



# Living Anatomy for OSCES



Nafisa Zilani  
Intercalating

*(Special thanks to Jeremy Chi Teo)*



MDU

# 2022/23 S2Y3 Purple guide

There are five station types in general:

- History
- Examination (including Living Anatomy)
- Procedures
- Communication
- Assessment

## Living Anatomy

Abdomen

Limbs

Pelvis

Thorax (inc neck)



- Most likely be tested on surface anatomy and superficial structures
- Tested alongside other examinations

# Which OSCE stations might you get tested on surface anatomy?

- Cardiac
  - Resp
  - Abdo
  - Peripheral vascular
  - A few miscellaneous ones
- 
- Unlikely to be asked by the examiner about surface anatomy - but knowledge of this will be tested when you perform the examination

# What is surface anatomy?

- Surface landmarks that correspond to deeper structures hidden from our view
- Importance?
  - You need to know where things are in order to find pathologies related to these structures
  - Many procedures can do harm to the patient - knowing where the safest place to perform these procedures minimises the risk to patients



# Learning Outcomes

- Understand what is surface anatomy
- Why is surface anatomy important
- Application of surface anatomy into clinical practice
  - With an emphasis on OSCEs!

# Cardiac examination

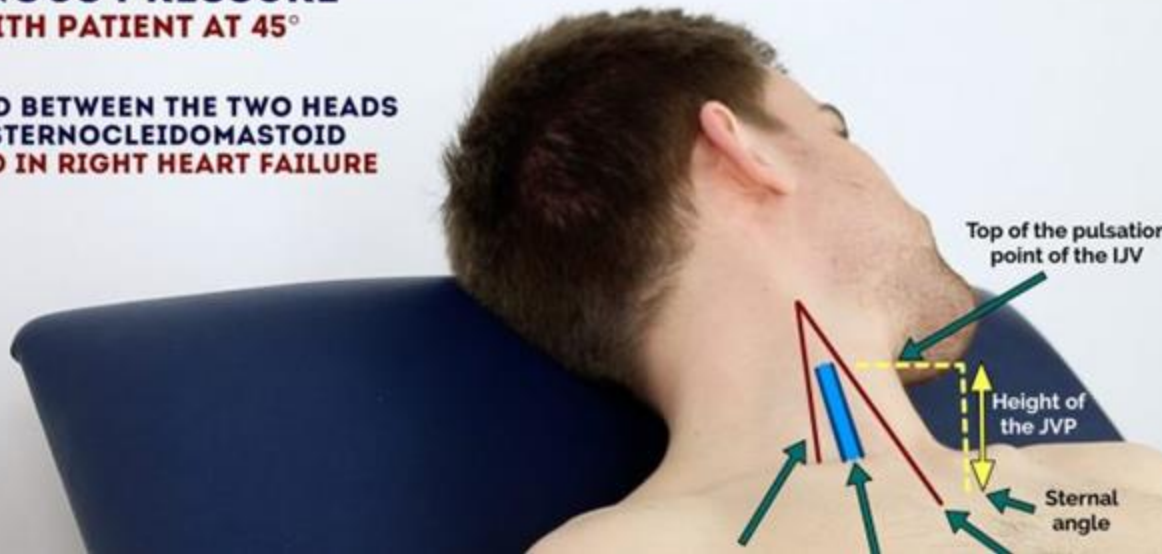
- JVP
- Carotid pulse
- Heart Sounds
- Investigations / procedures

# JVP

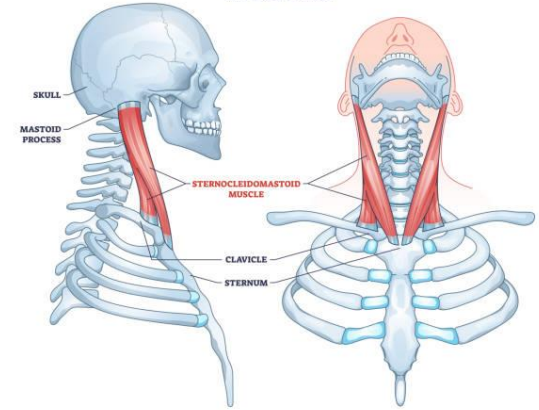
- Between the 2 heads of the sternocleidomastoid

