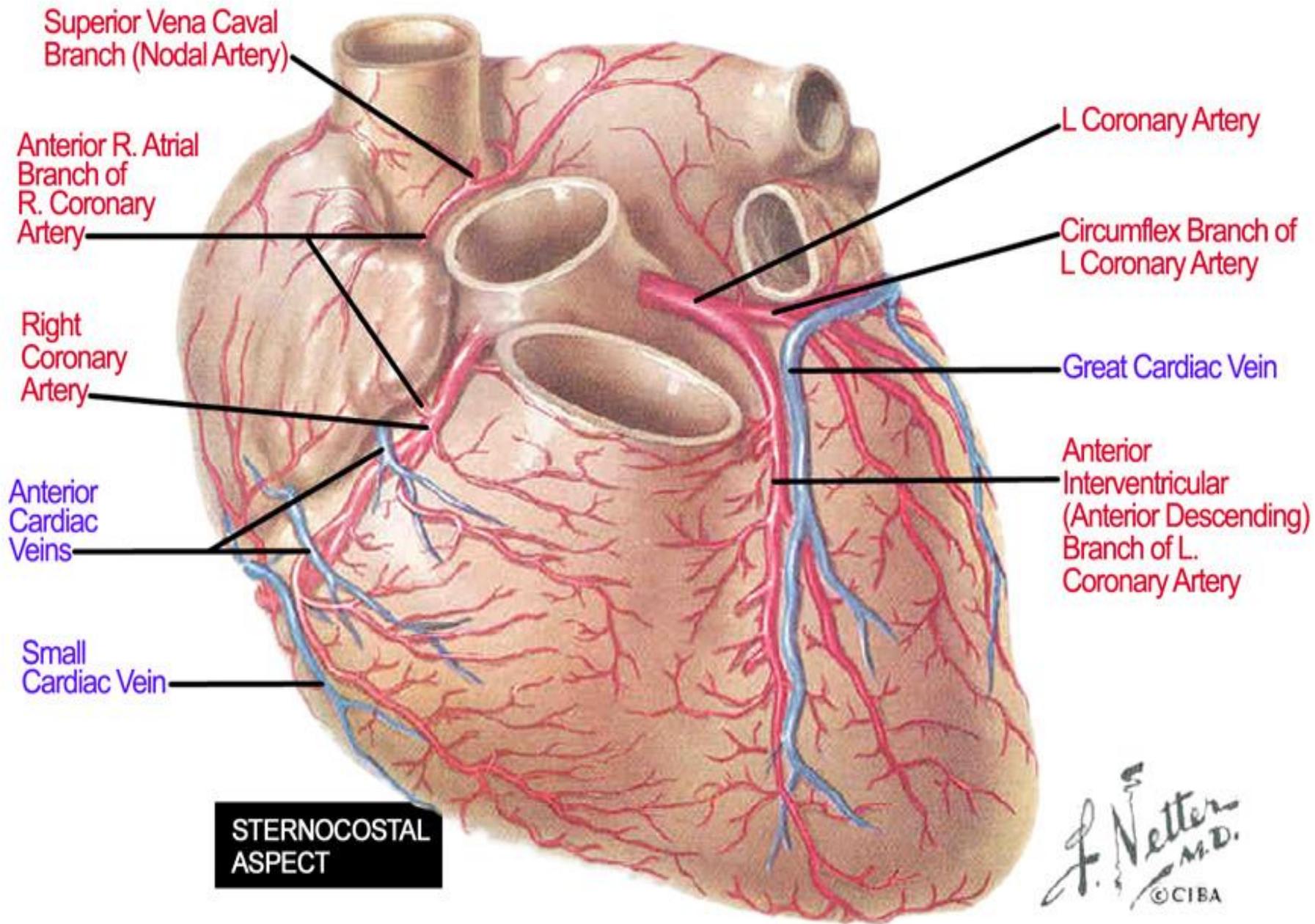
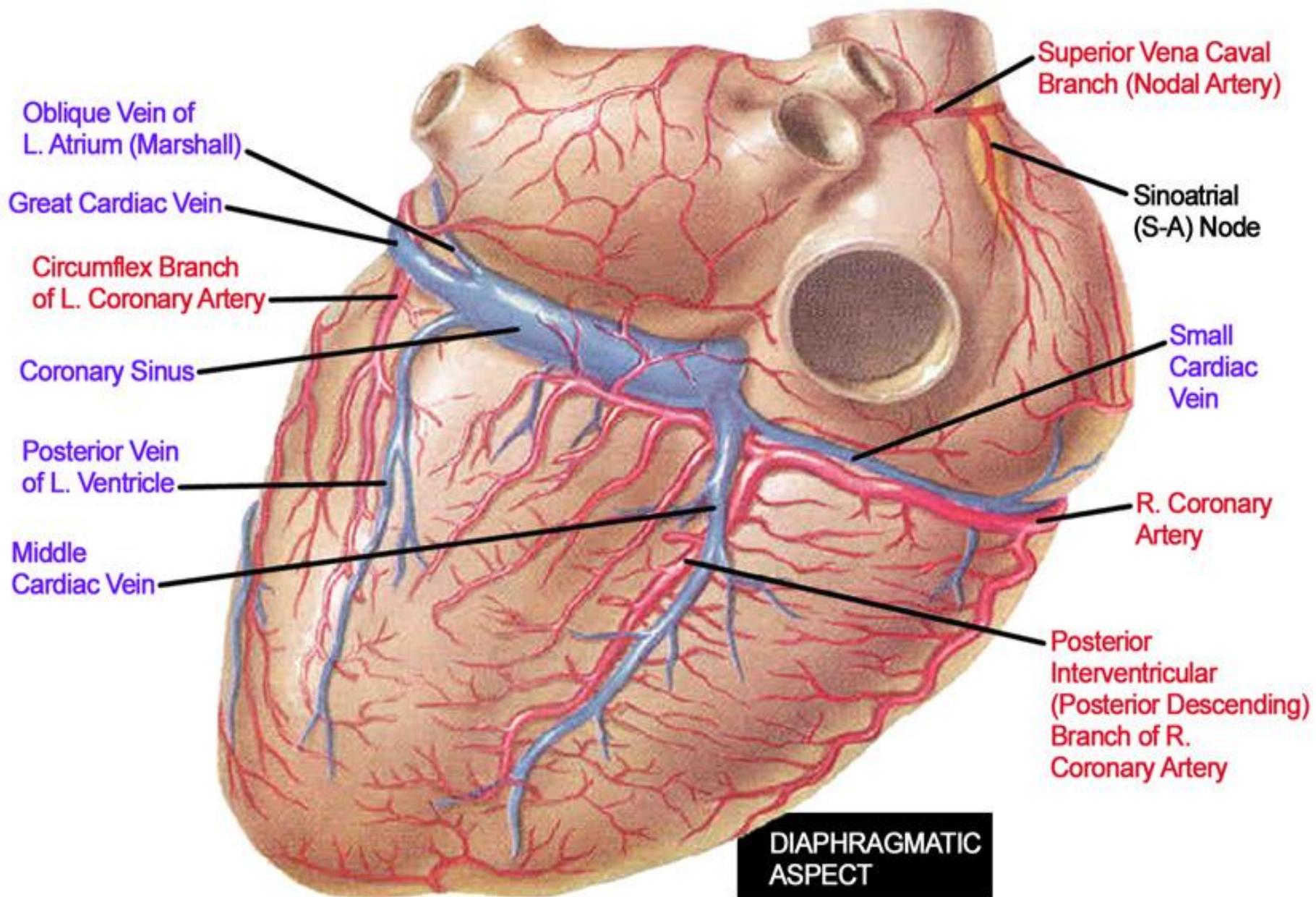


