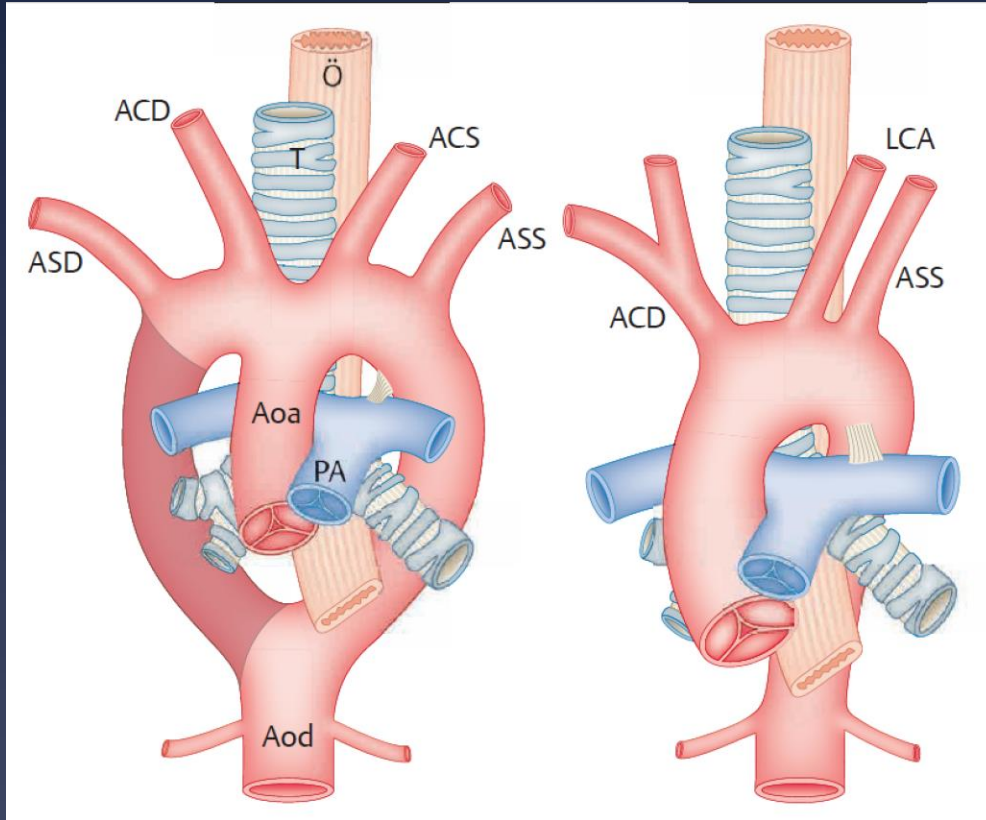
Hypothetical Double Aortic Arch (Jesse E. Edwards)



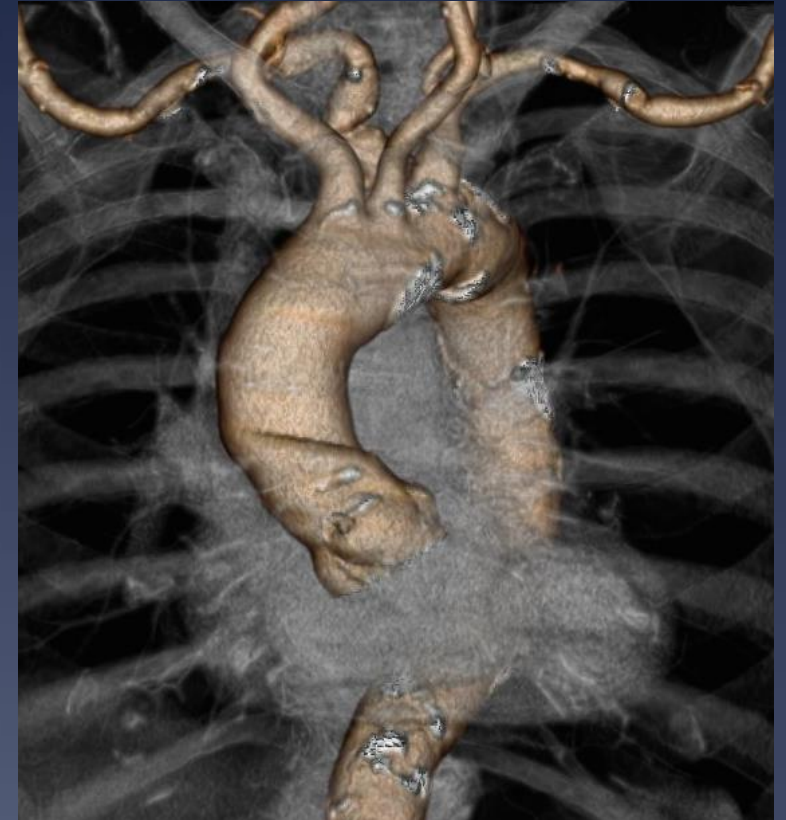
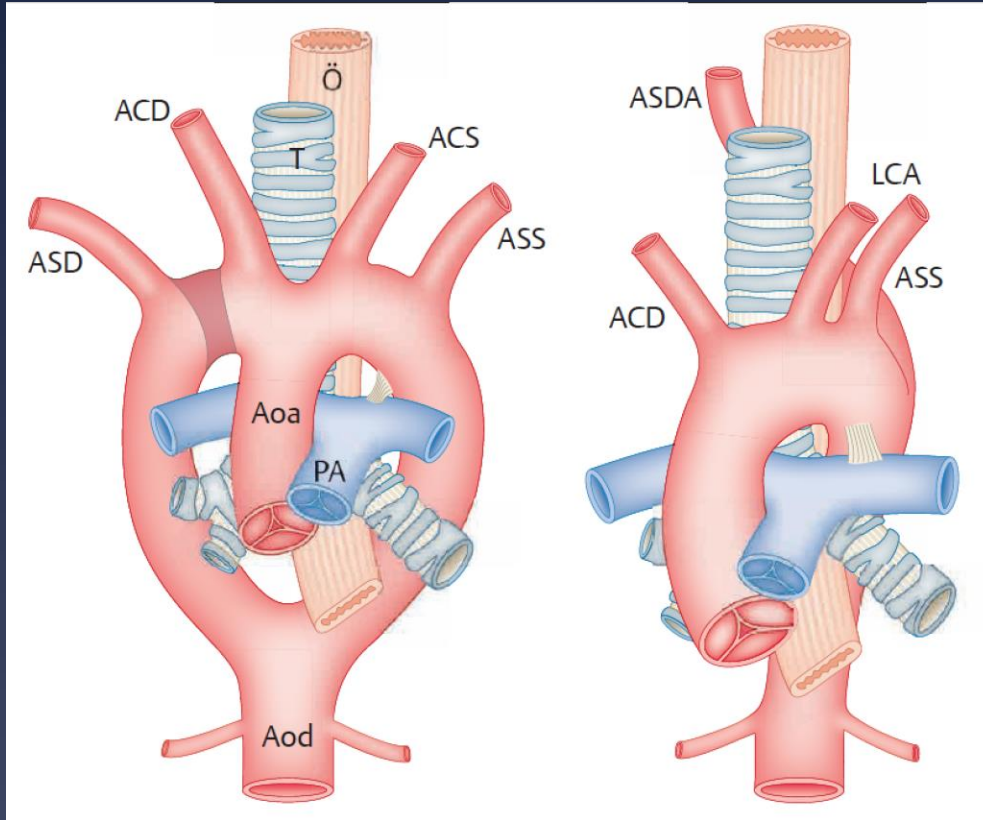
Hypothetical Double Aortic Arch (Jesse E. Edwards)

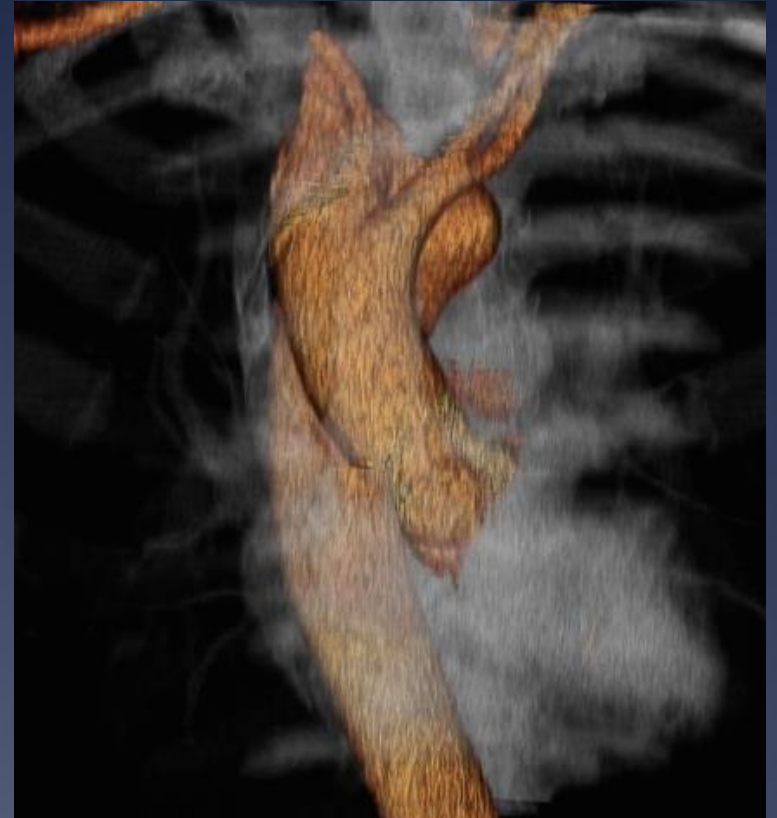
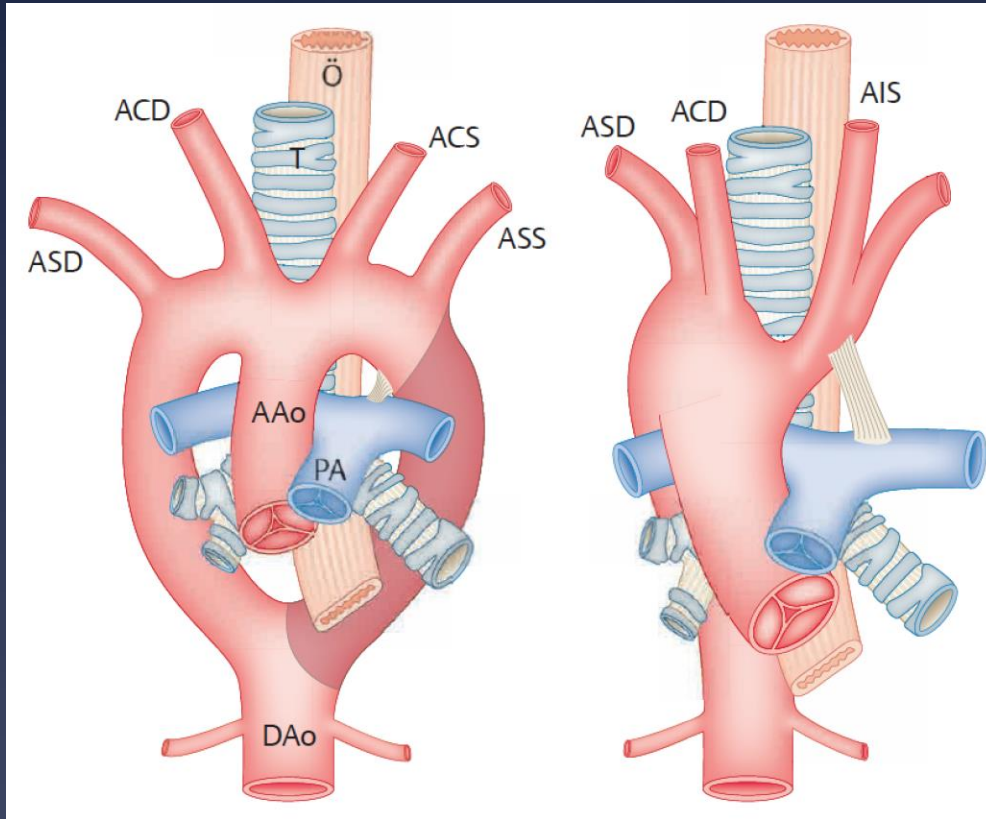


