



## 腹部血管超音波檢查

## 腹部血管超音波

臺北榮總放射線部  
張美彥醫事放射師

我們都是  
醫事放射師

我提供專業的醫學影像  
及放射治療

我為您的醫療輻射劑量把關

請叫我  
放射師

中華民國醫事放射師公會全國聯合會 印製

2019/9/29

中華民國醫事放射學

- 血管超音波檢查之目的：
  - 確認血管的位置與大小是否正常
  - 測量血管流速之定量與定性分析
  - 觀察任何懷疑與血管有關之病變

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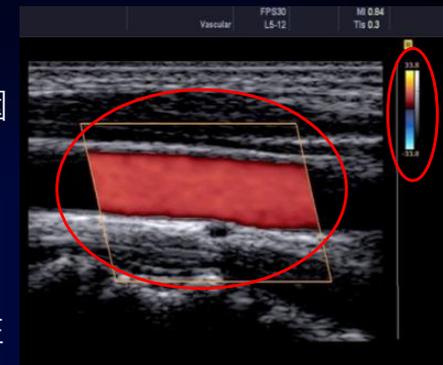


## 常用的腹部血管超音波之檢查項目

- 腹主動脈
- 肝臟血管之評估
- 腎臟血管之評估
- 骨盆腔血管之評估
- 移植前後器官之血管評估
- 其他

## 彩色都卜勒(Color Doppler)

- 注意事項：
  - Color box：彩色影像顯示的範圍
    - 範圍越大運算越慢
    - 大小為比興趣範圍(ROI)再加 1/2
  - Color scale：血流的速度
    - 向下調整到假影出現後，再往上調回1-2格
  - Color gain：彩色影像的飽和度
    - 向上調整到假影出現後，再往下調回1-2格



- Color scale：太小的假影名稱及成因
- Color gain：太大的假影名稱及成因

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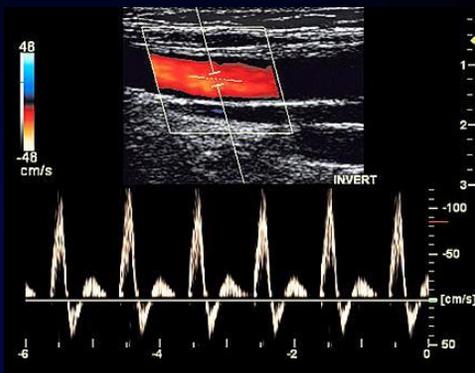
## 頻譜都卜勒(spectral Doppler)

### 注意事項:

- Sample gate : 取樣窗的大小
  - 血管寬度的1/3-1/4
- Angle (<60°)

$$f_D = f_R - f_T = \frac{2f_T v \cos \theta}{c}$$

- Spectral scale : 血流速度尺標
  - 約血流速度的1.5倍
- Spectral gain : 血流尺標的背景
  - 一般的背景是不呈現的，血流太弱時可增加，使血流呈現

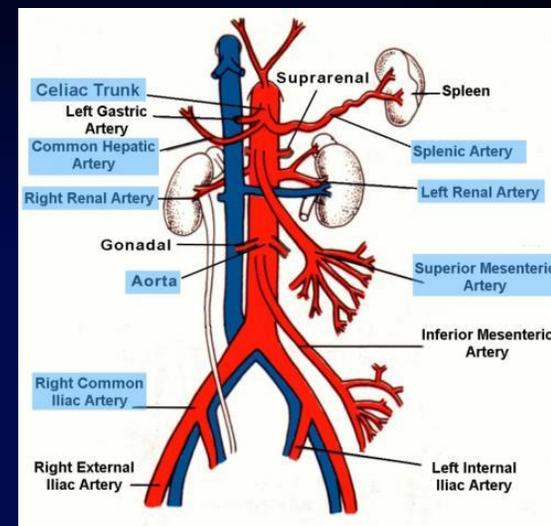


- Angle : 太大的假影名稱及成因
- Spectral scale : 太小的假影名稱及成因
- Spectral gain : 太大的假影名稱及成因

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## Artery

1. AO、IVC
2. CT(SPL A、HA)
3. SMA
4. Renal A
5. Iliac A



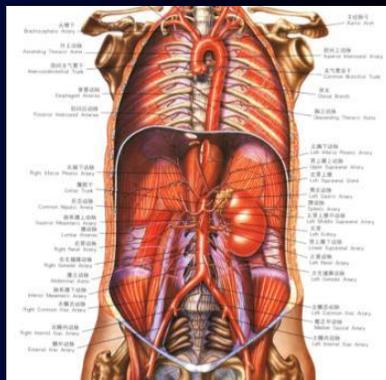
資料來源：網路下載圖片

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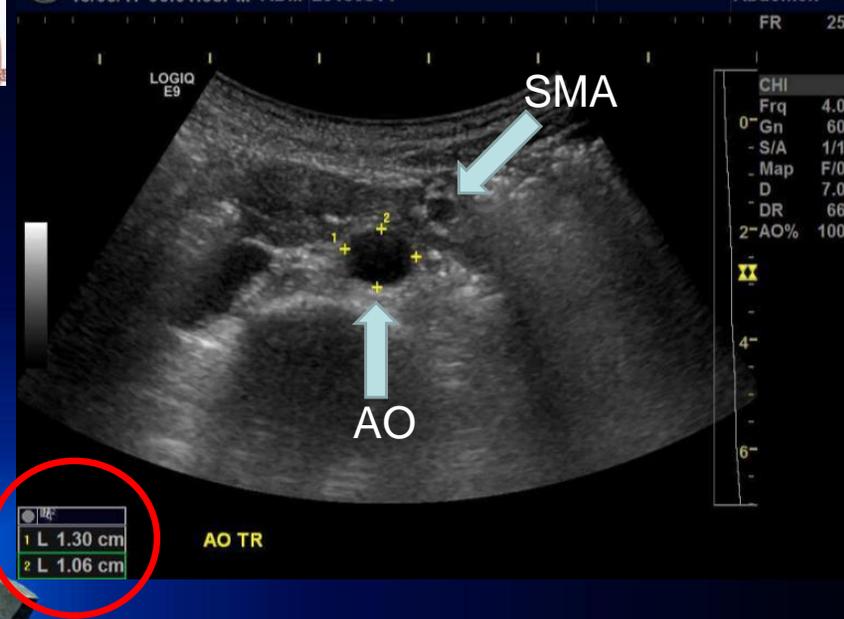


## 掃描方式

- 注意事項：(與肝臟超音波相同)
  - 禁食：至少6hrs (可以喝量水)-避免胃漲氣
  - Position : supine(仰臥姿勢)
  - 兩手舉高放在枕頭上肋間空隙變大
  - 呼吸方式：腹式



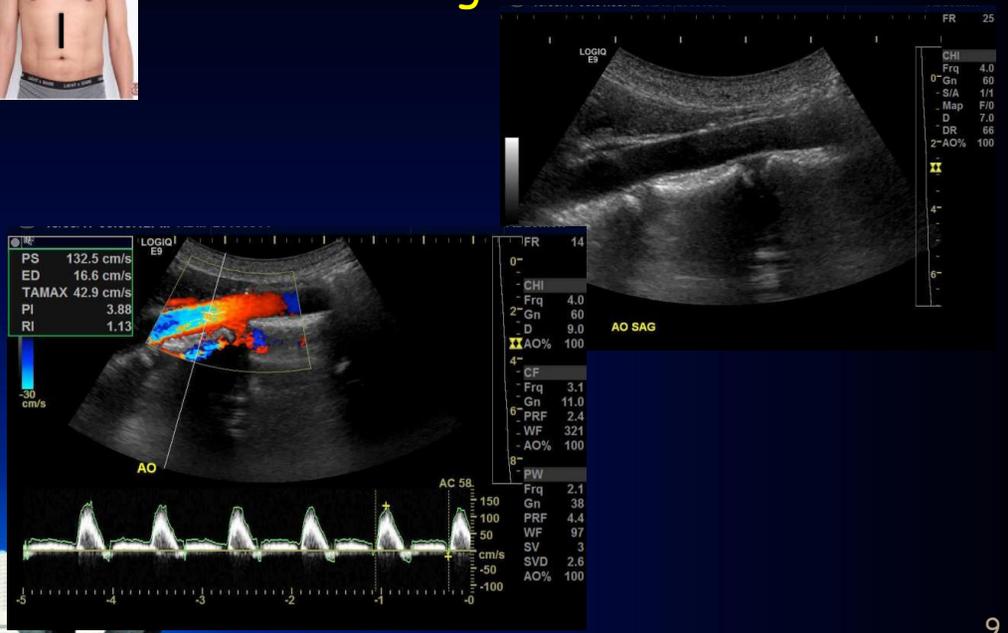
## 1. Abdomen Aortic



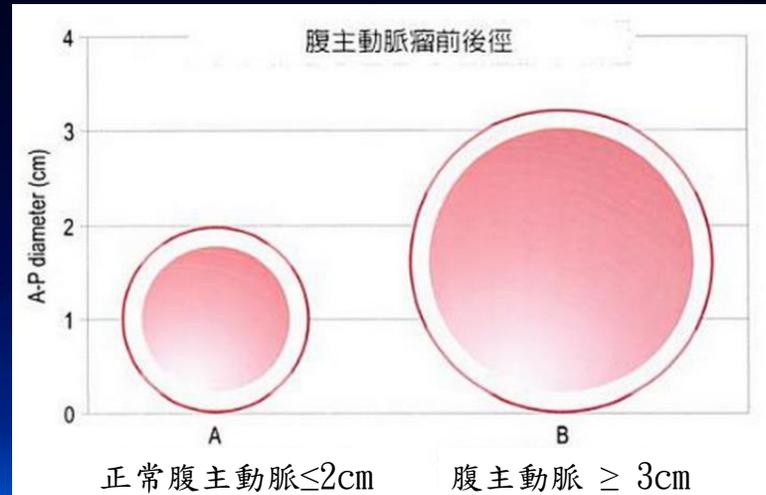
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# AO Sagittal View