# ANATOMY OF CORONARY ARTERIES AND GRAFTS

Jane Aboulenein, Msc





NUMBER	MAP LOCATION
<b>Right Coronary Artery (RCA)</b>	
1	Proximal RCA
2	Mid RCA
3	Distal RCA
4	Right posterior descending branch
5	Right posterior atrioventricular
6	First right posterolateral
7	Second right posterolateral
8	Third right posterolateral
9	Posterior descending septals
10	Acute marginal segment

NUMBER	MAP LOCATION
<b>Left Main Coronary Artery</b>	
11	Left main coronary artery
<b>Left Anterior Descending (LAD)</b>	
12	Proximal LAD
13	Mid LAD
14	Distal LAD
15	First diagonal
16	Second diagonal
17	LAD septal perforators
29	Third diagonal
27	Left posterior descending branch
28	Ramus intermedius branch

NUMBER	MAP LOCATION
<b>Left Circumflex Artery (LCx)</b>	
18	Proximal LCx
19	Distal LCx
20	First obtuse marginal
21	Second obtuse marginal
22	Third obtuse marginal
23	LCx atrioventricular groove
24	First left posterolateral
25	Second left posterolateral
26	Third left posterolateral

# LEFT CORONARY ARTERY

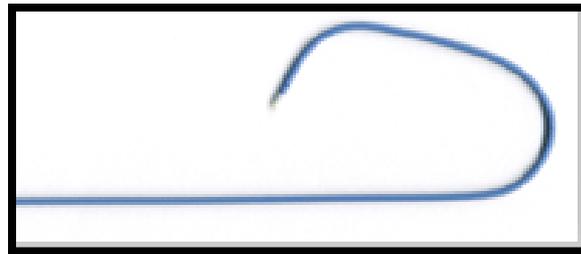
## Left Main Coronary Artery

### ◎ Origin

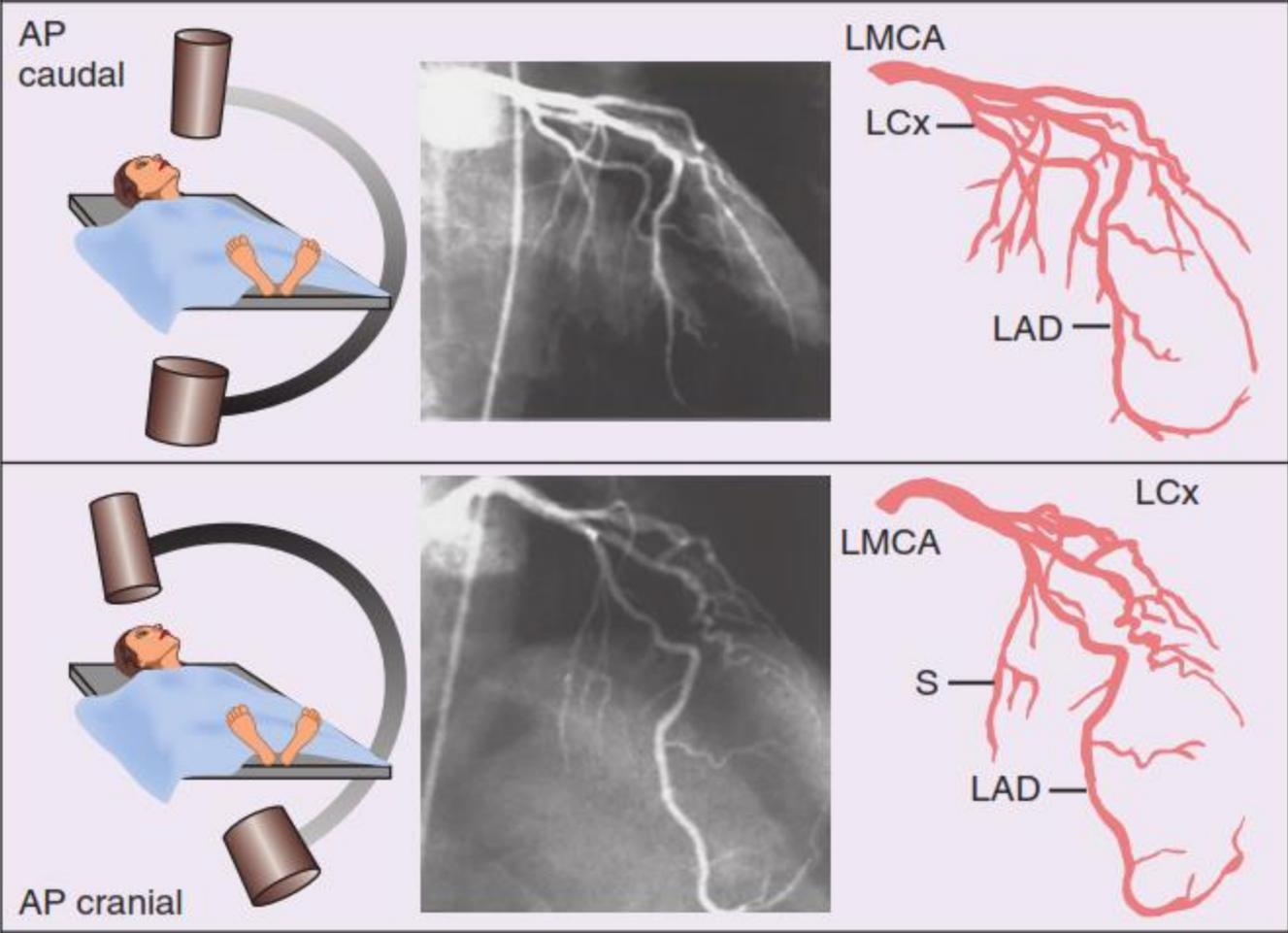
upper portion of left aortic sinus. Typically 0-10 mm in length. Rarely no LM (separate origins).