Normal Arch

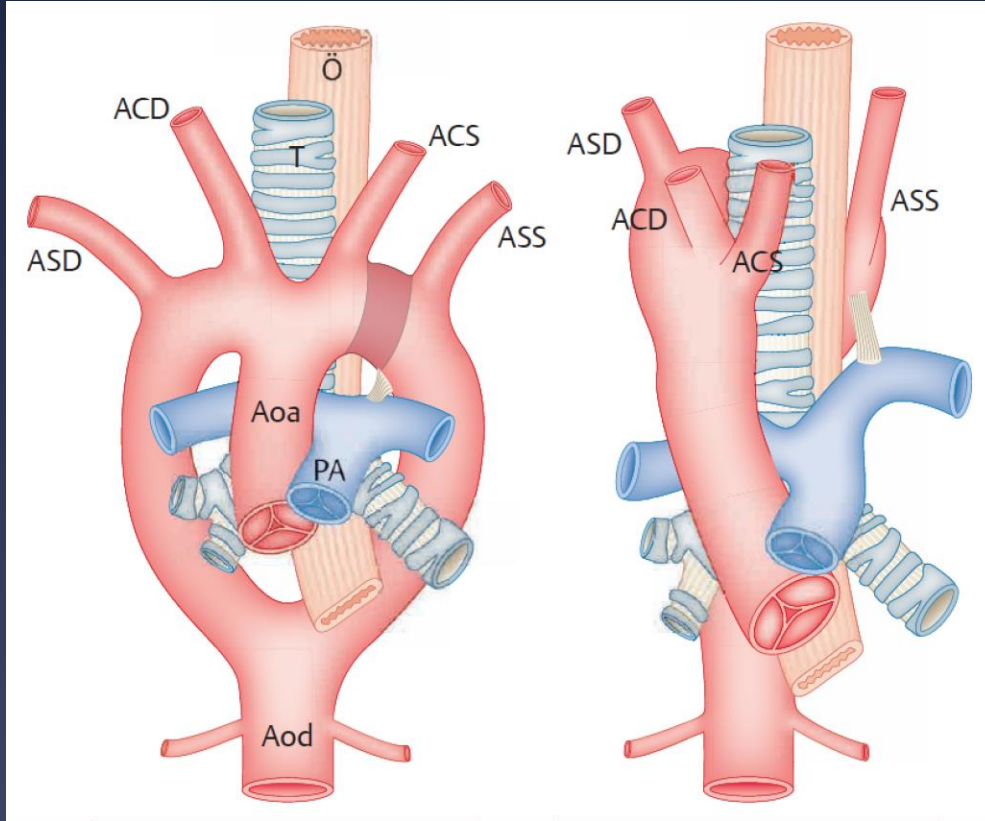


Left Arch, Aberrant RSA „Lusoria“

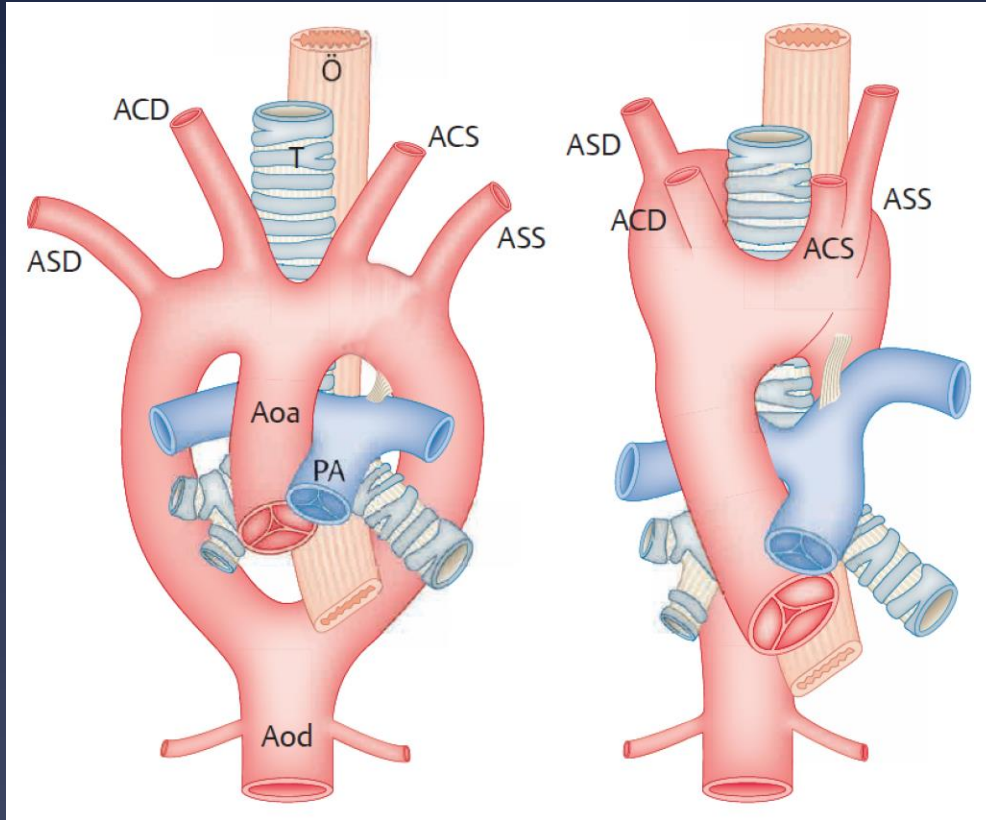




Right Arch, Aberrant LSA „Lusoria“



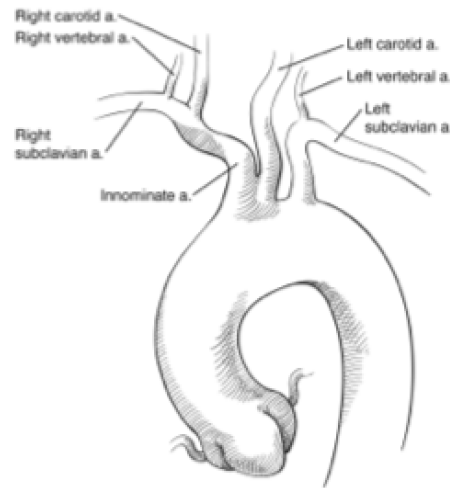
Bilateral Arch



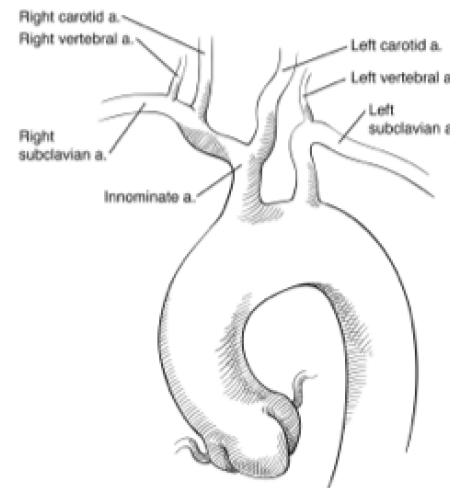
„Bovine Arch“



“**Bovine arch**” refers to group of congenital variants of human aortic arch vessels in which there is aberrant origin of the left common carotid artery. Two anatomic configurations*:



Common origin of innominate artery and left common carotid artery (most common)¹



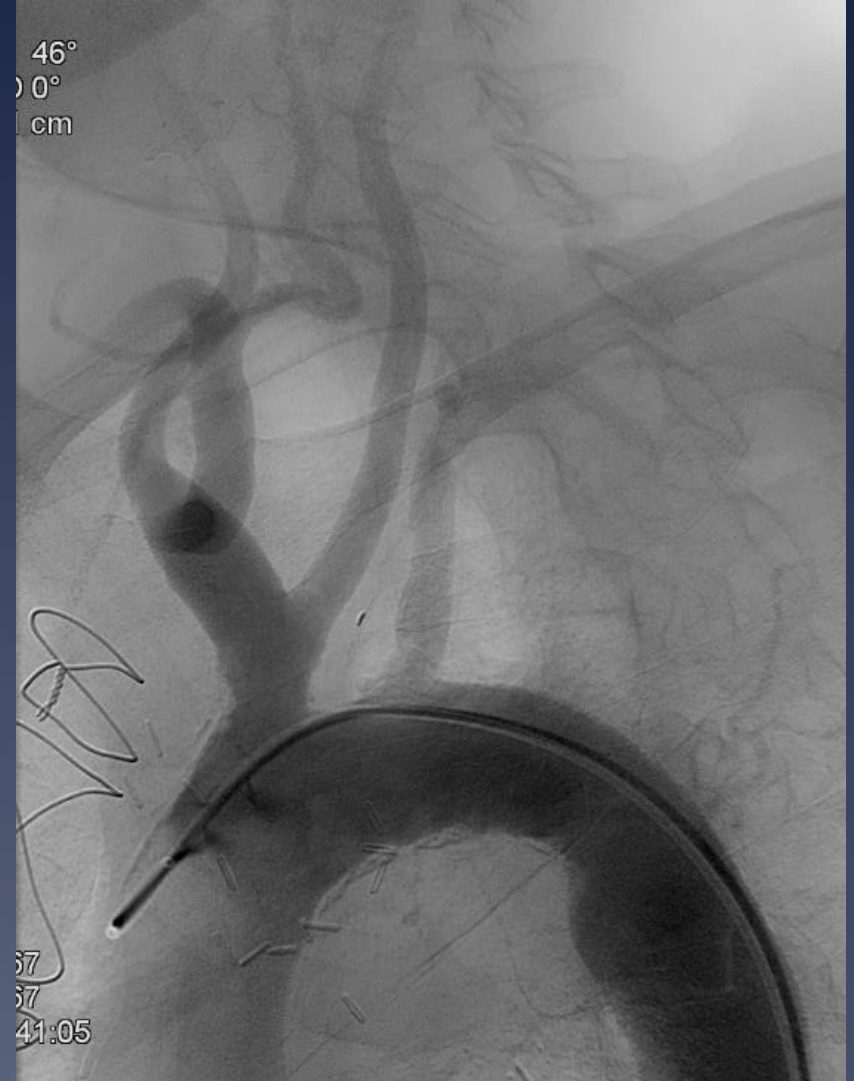
Left common carotid artery originates from innominate artery at distance from aorta (less common)¹