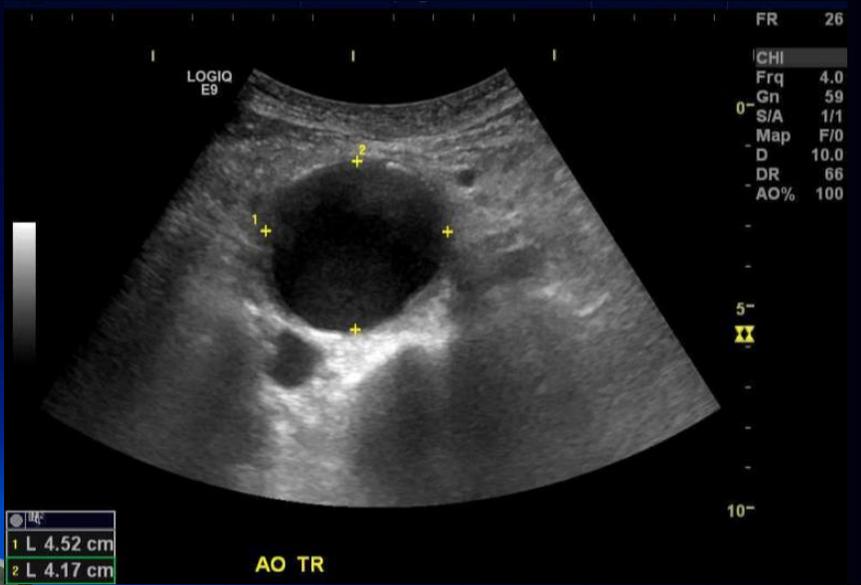
# 腹主動脈血管徑



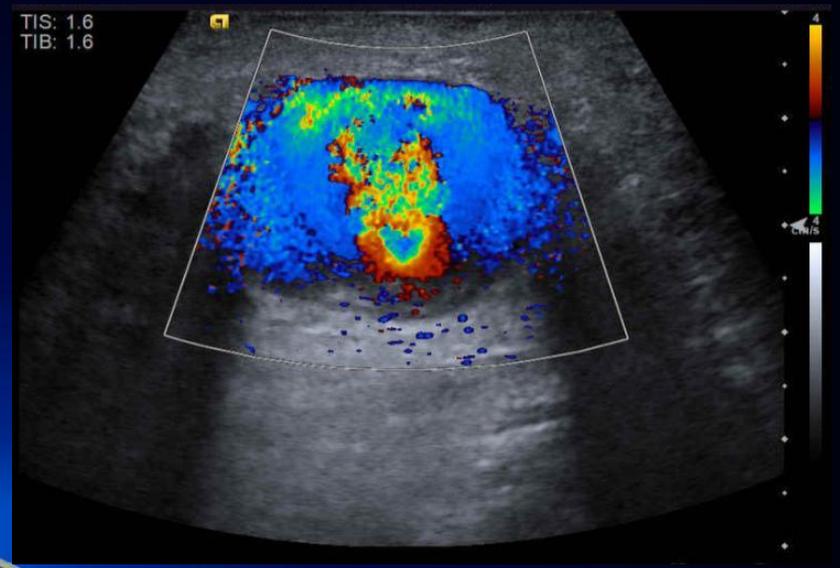
腹主動脈瘤



# Abdominal Aortic Aneurysm (AAA)



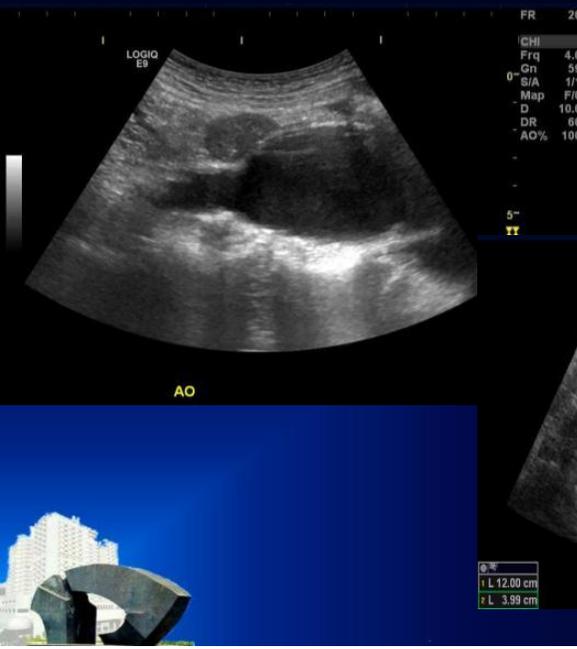
# Abdominal Aortic Aneurysm (AAA)





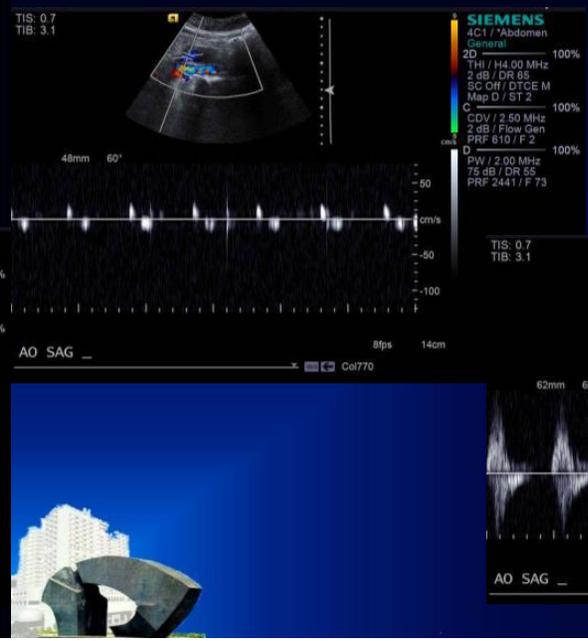
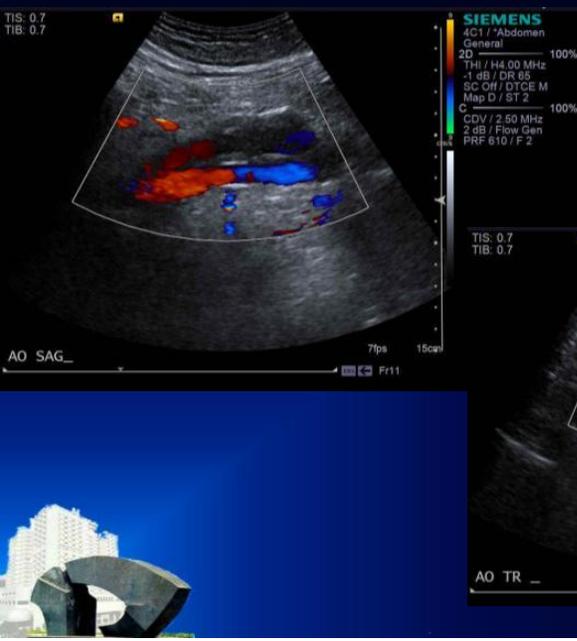
# Abdominal Aortic Aneurysm (AAA)

# Aortic Dissection



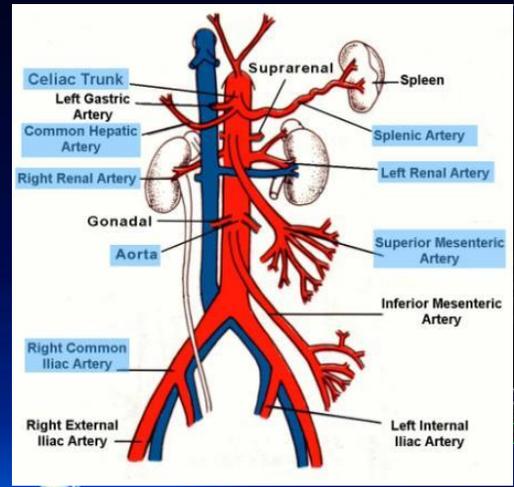
# Aortic Dissection

# Aortic Dissection

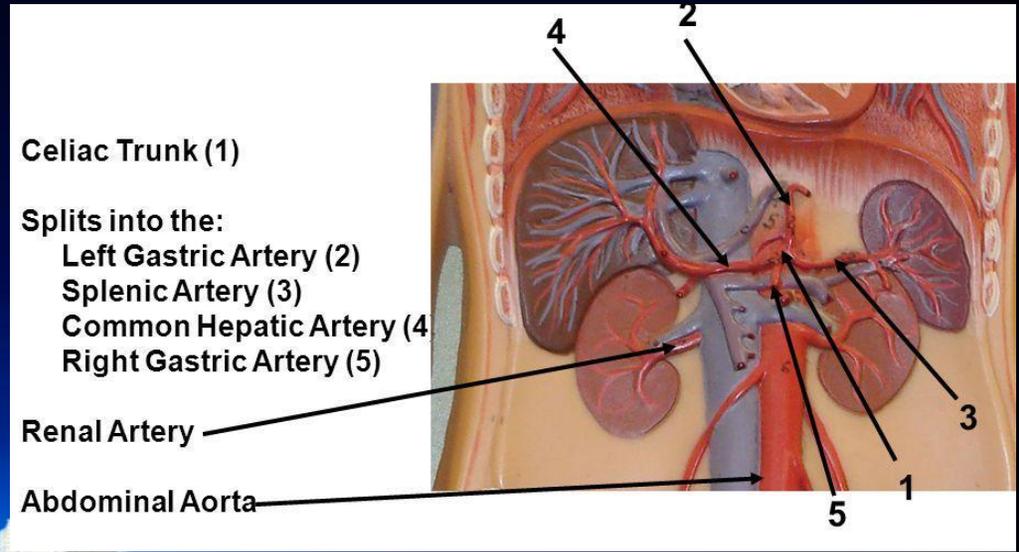




# AO、IVC (如何分辨?)



# 2.CT(SPL A、HA)



Celiac Trunk (1)

Splits into the:  
Left Gastric Artery (2)  
Splenic Artery (3)  
Common Hepatic Artery (4)  
Right Gastric Artery (5)