### ◎ Catheterization Technique

“The Judkins’ 4-Left coronary catheter will find the LCA orifice unless thwarted by the operator”.

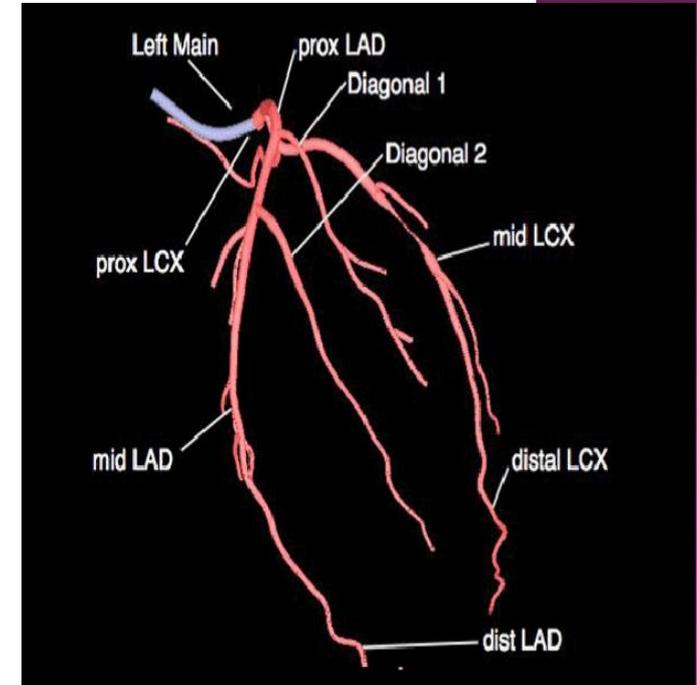


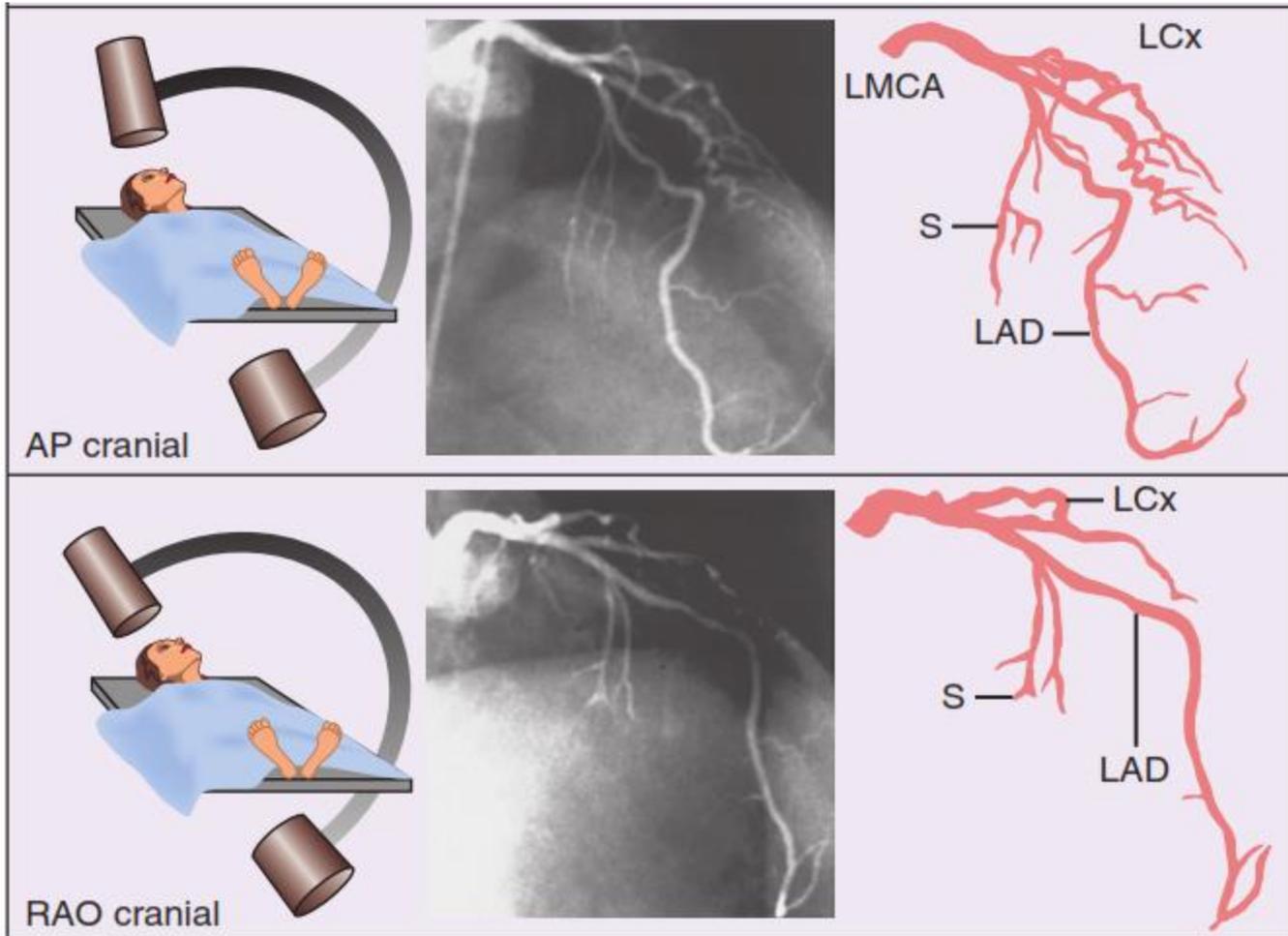
# Optimal Views



# LEFT ANTERIOR DESCENDING ARTERY

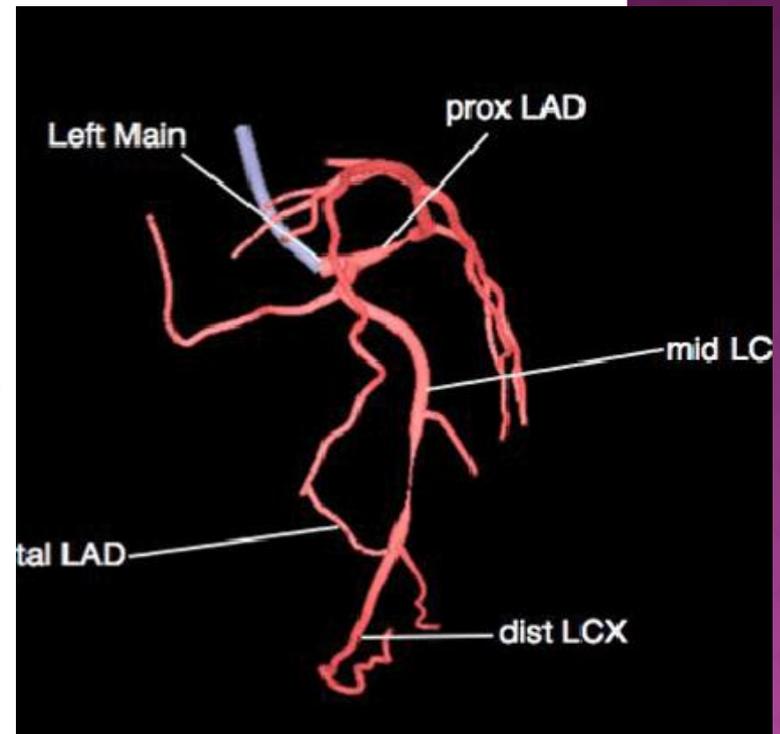
- **Course**  
down the anterior interventricular groove-usually reaches apex.
- **Branches**  
septals and diagonals-supply lateral wall of LV, anterolateral papillary muscle; 37% have median ramus (courses like 1st diagonal).
- **Supplies**  
anterolateral, apex and septum;  
~45%-55% of left ventricle.



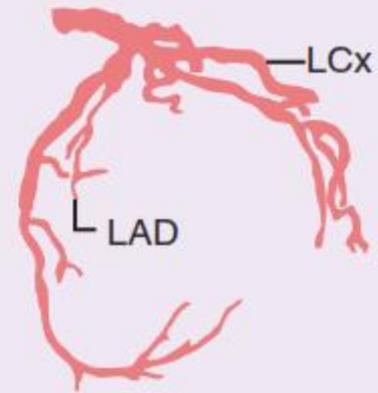
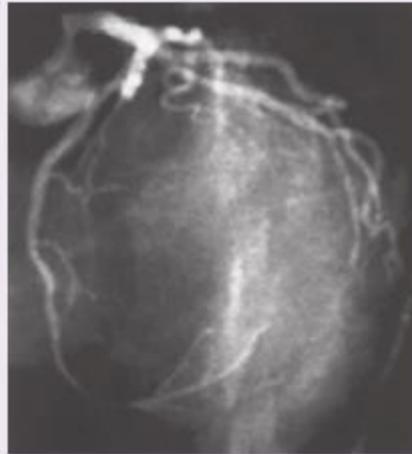


# LEFT CIRCUMFLEX ARTERY

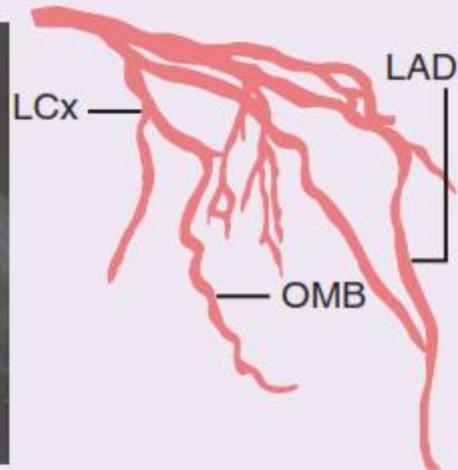
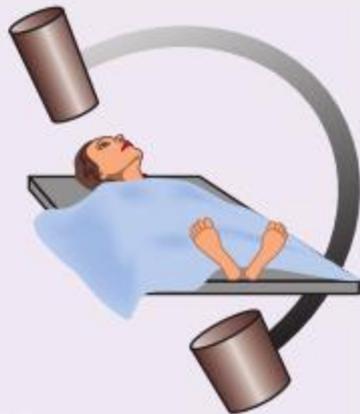
- ◉ **Origin**  
from distal LMCA.
- ◉ **Course**  
down distal left AV groove.
- ◉ **Branches**  
obtuse marginals, posterolaterals-  
supply posterolateral LV,  
anterolateral papillary muscle.  
(SA node artery-38%).
- ◉ **Supplies**  
15%-25% of LV, unless dominant  
(supplies 40-50% of LV).



LAO caudal



RAO caudal



# RIGHT CORONARY ARTERY

## Basic Anatomy



- ◉ **Origin**  
Right aortic sinus (lower origin than LCA)
- ◉ **Course**  
Down right AV groove toward crux of the heart, gives off PDA (85%) from which septals arise, continues in LAV groove giving off posterior LV branches (posterolaterals). PDA may originate more proximally, bifurcate early or be small with part of “its territory” supplied by an acute marginal branch.
- ◉ **Supplies**  
25% to 35% of Left Ventricle