* Note that **bovine arch is a misnomer** – the cow’s aorta does not resemble either of these configurations.²

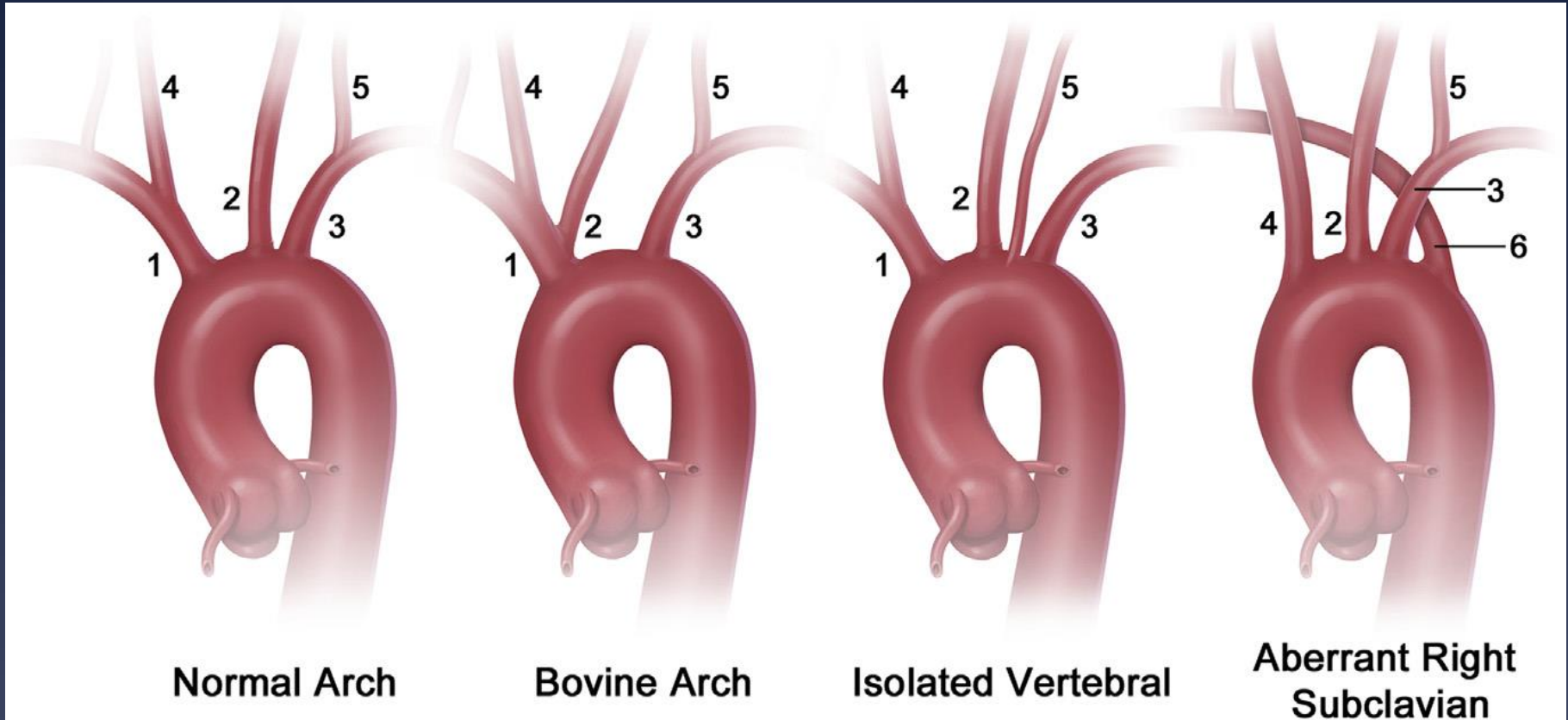


1. Lippert H, Pabst R. Arterial Variations in Man: Classification and Frequency. München: J.F. Bergmann Verlag, 1985.
2. Layton KF, Kallmes DF, Cloft HJ, Lindell EP, Cox VS. Bovine aortic arch variant in humans: clarification of a common misnomer. AJNR Am J Neuroradiol 2006;27:1541-1542.

„Bovine Arch“



Common Arch Variants



82%

14%

3%

1%



Association with Anatomic Arch Variants



- * Aortic Dissection
- * Bicuspid aortic valve
- * Aortic Aneurysm

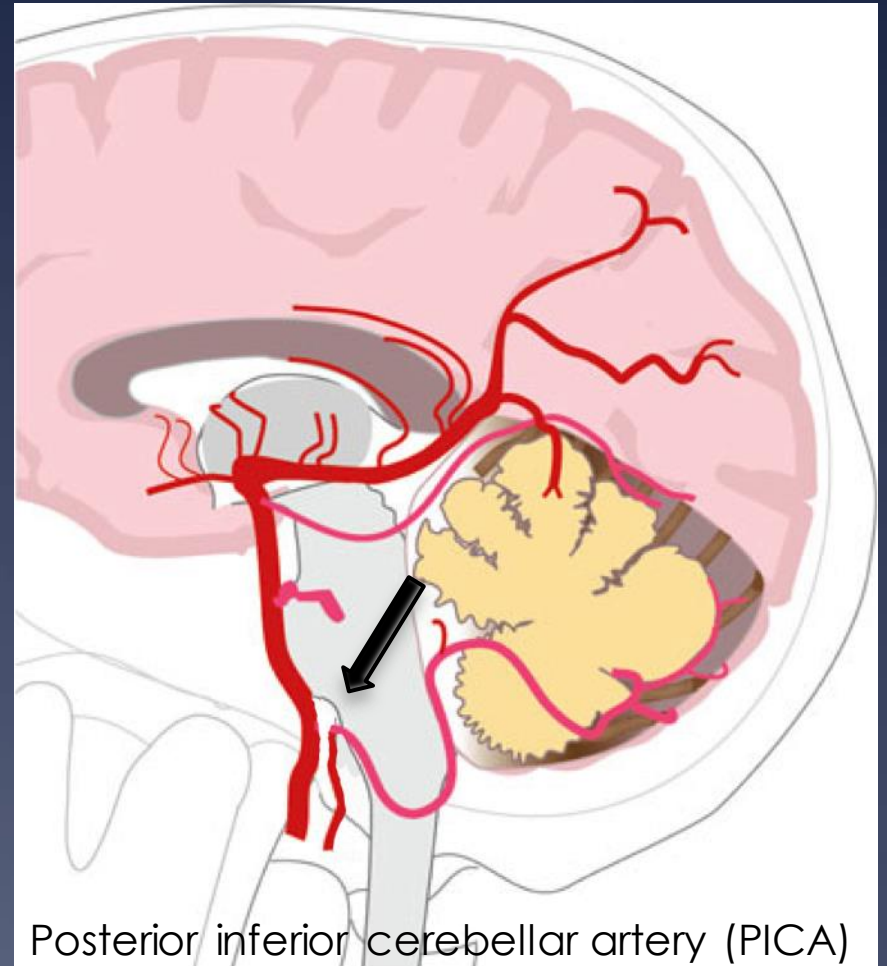
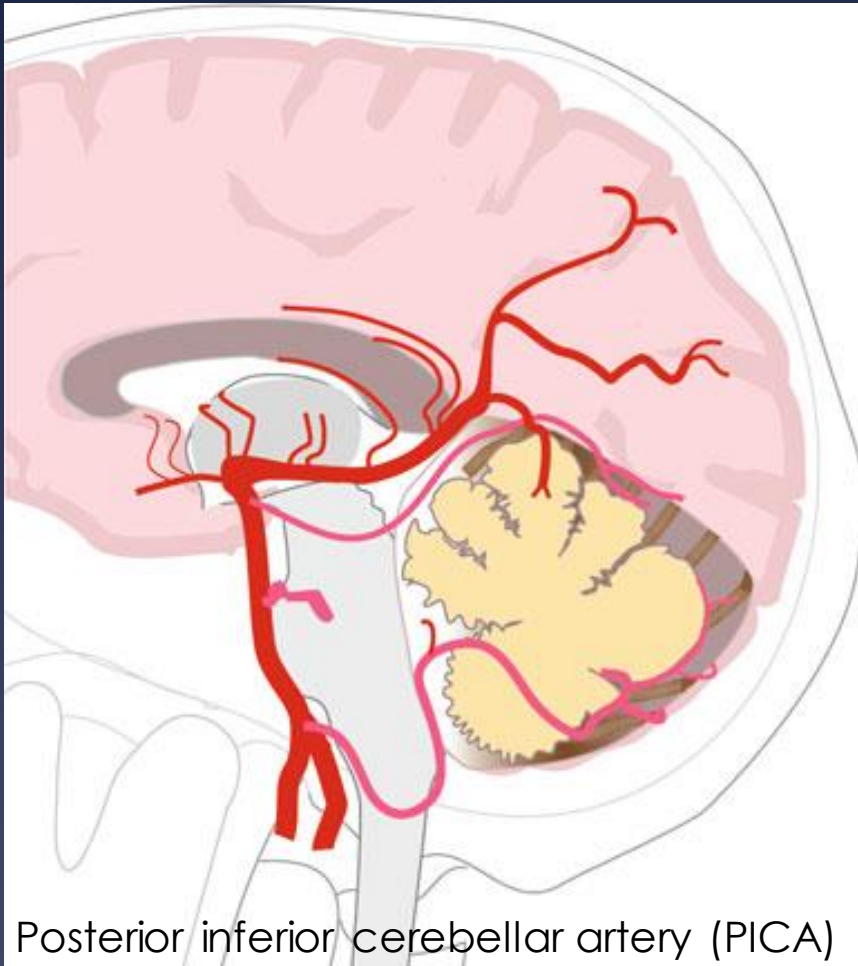