Renal Artery

Abdominal Aorta



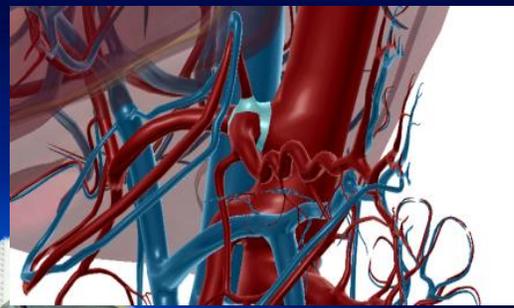
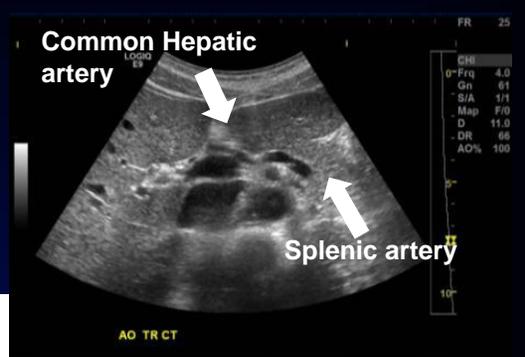
# Aorta、Celiac trunk

- Celiac trunk
  - Common Hepatic artery
  - Splenic artery



# Aorta、Celiac trunk

- Common Hepatic artery
- Splenic artery



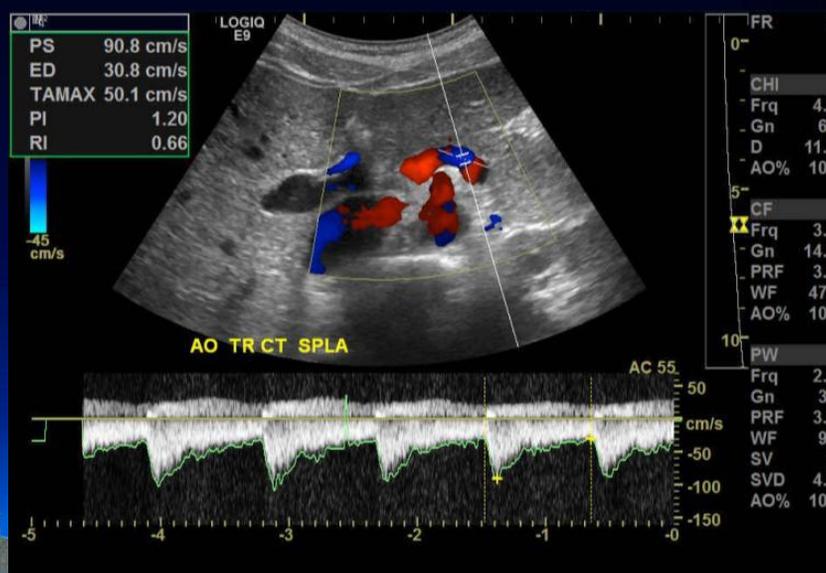


## Common Hepatic artery / Splenic artery

## Common Hepatic artery / Splenic artery



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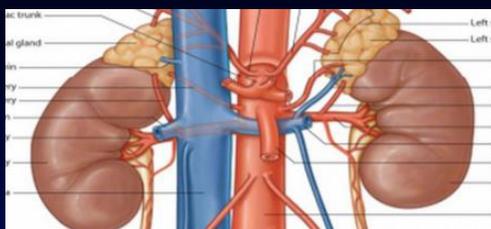


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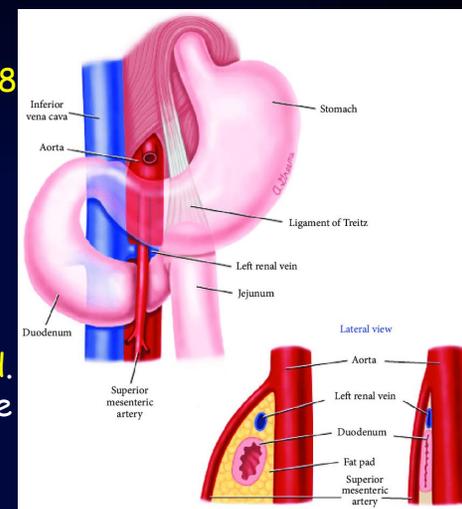


## 3. Aorta、Superior mesenteric Artery

## SMA syndrome and Nutcracker



- SMA syndrome
  - the normal angle between the SMA and the AO is between **38 and 65 degrees**.
  - SMA syndrome is characterized by compression of the third portion of the duodenum due to **narrowing of the space between the SMA and AO** and is primarily attributed to loss of the **intervening mesenteric fat pad**.
  - With SMA syndrome, the angle between the SMA and the AO can be narrowed to **as little as 6 degrees**.

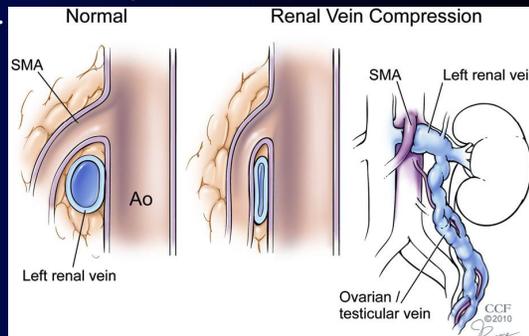


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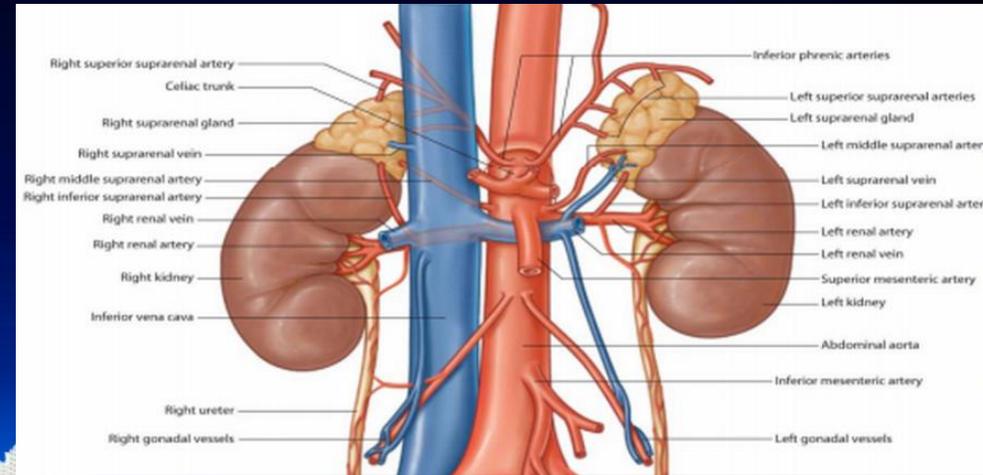
# SMA syndrome and Nutcracker

## Nutcracker syndrome

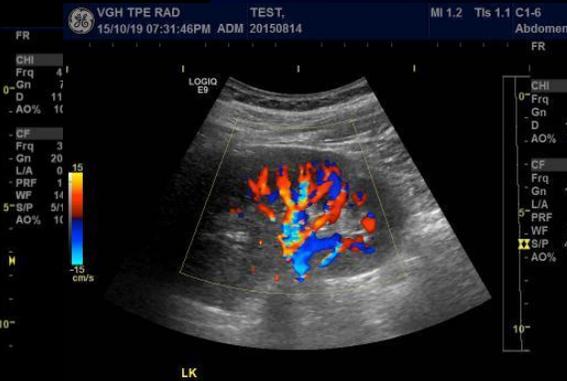
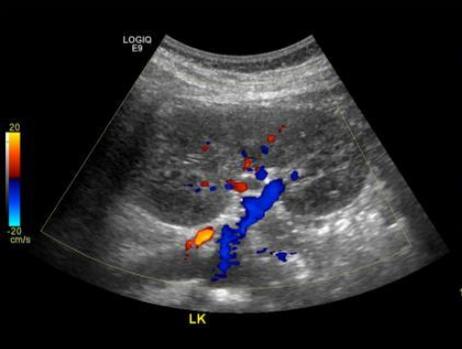
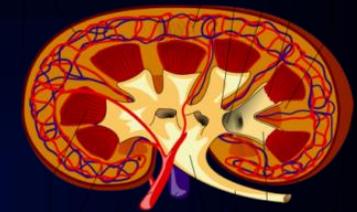
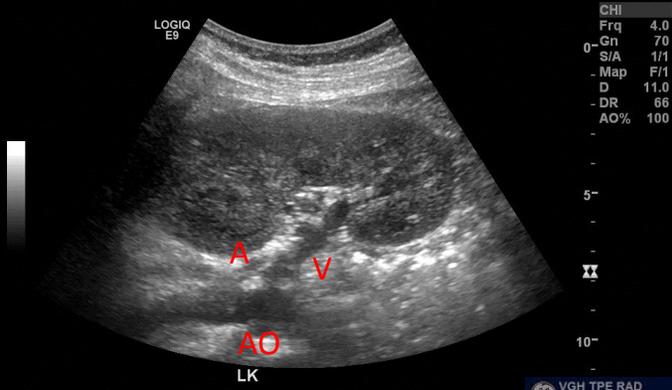
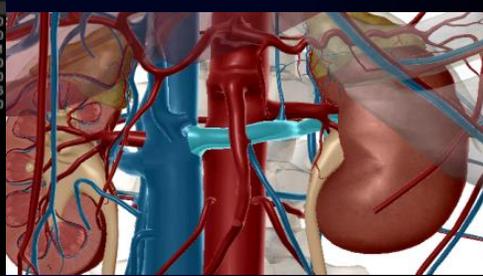
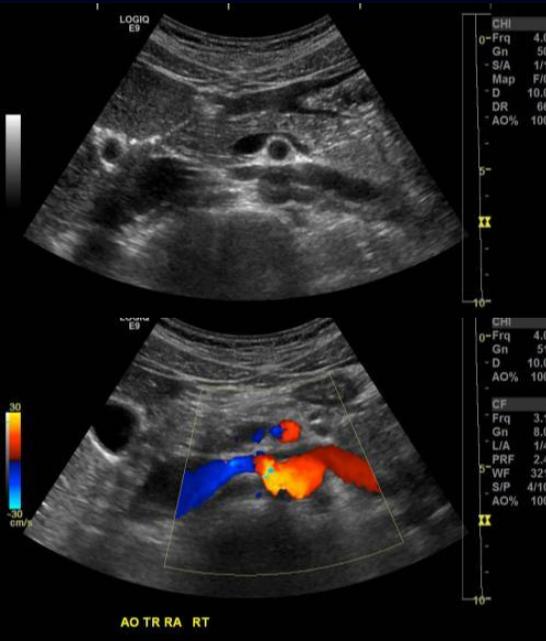
- Anatomically, the LRV traverses the space between the SMA and the AO in close proximity to the origin of the artery. In affected individuals, the LRV is subjected to compression between these two structures, resulting in **renal venous hypertension**.
- The classic symptoms of nutcracker syndrome include **left flank pain with gross or microscopic hematuria**. Patients are often children or young adults, with a slight predisposition for women who may also present with **pelvic congestion symptoms such as pelvic pain and dyspareunia**.