# RIGHT CORONARY ARTERY

## Other Branches

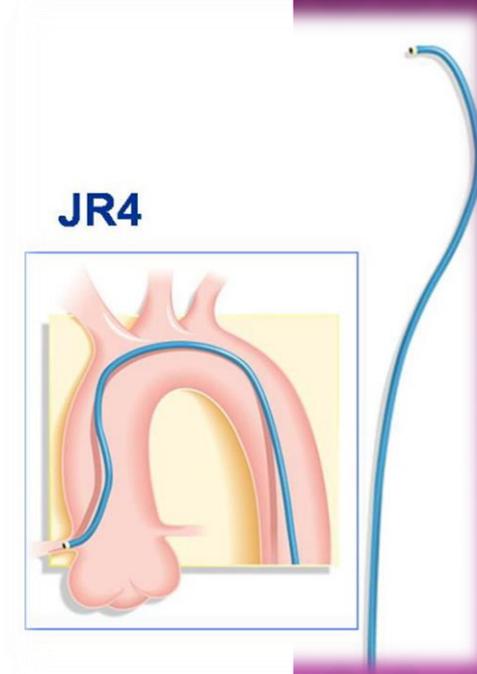
- ◉ Conus Artery
- ◉ SA Nodal Artery
- ◉ Right Ventricular (Acute Marginal) Branches
- ◉ AV Nodal Artery
- ◉ PDA

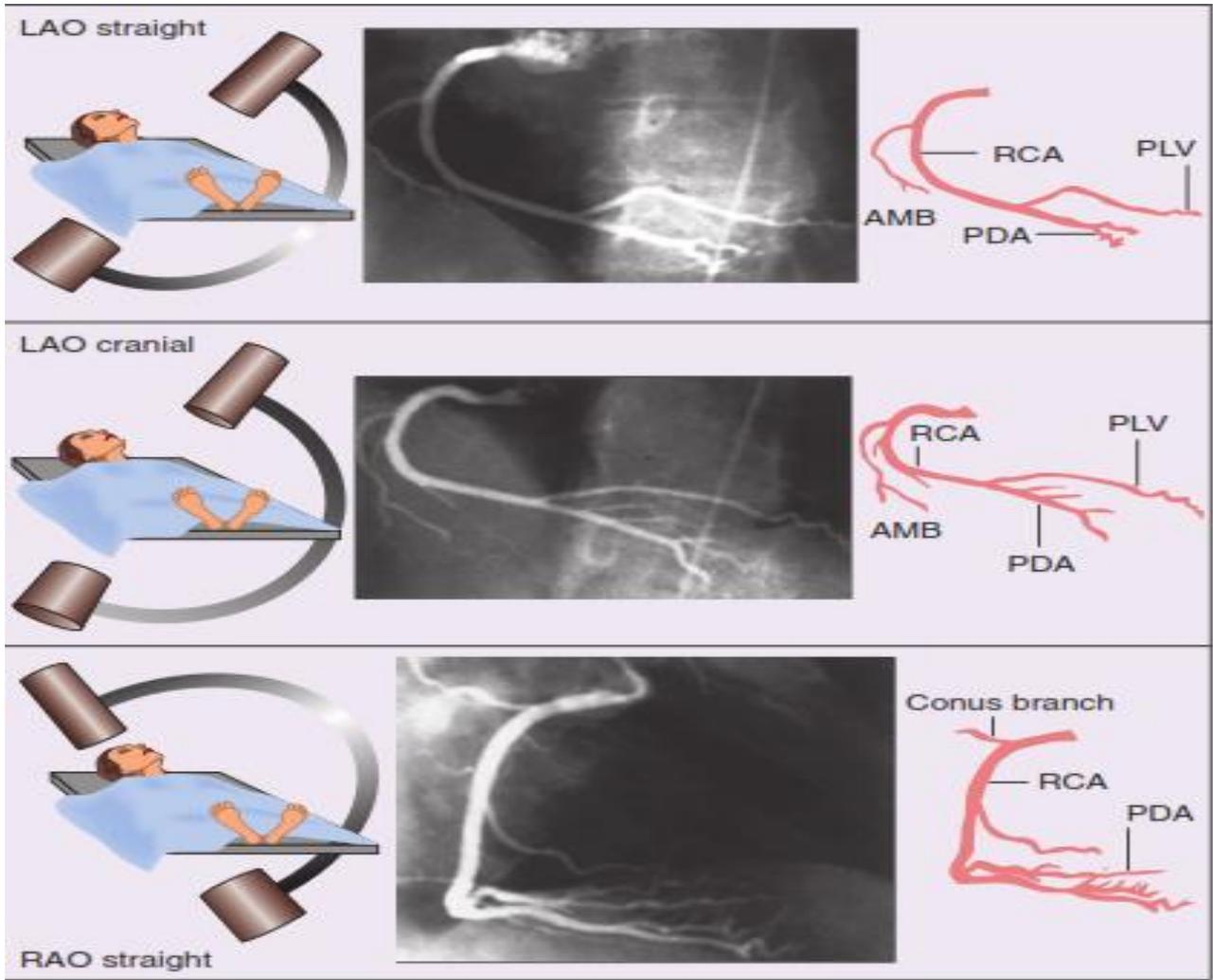
# RIGHT CORONARY ARTERY

## Catheterization Tools and Techniques

- Judkins' 4-right; clockwise rotation-works 90% of the time.