Arch Variants and its implications on Intervention

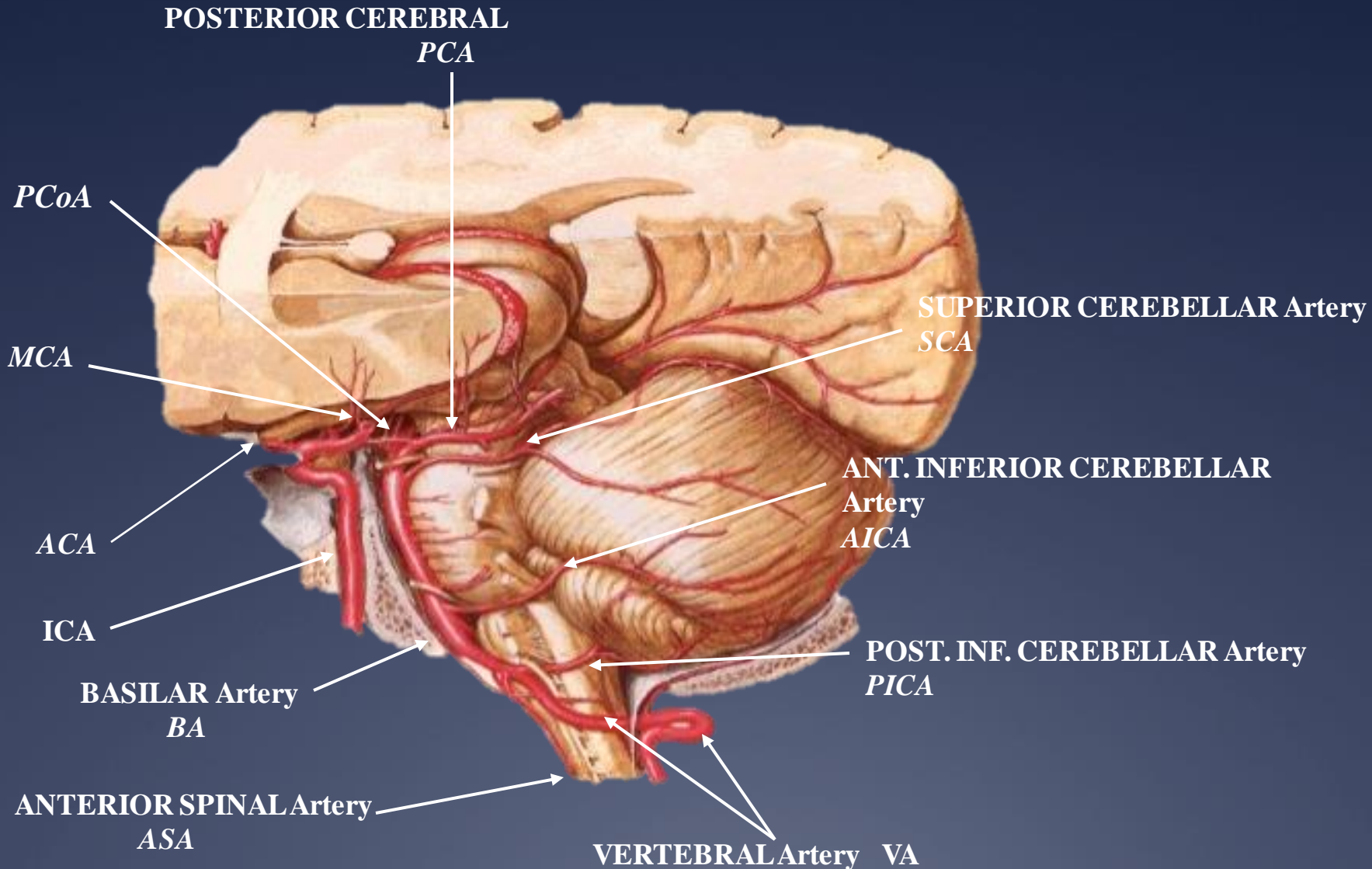
VA-Dominance



VA-Dominance



PICA-Variant



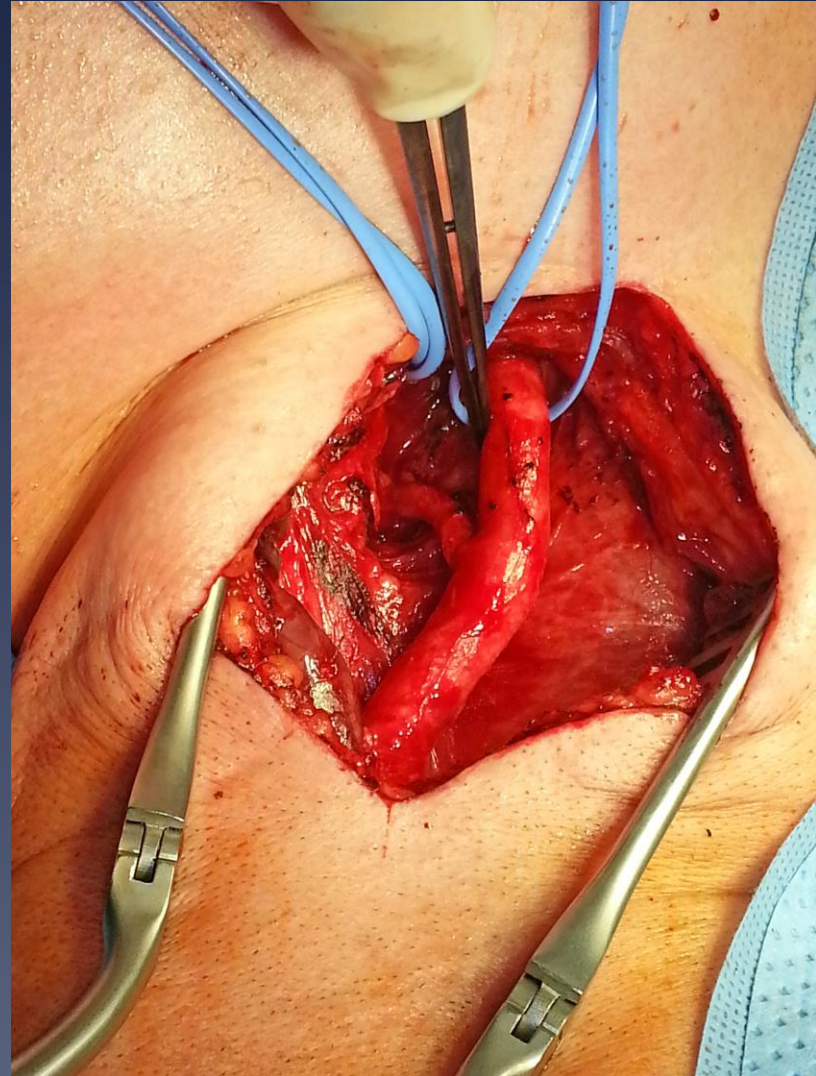
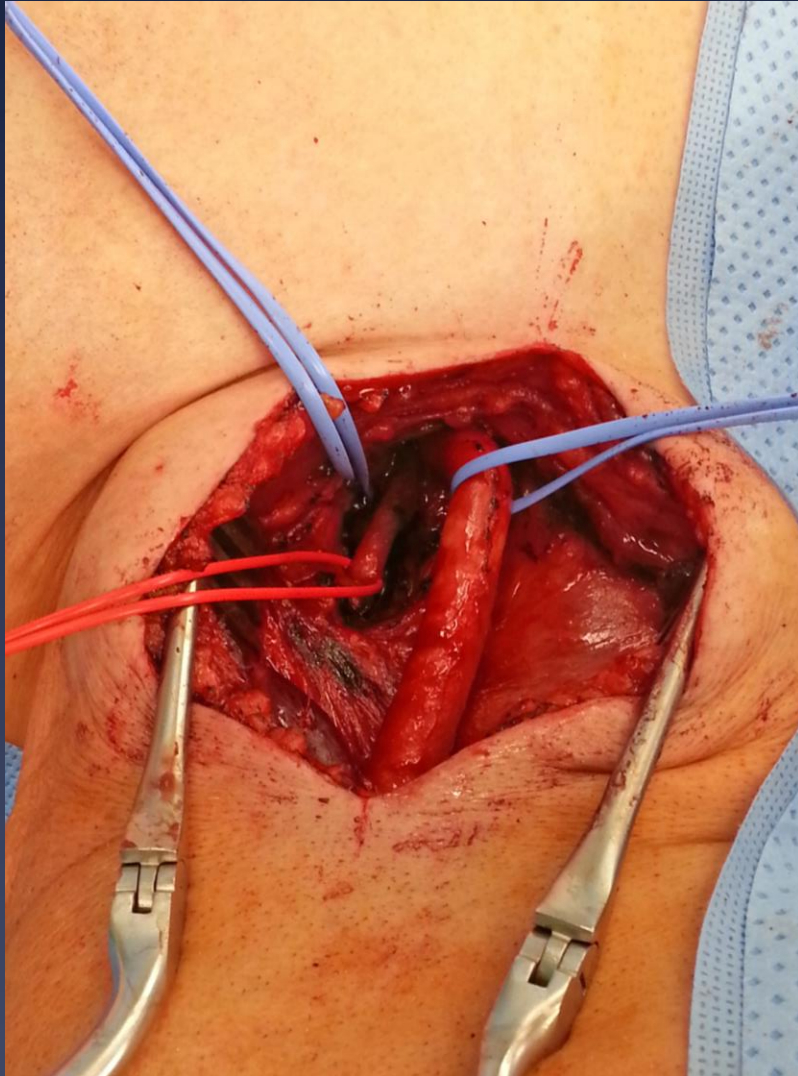
Single LVA