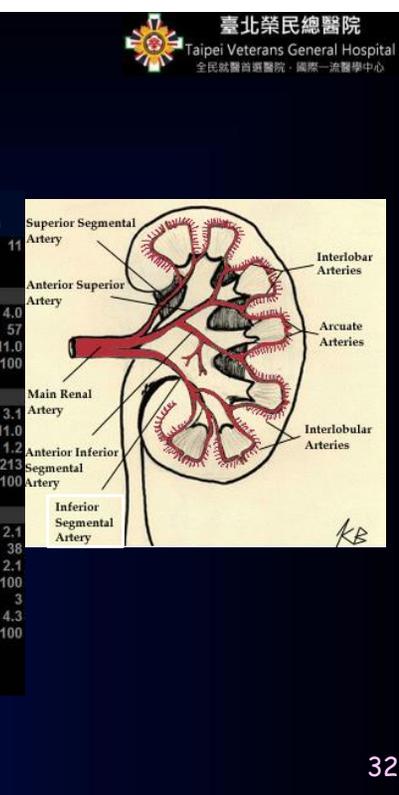
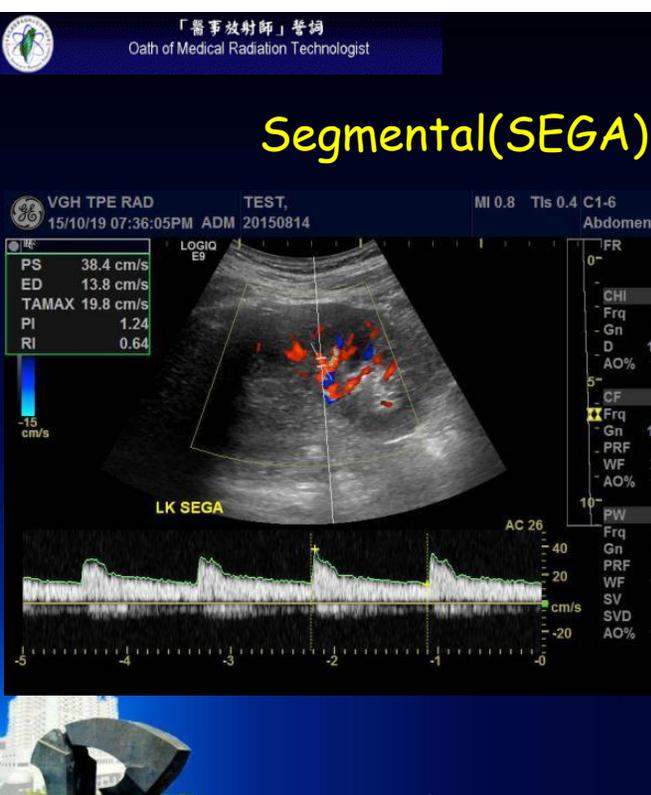
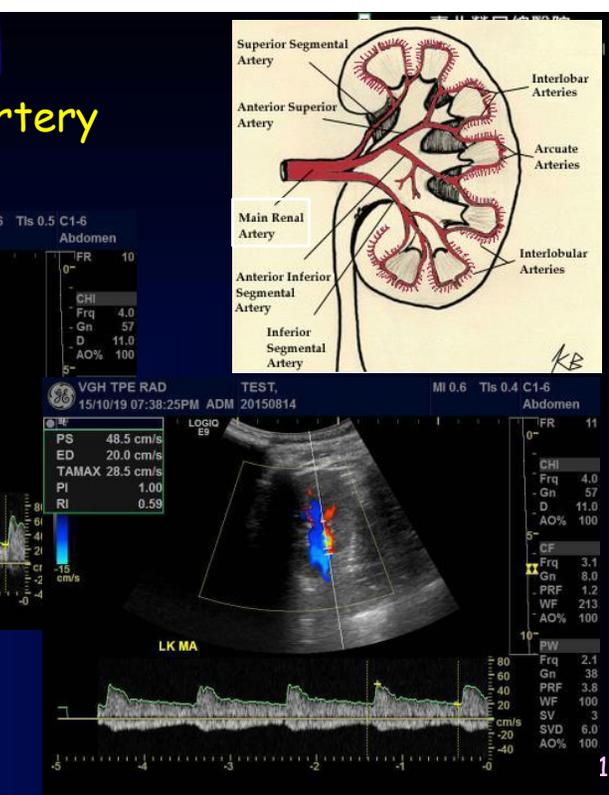
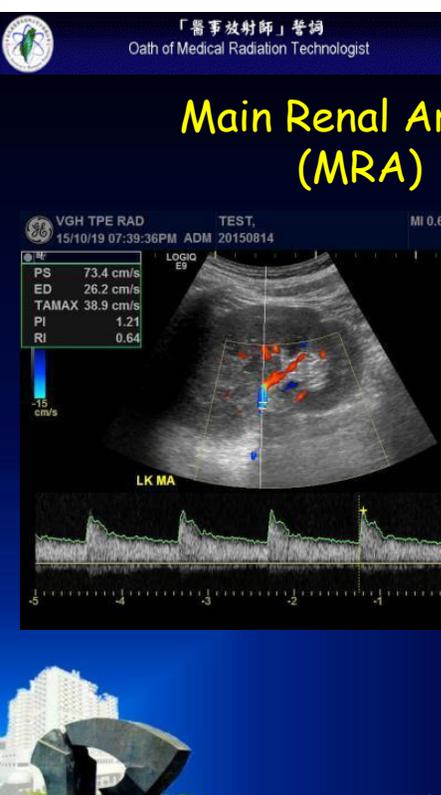
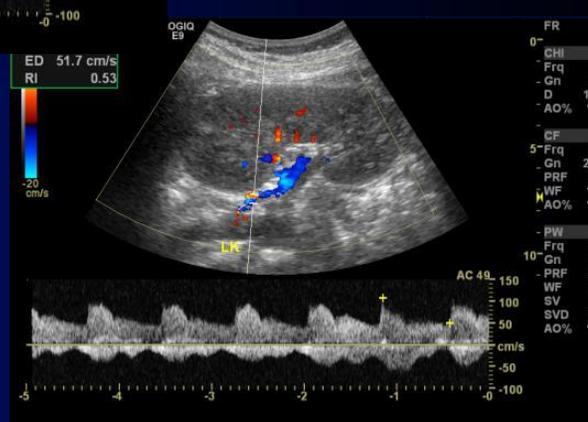
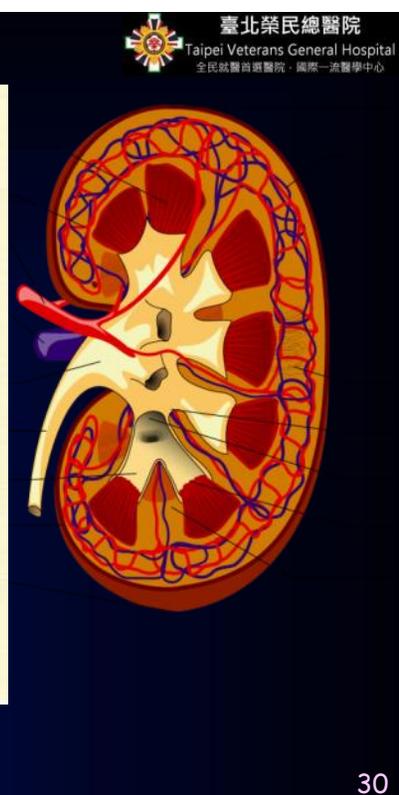
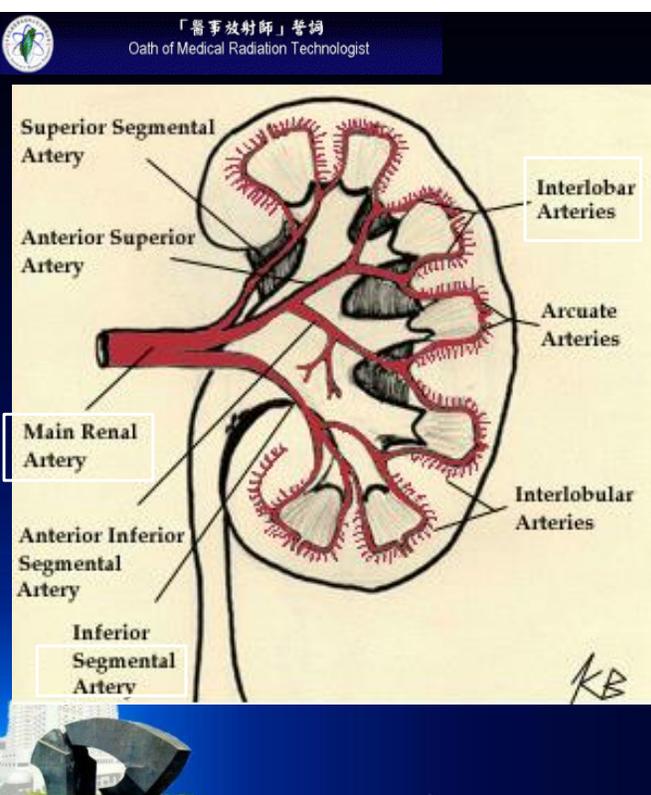
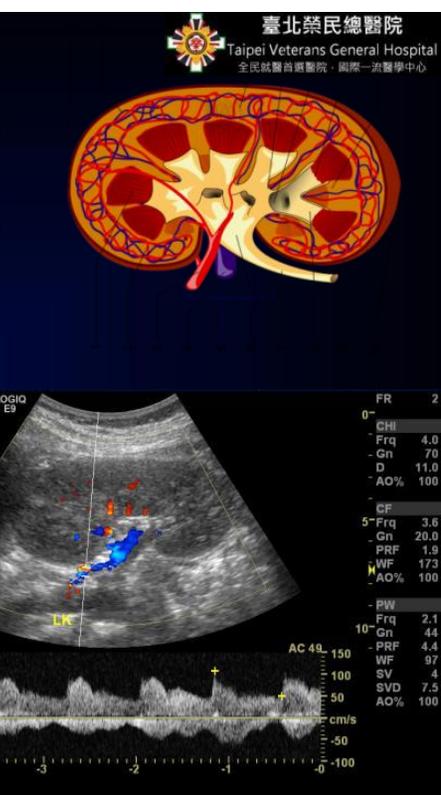
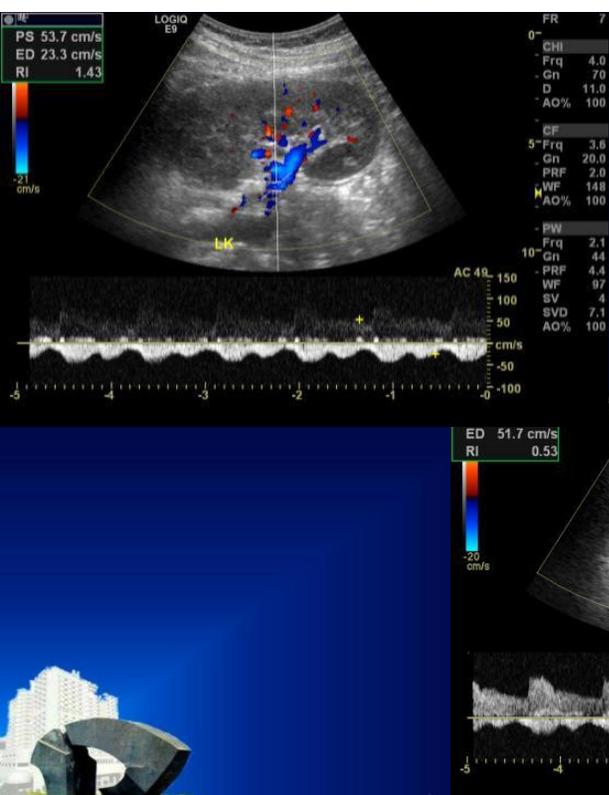