- Other tools—Amplatz, Noto, Williams

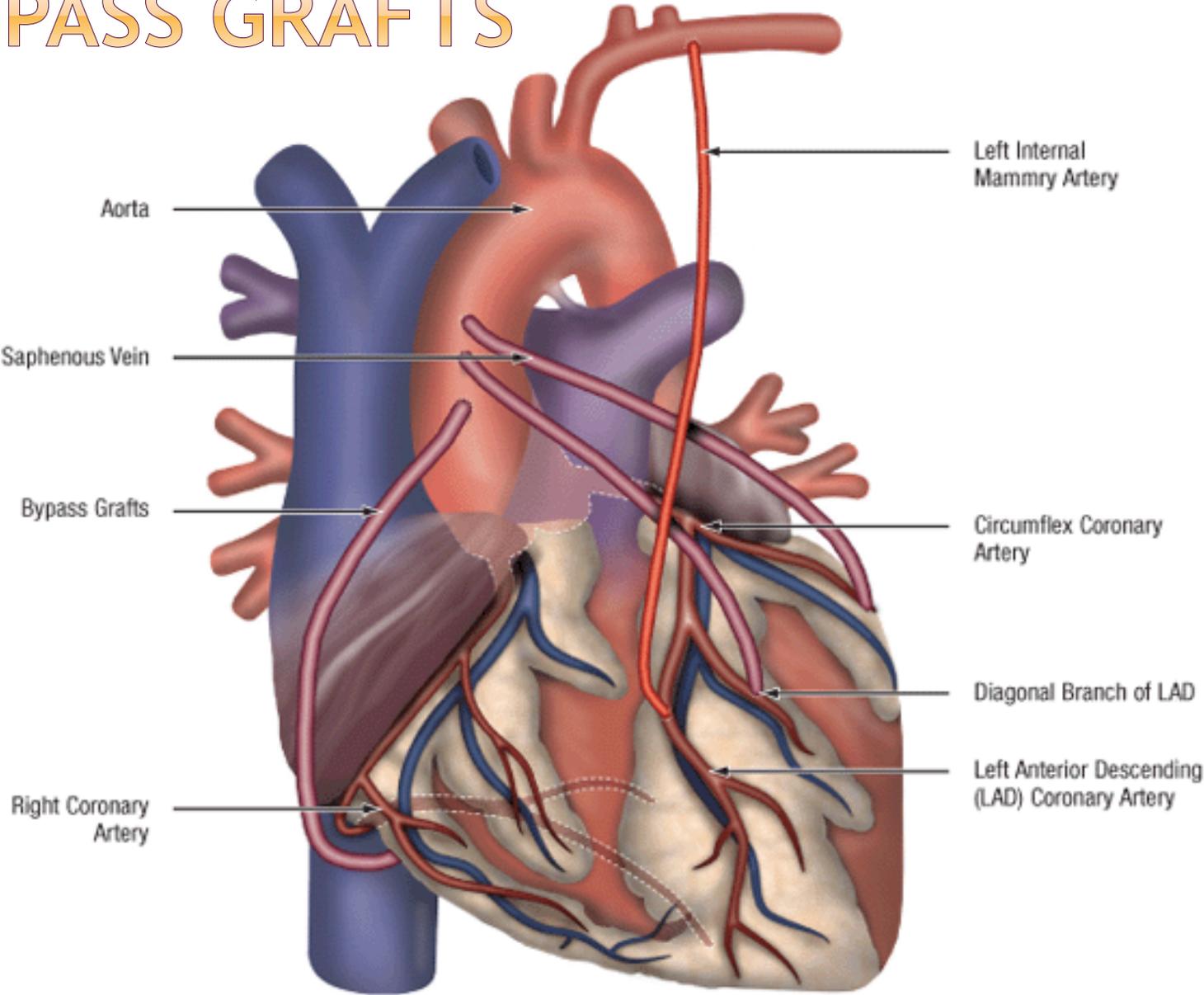




# DOMINANCE:

The coronary artery which reaches the crux of the heart and then gives off the PDA

# BYPASS GRAFTS



# BYPASS GRAFTS

- ◎ Views

in all cases multiple views to see ostia, shaft, and distal anastomosis.

# BYPASS GRAFTS

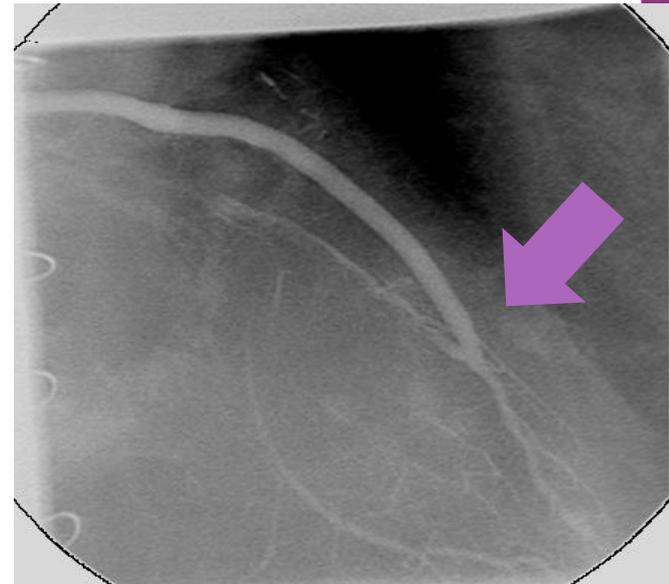
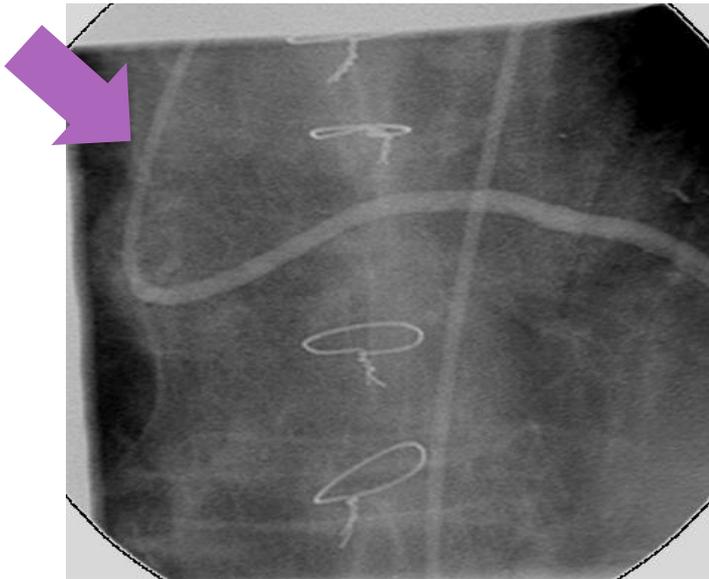
## ◎ SVG

- Left coronary grafts generally arise from left side of the aorta. Best cannulated with Judkins' Right, IMA, LCB or MP.
- Right sided grafts-arise from right side of the aorta-MP usually is the best.

## SAPHENOUS VEIN GRAFTS.

**SVGs from the aorta to the distal RCA or PDA** originate from the right anterolateral aspect of the aorta approximately 5 cm superior to the sinotubular ridge.