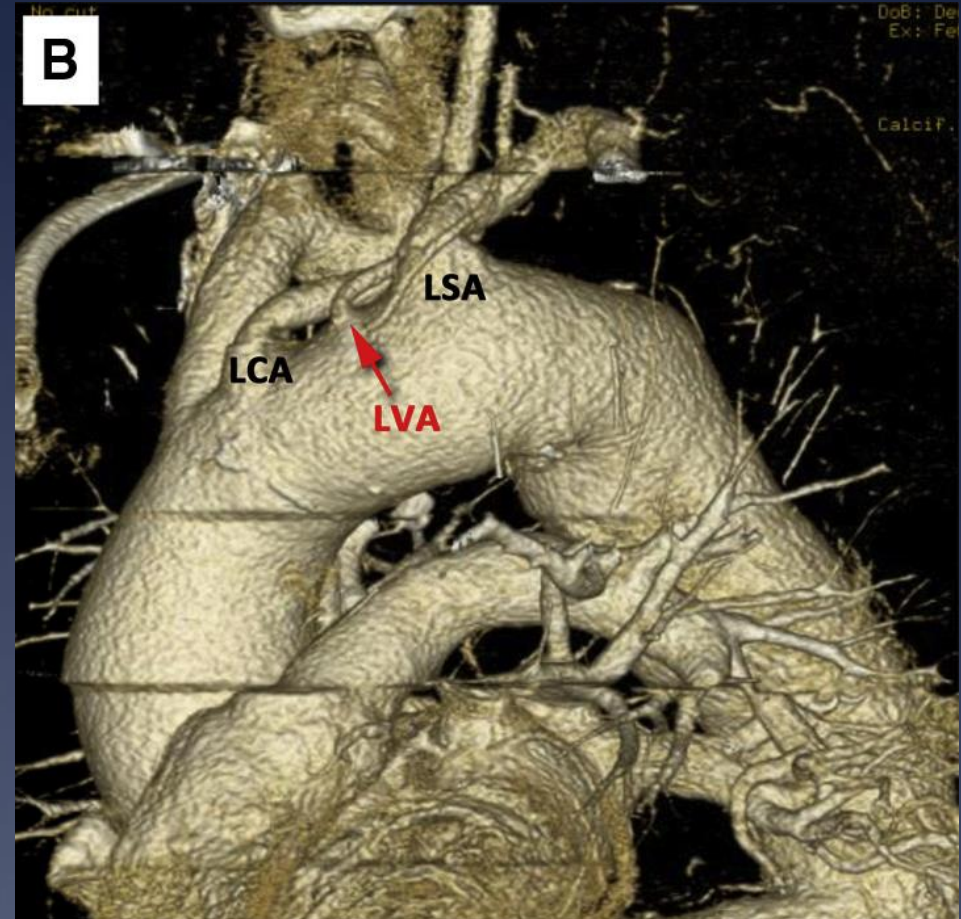
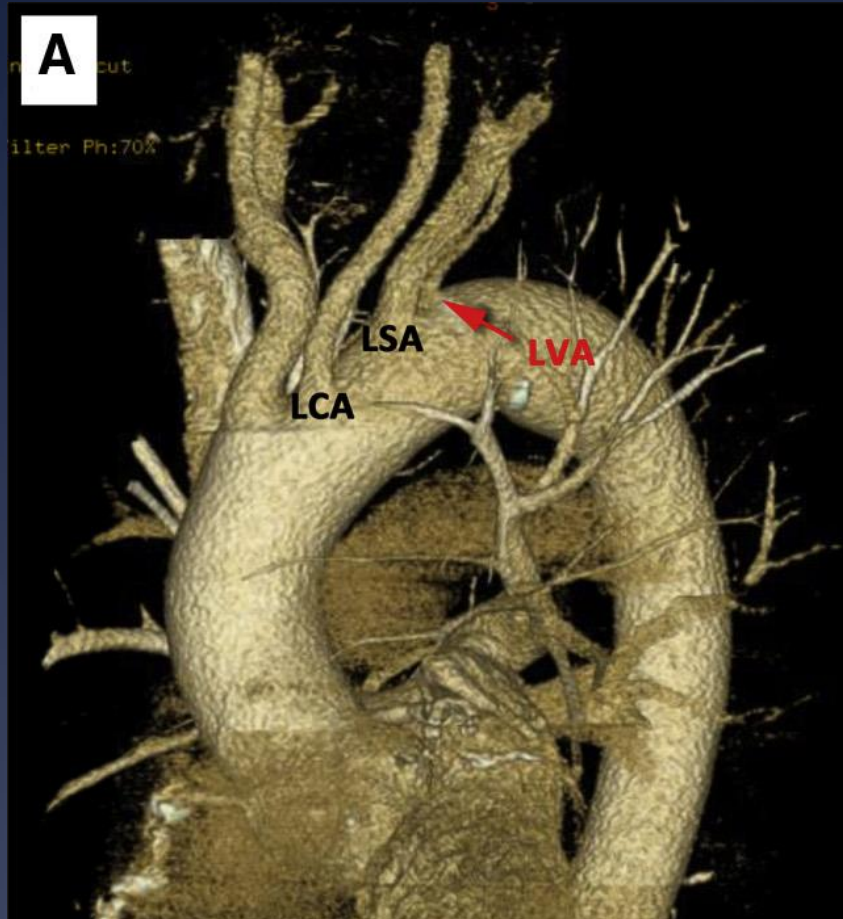
VA - Transposition