# 4. Renal Artery



# Renal Artery



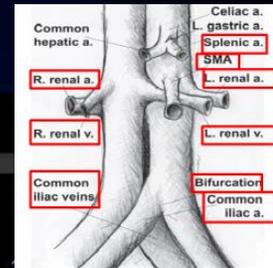
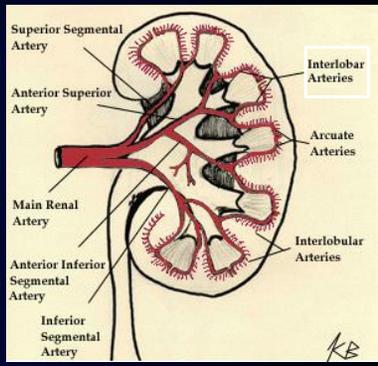
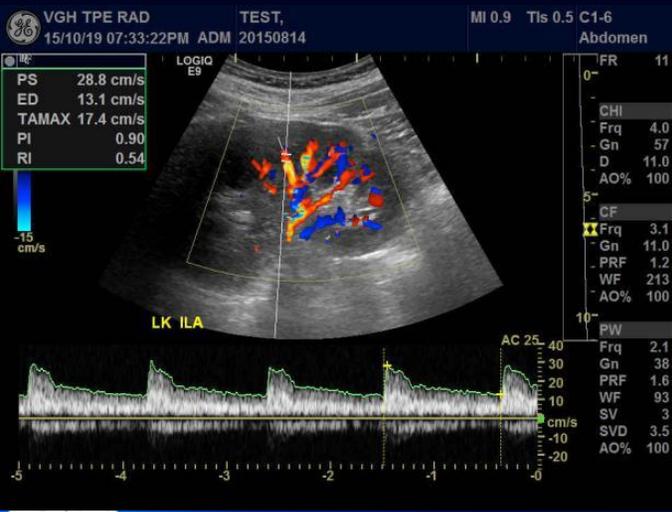


# Main Renal Artery (MRA)

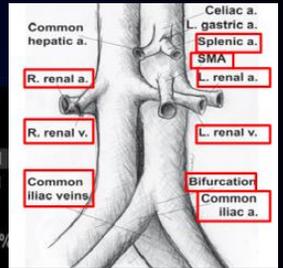
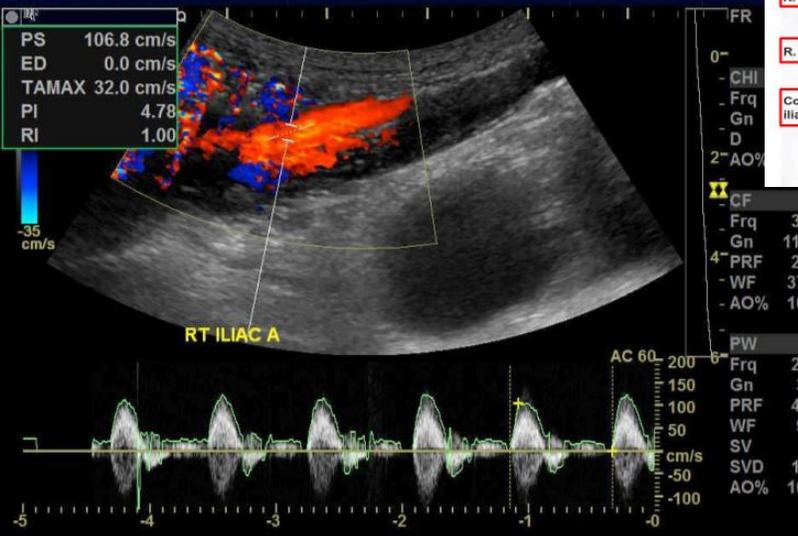
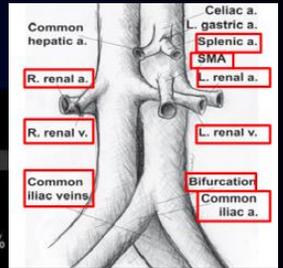
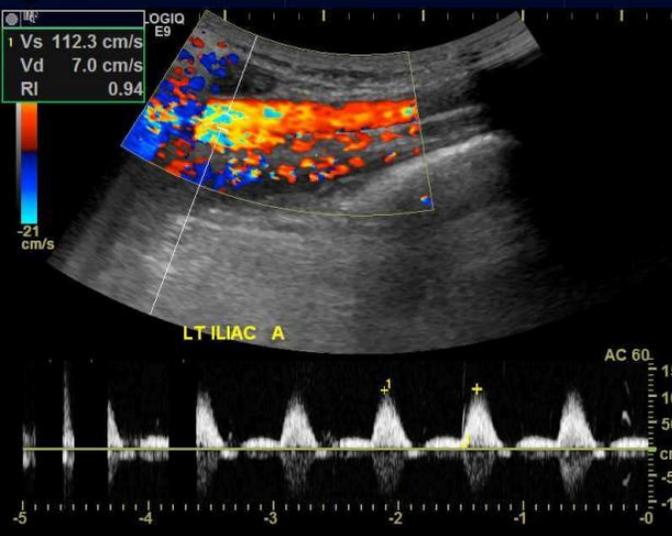
# Segmental (SEGA)



# Interlobar Artery (ILA)



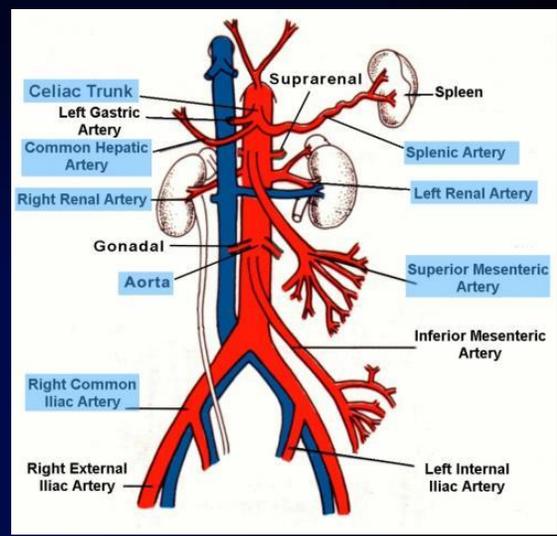
# LT Iliac Artery



# 5. Iliac A - AO Bifurcation

# Vein

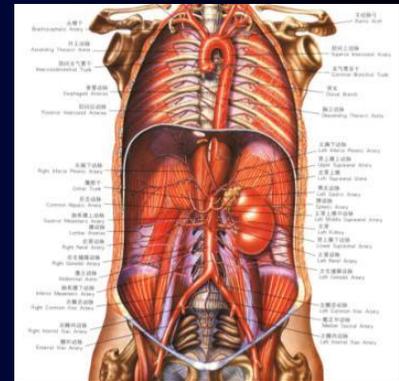
- 1.IVC
- 2.HV
- 3.SPL.V SMV、PV
- 4.Renal V
- 5.Iliac V