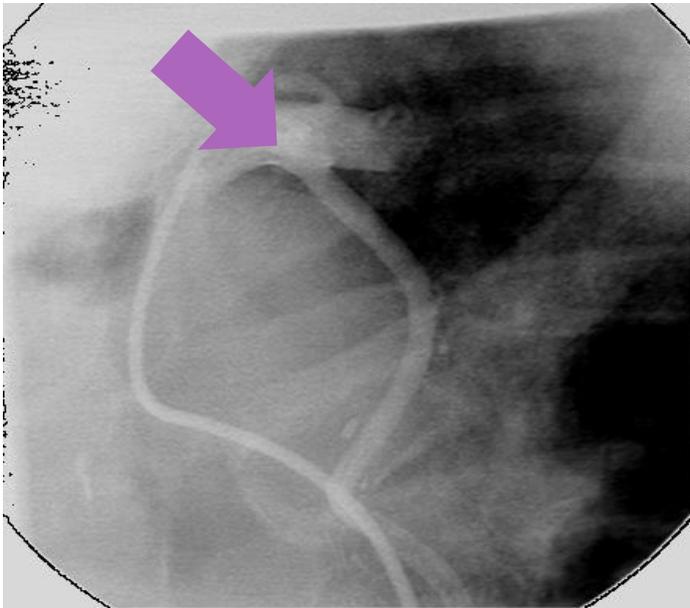
**SVGs to the LAD artery (or diagonal branches)** originate from the anterior portion of the aorta about 7 cm superior to the sinotubular ridge. **SVGs to the obtuse marginal branches.**



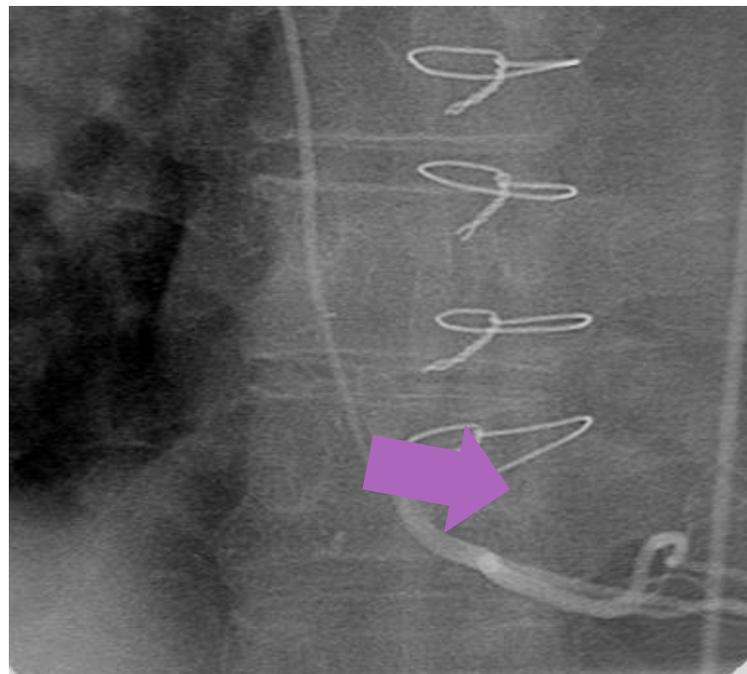
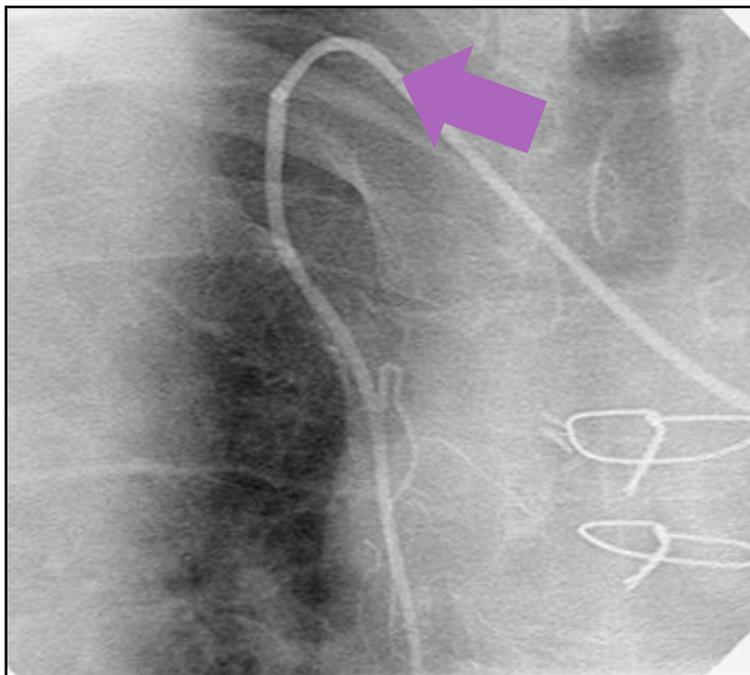
## INTERNAL MAMMARY ARTERY.

Search for the subclavians.