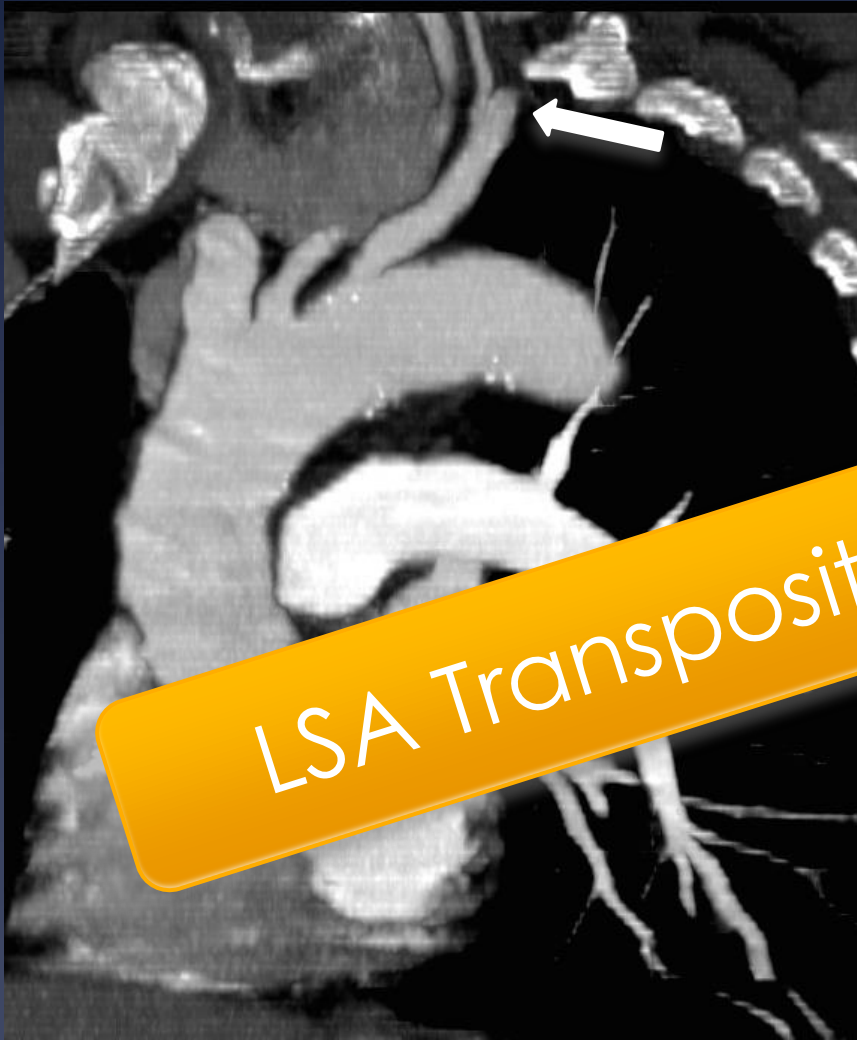
VA - Transposition



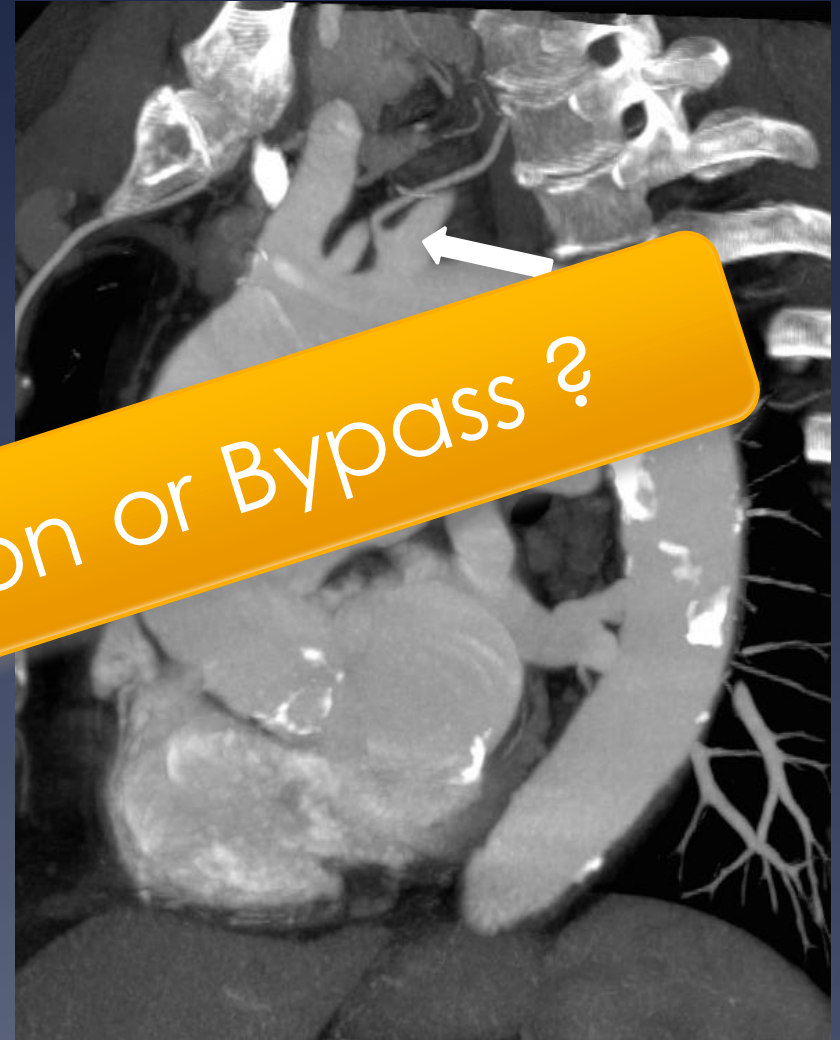
Single LVA



LVA-Origin



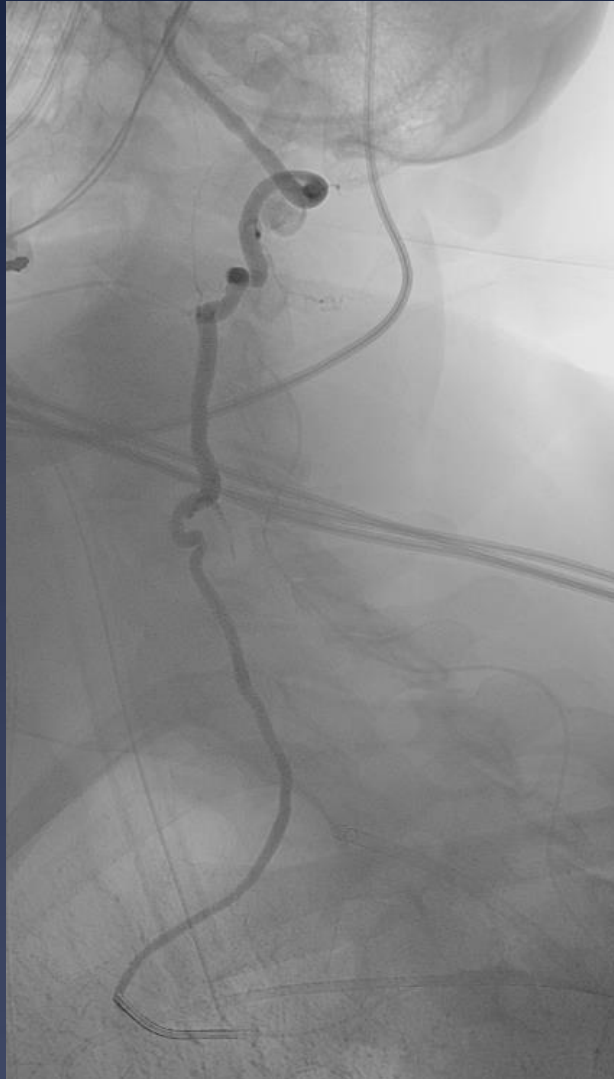
Distal



Proximal

LSA Transposition or Bypass ?

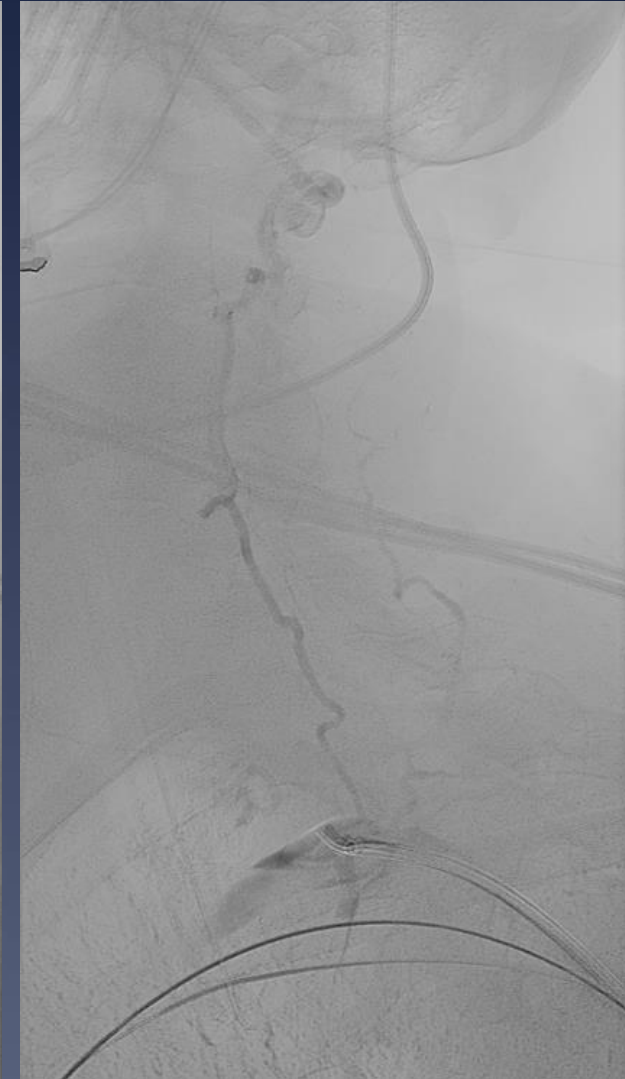
Double LVA-Origin



From Arch

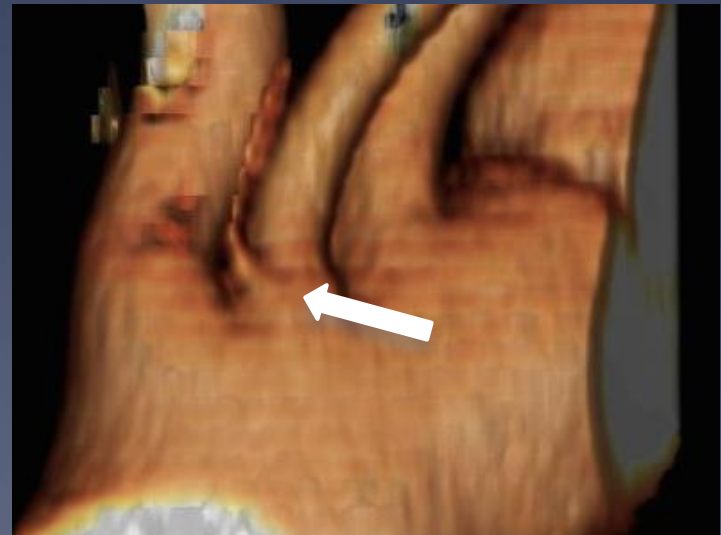
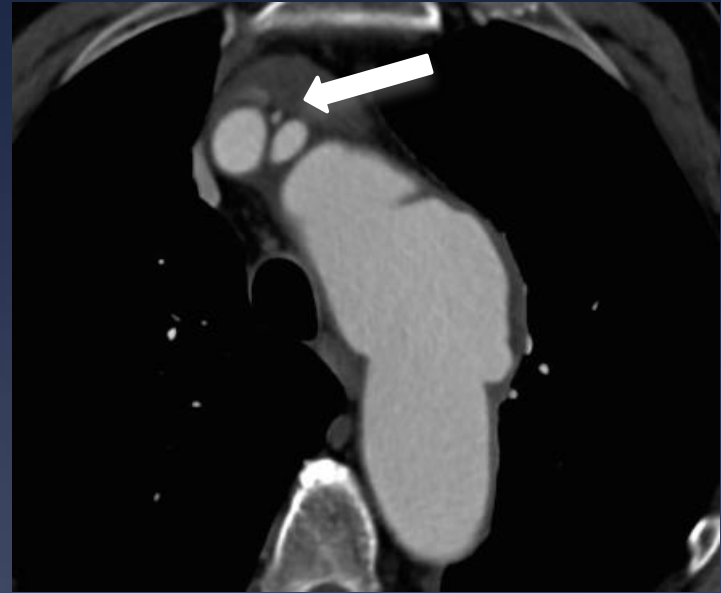
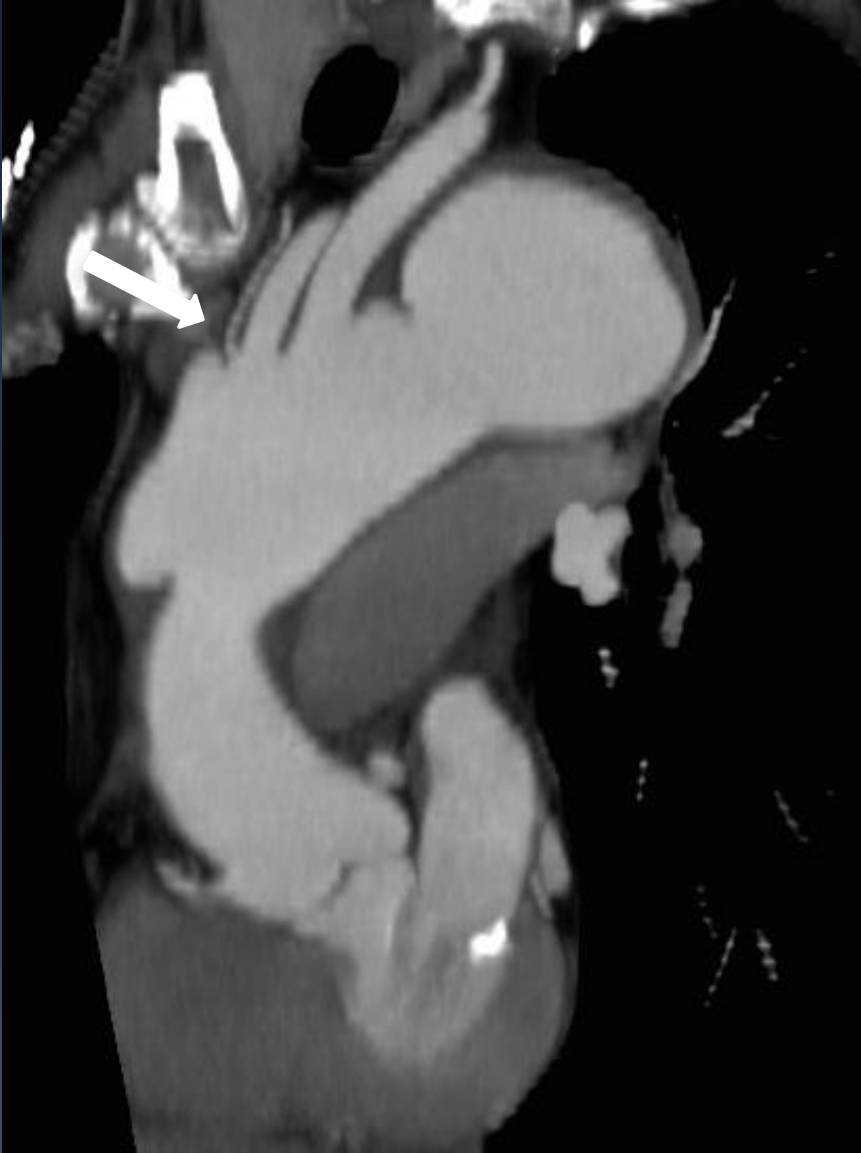