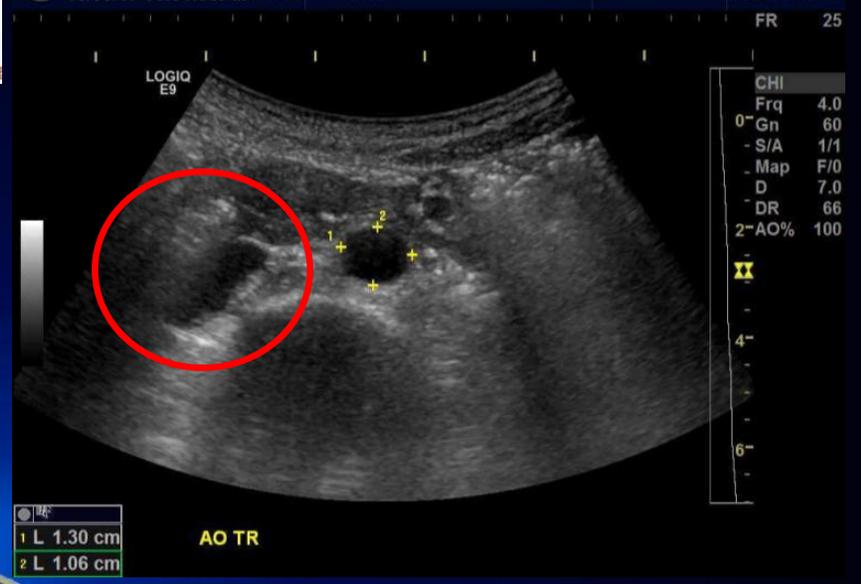
資料來源：網路下載圖片

# 掃描方式

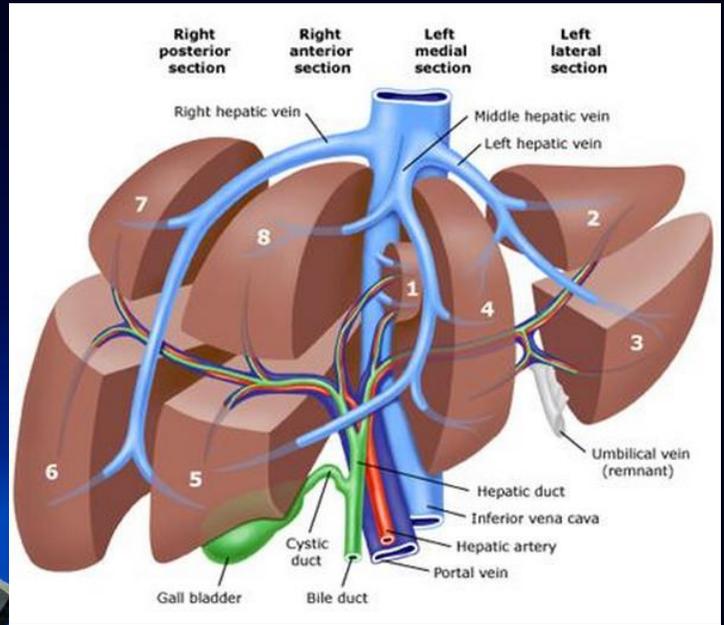
- 注意事項：(與肝臟超音波相同)
  - 禁食：至少6hrs (可以喝量水)-避免胃漲氣
  - Position：supine(仰臥姿勢)
  - 兩手舉高放在枕頭上肋間空隙變大
  - 呼吸方式：腹式

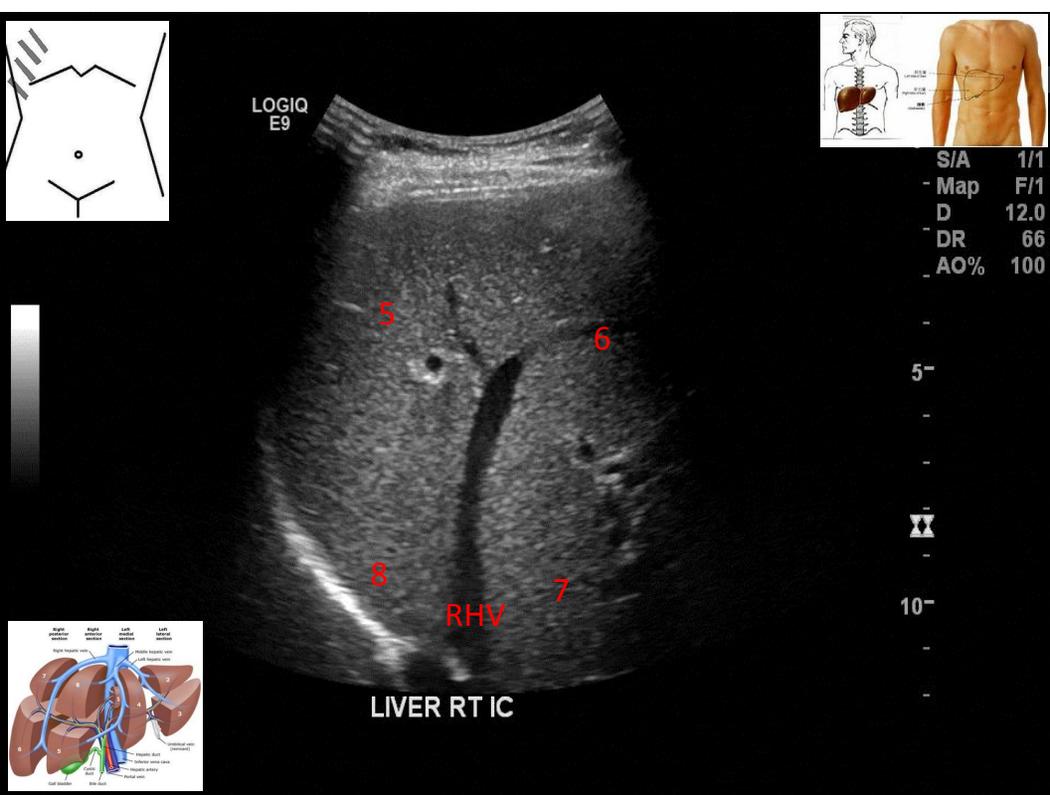
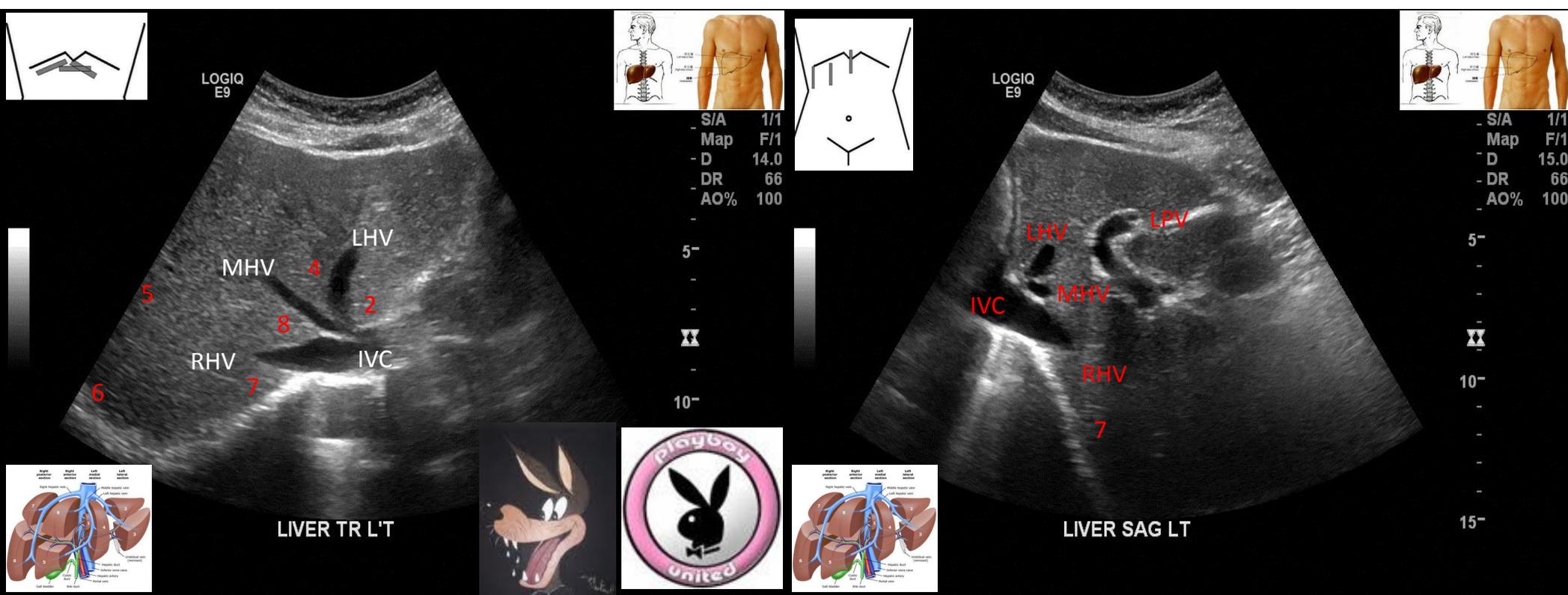