**The left IMA arises inferiorly from the left subclavian artery approximately 10 cm from its origin**

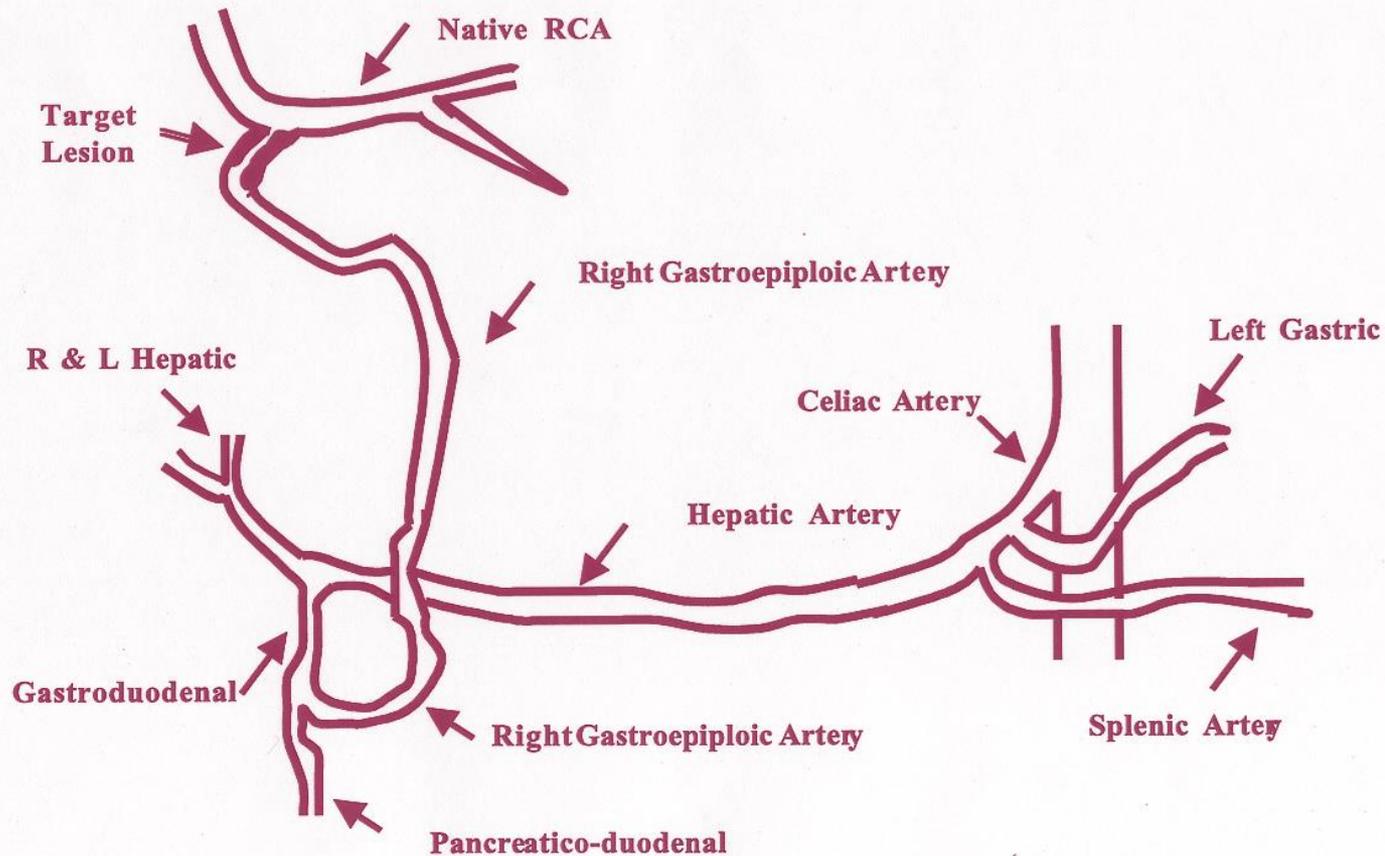


## RIMA to RCA



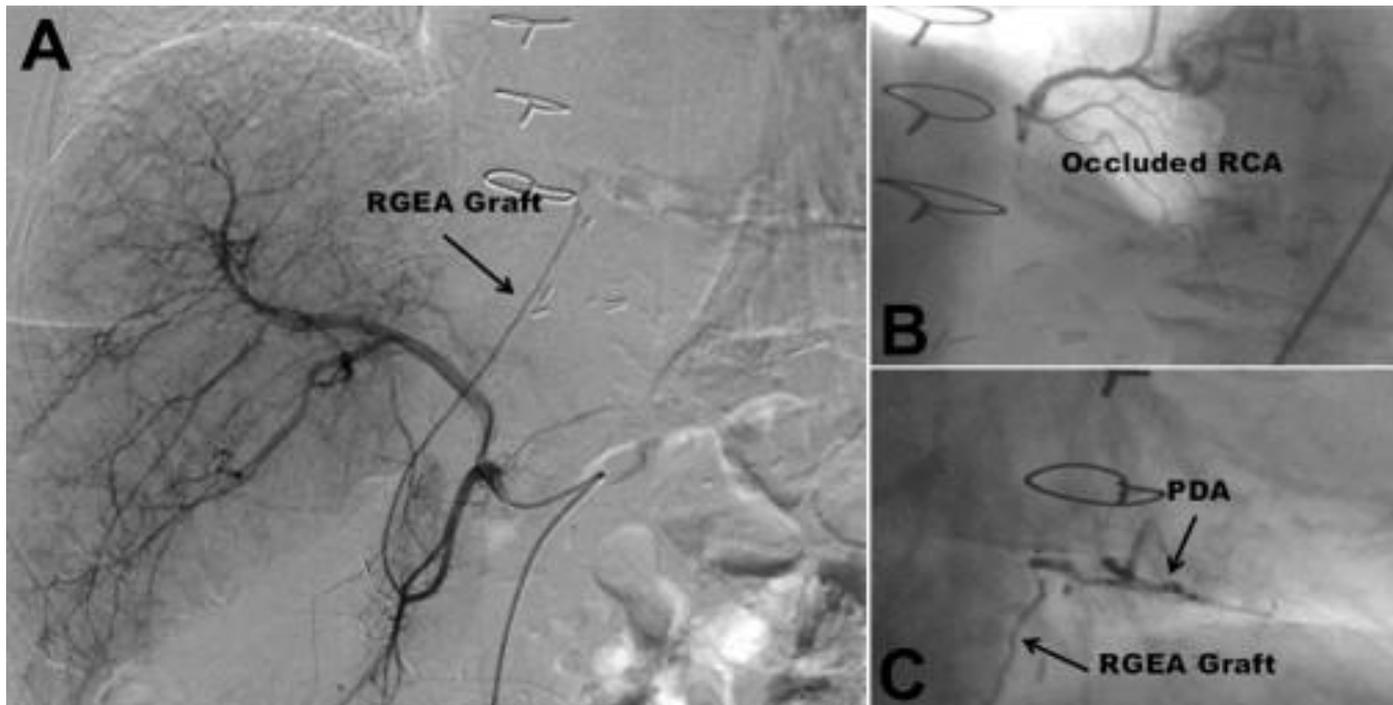
## GASTROPILOIC ARTERY.

The right gastroepiploic artery (GEA) is the largest terminal artery of the gastroduodenal artery which arises from the common hepatic artery in 75% of cases



## Gastroepiploic

visceral catheters (Cobra) enter celiac axis and then common hepatic artery and turn down into gastroduodenal.



# OPTIMAL ANGIOGRAPHIC PROJECTION

May be variable depending on body habitus, variation in the coronary anatomy, and location of the lesion.

It is recommended that the coronary Arteries Be Visualized In both The LAO And RAO Projections with Both Cranial and Caudal angulation.

спасибо  
danke 謝謝  
ngiyabonga  
teşekkür ederim  
dank je  
gracias  
tapadh leat  
bedankt  
hvala  
mauruuru  
dziękuję  
mochchakkeram  
obrigado  
sagolun  
sukriya  
kop khun krap  
go raibh maith agat  
arigatō  
takk  
dakujem  
mercisi  
merci  
ευχαριστώ  
terima kasih  
감사합니다