Fusion

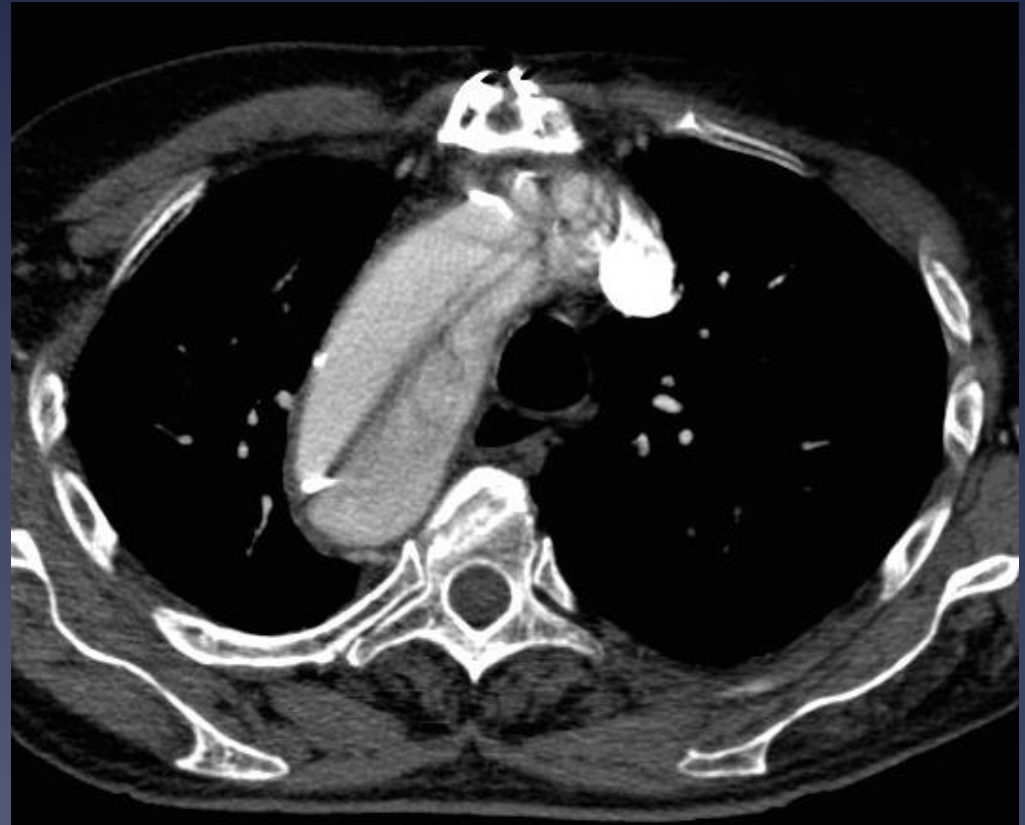
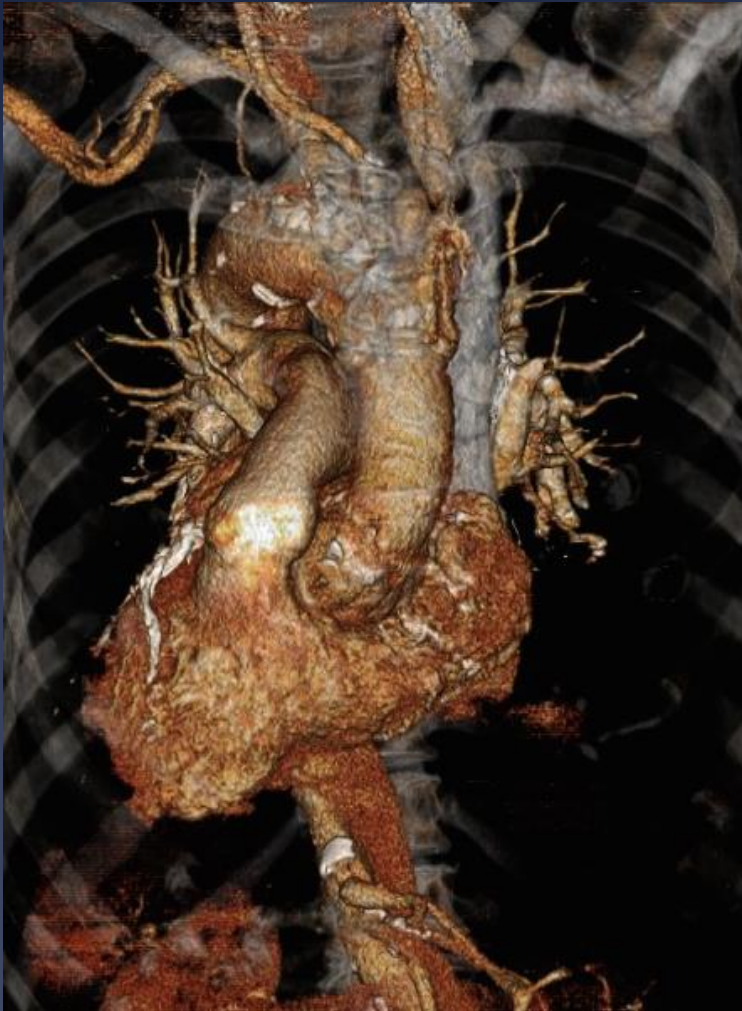


From LSA

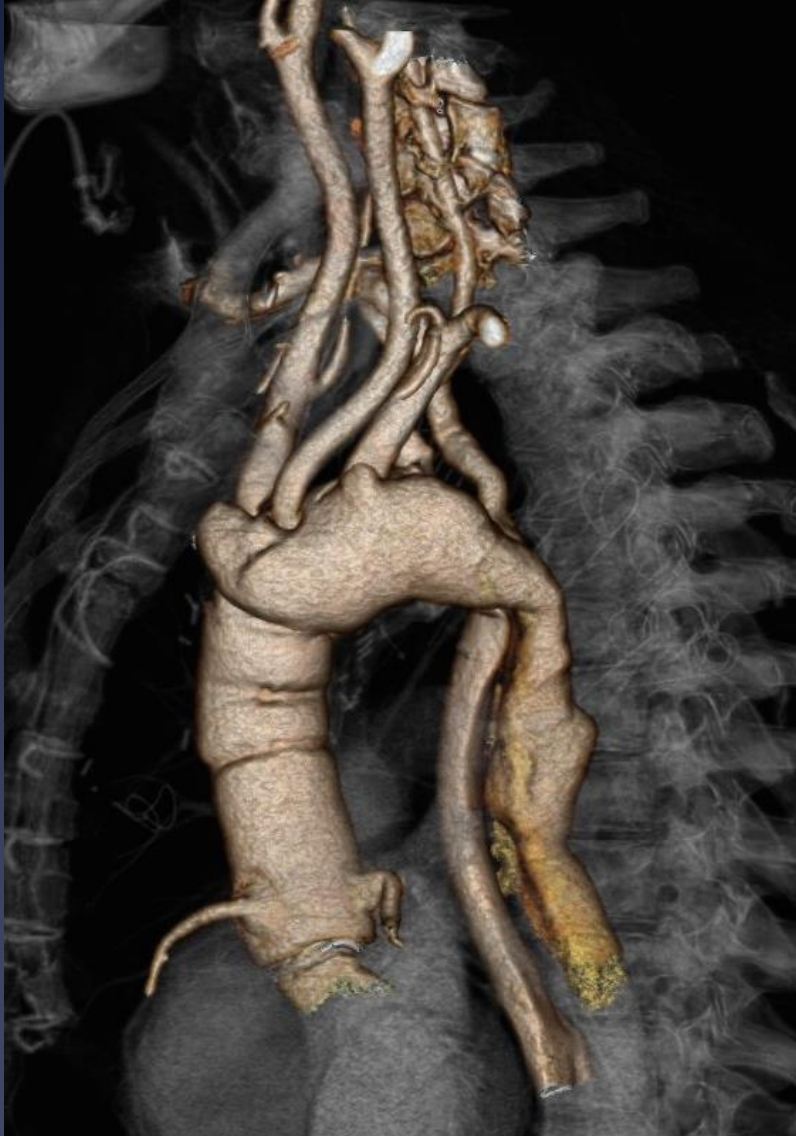
A. Thyroidea Ima



Situs Inversus



Right VA from RCCA



Right VA from RCCA



True Bovine Arch



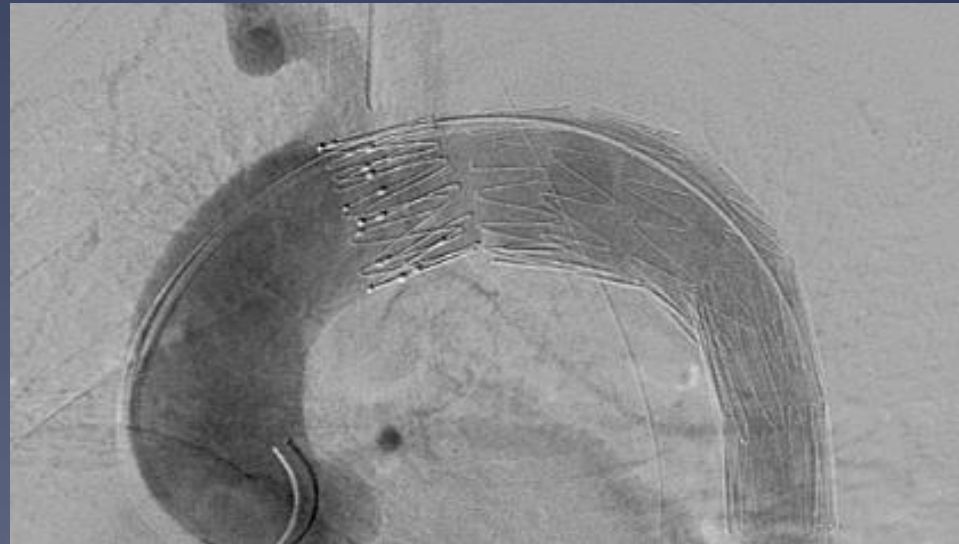
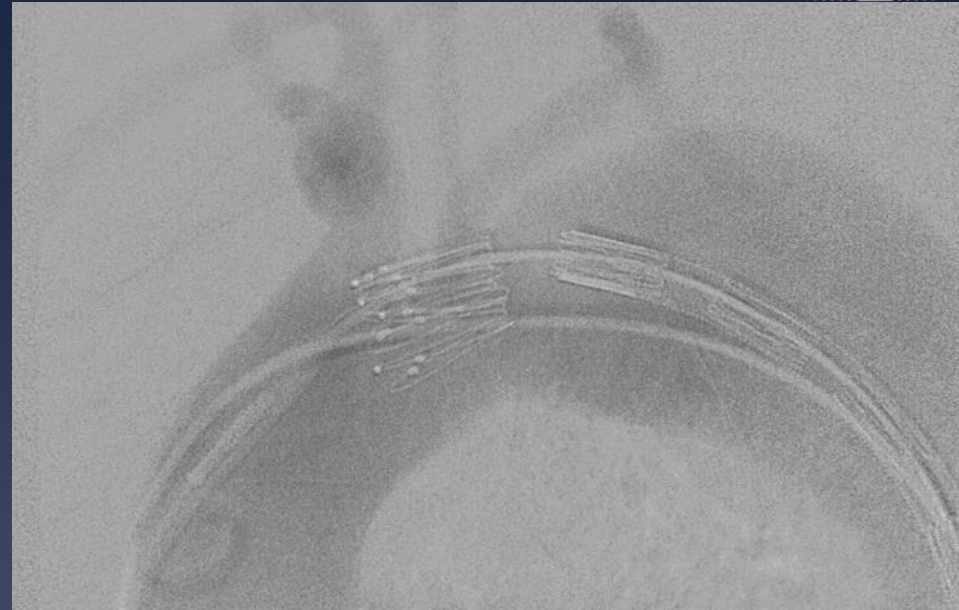
True Bovine Arch