# IVC



# 2. HV





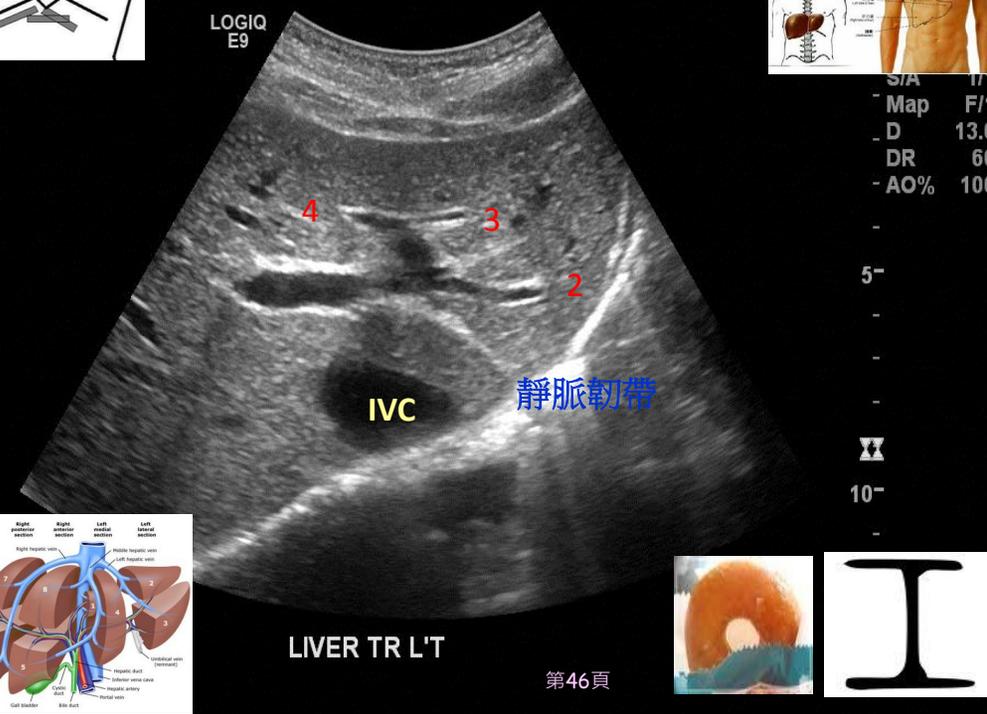
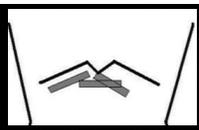
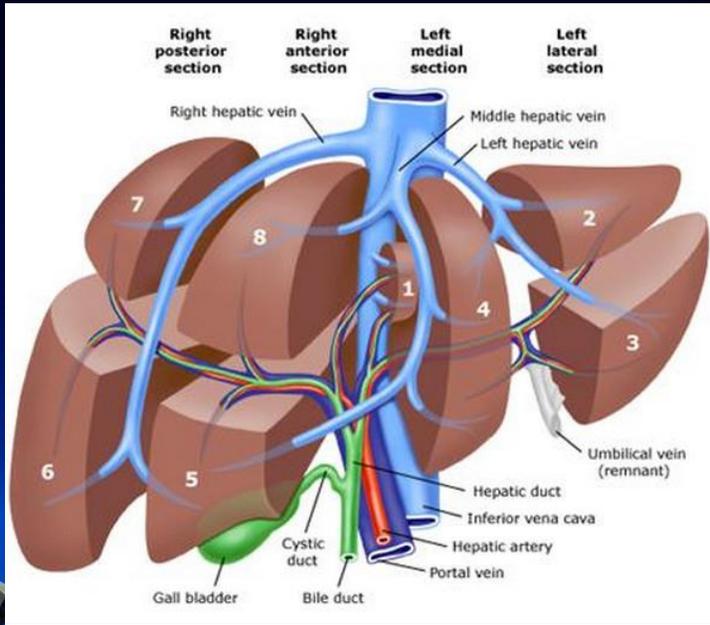
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### 3. SPL. V SMV · PV

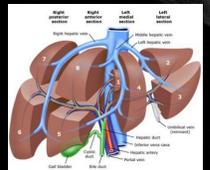
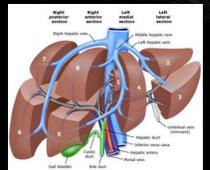
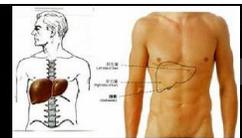
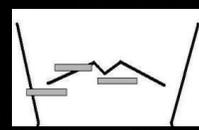
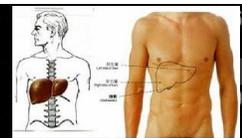
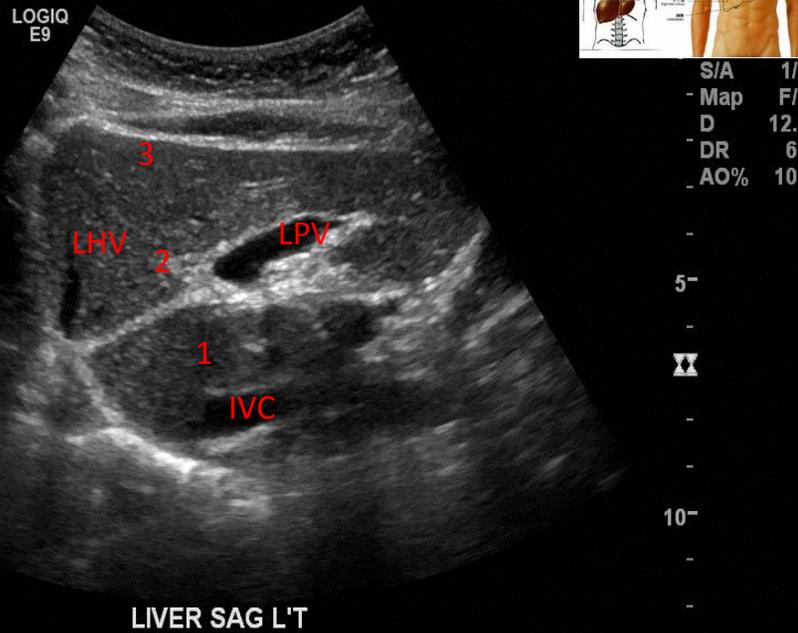
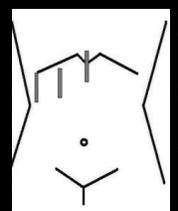
Left gastric vein  
Short gastric veins  
Splenic vein  
Left gastroepiploic vein  
Inferior mesenteric vein  
Left colic veins  
Sigmoid veins  
Superior rectal vein  
Jejunal and ileal veins  
Appendicular vein  
Superior mesenteric vein  
Ileocolic vein  
Right colic vein  
Middle colic vein  
Gastrocolic trunk  
Gastroepiploic vein  
Pancreaticoduodenal vein  
Right gastroepiploic vein  
Cystic vein  
Portal vein

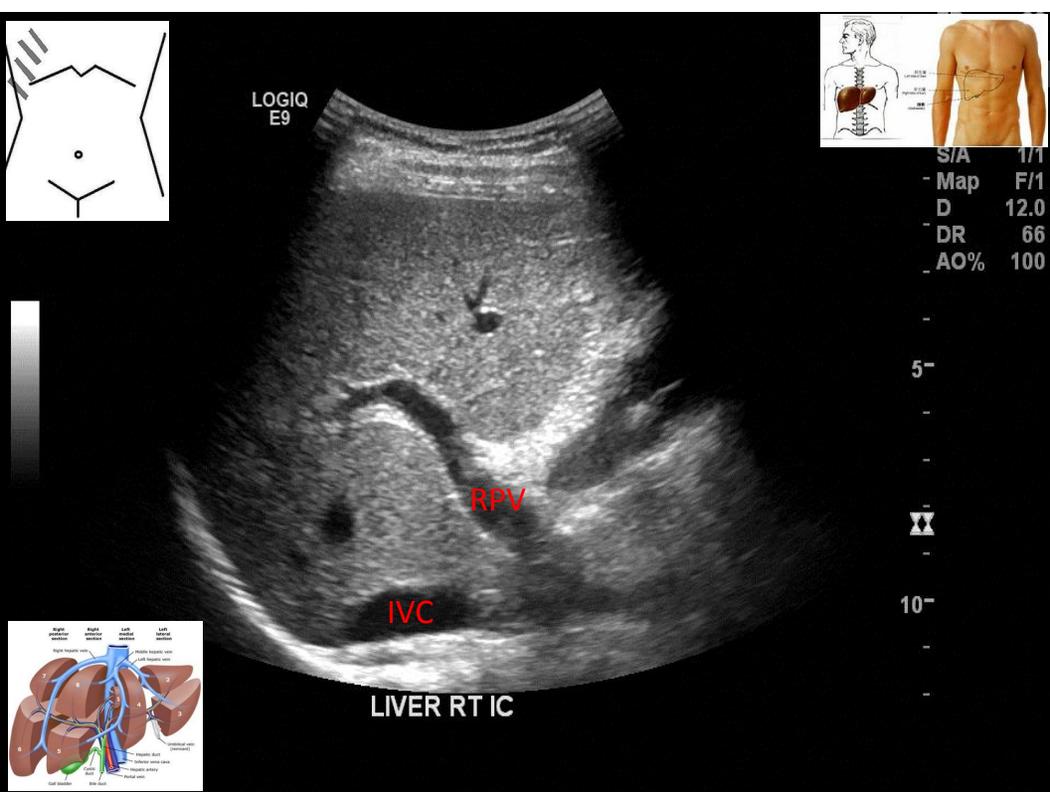
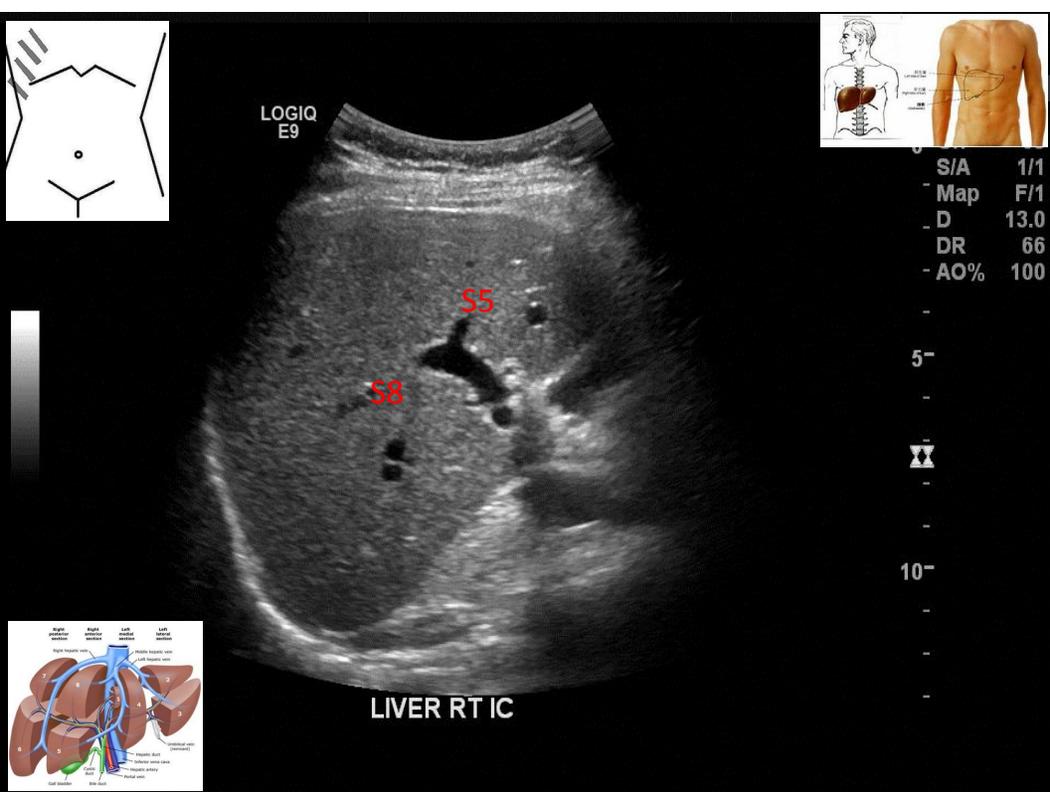
### 3. PV



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第46頁

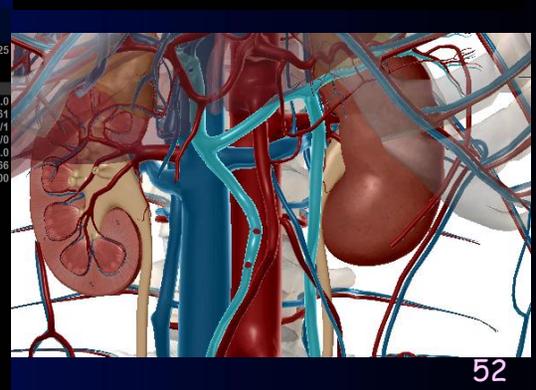




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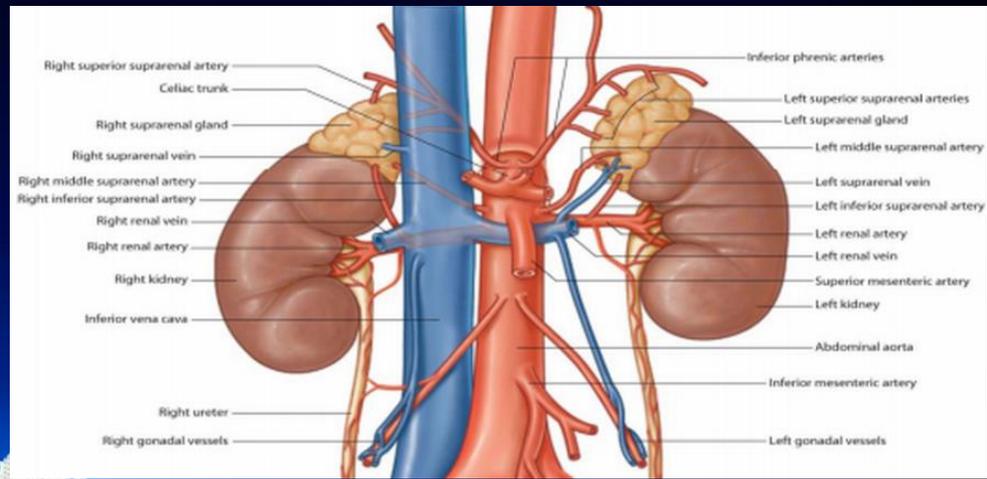
- Splenic vein
- Superior mesenteric vein
- Hepatic portal vein

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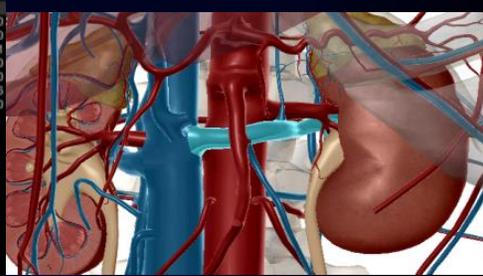
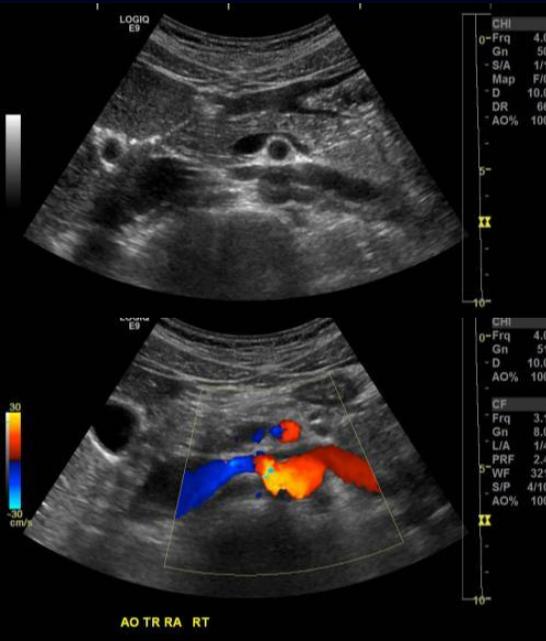


# 4. Renal Vein



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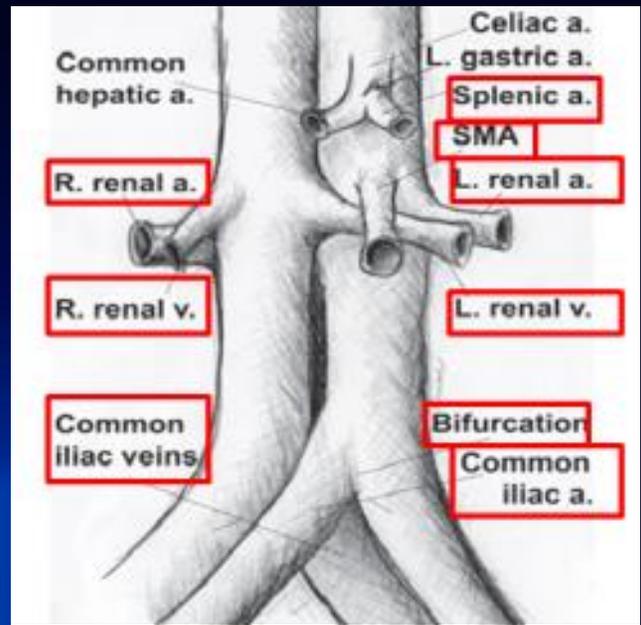
# Renal Vein



54

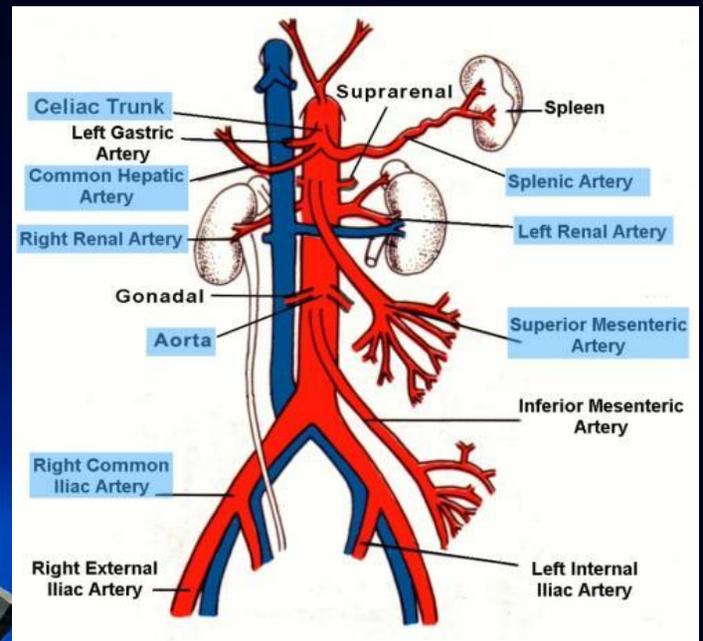


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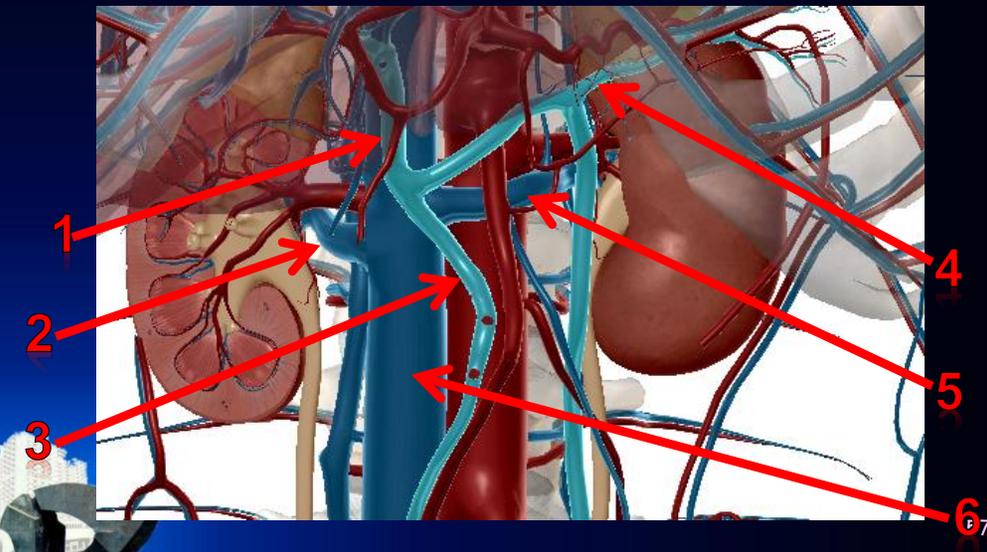
55

# 你能在超音波檢查中找到那幾條血管？



56

您知道下圖所指靜脈之中英文嗎？  
在超音波檢查中，我們能找到那幾條血管？



謝謝聆聽  
敬請指教

Q AND A

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電腦斷層 一般X光

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