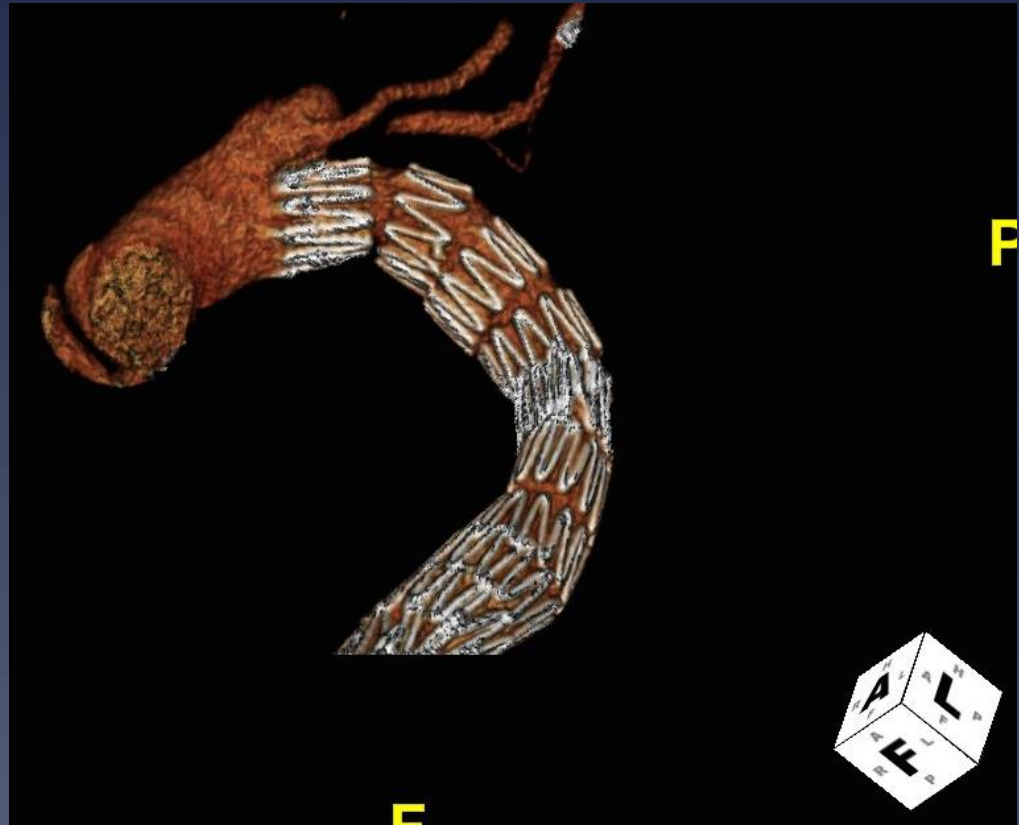
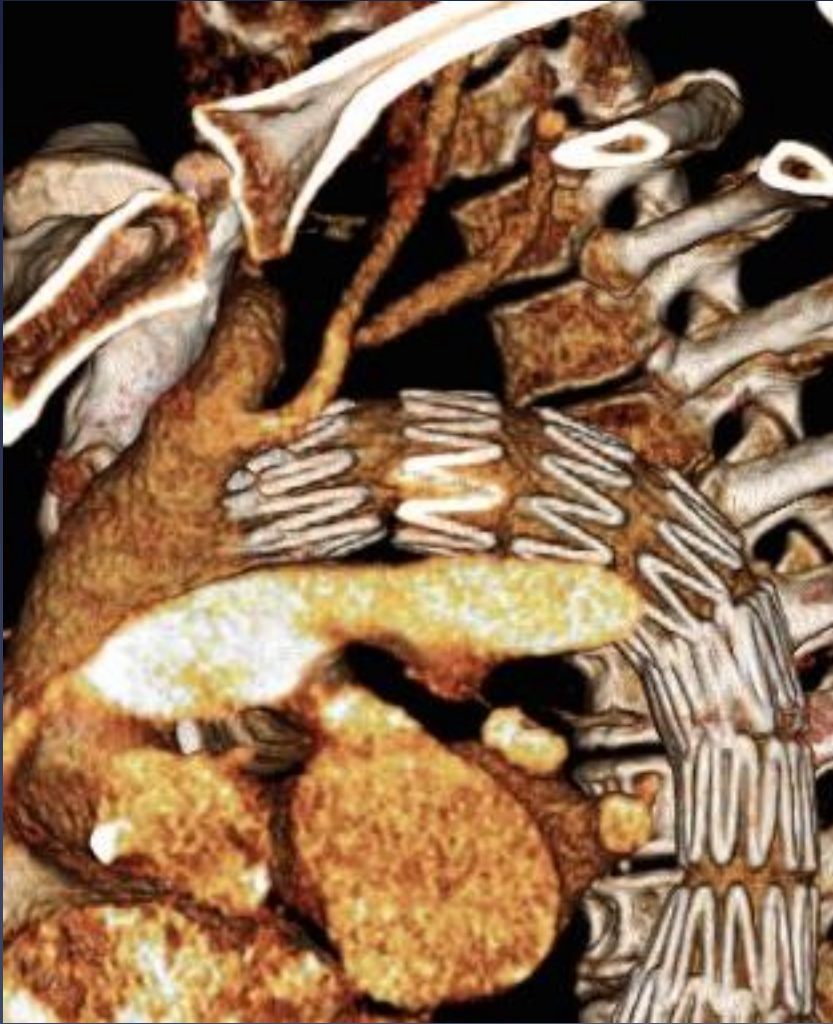
Anterior Bovine IA



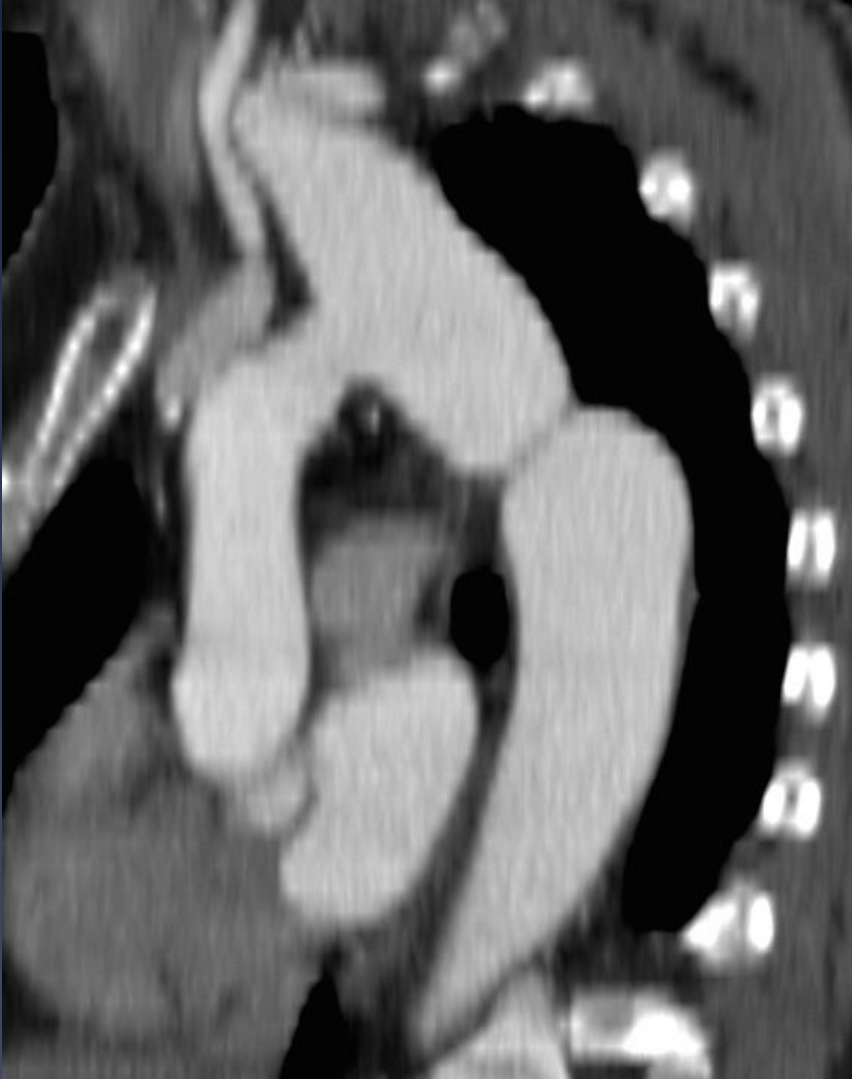
Anterior Bovine IA



Anterior Bovine IA



LSA-Aneurysm and Coarctation



LSA-Aneurysm and Coarctation





Summary



- * Anatomic variants more common in patients with arch pathology
- * LVA-anatomy highly variable
- * Be prepared for implications on arch interventions



Welcome to Essen!



5th AORTIC LIVE SYMPOSIUM

SAVE
THE DATE



**AORTIC
LIVE**

2018

October 29-30, 2018

Congress Center Essen, Germany

In 2018 Aortic Live Symposium will return to Essen, Germany again.
We are looking forward to welcoming you again next year!