## VENOUS PRESSURE WITH PATIENT AT 45°

LOCATED BETWEEN THE TWO HEADS  
OF STERNOCLEIDOMASTOID  
RAISED IN RIGHT HEART FAILURE



## STERNOCLEIDOMASTOID MUSCLE



# Carotid pulse

- Anterior triangle of the neck
  - Between the trachea and the SCM





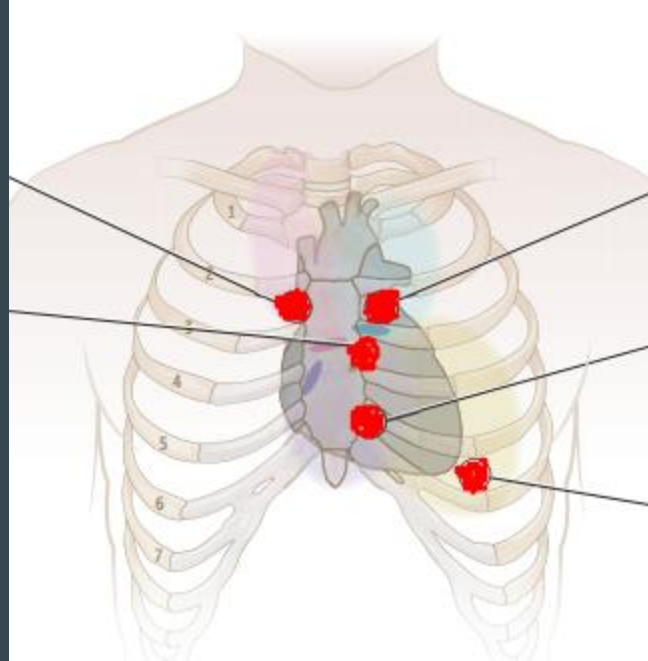
# Heart sounds

## **Aortic**

2nd intercostal space, right parasternal edge

**Erb's point** ("good for hearing S1+S2" - rarely used in practice)

3rd intercostal space, left parasternal edge



## **Pulmonary**

2nd intercostal space, left parasternal edge

## **Tricuspid**

4th intercostal space, left parasternal edge

## **Mitral**

5th intercostal space, midclavicular line (on the left)

# Investigations / procedures

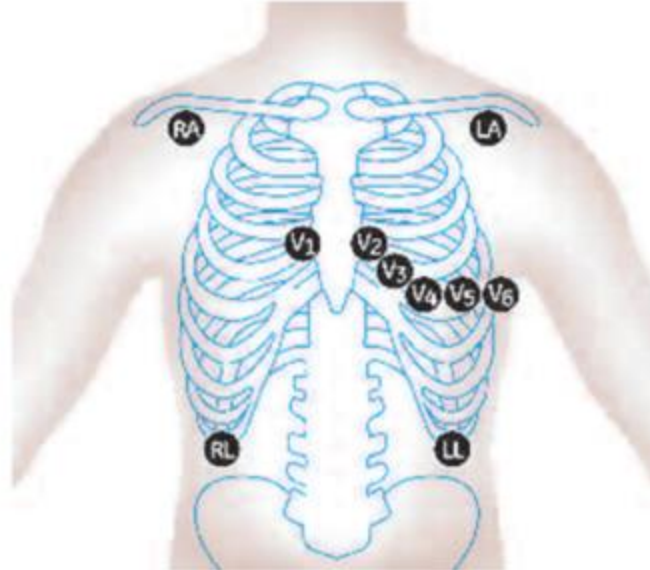
- ECG
- Pericardiocentesis

# ECG

Ride your green bike- Red Yellow Green Blue

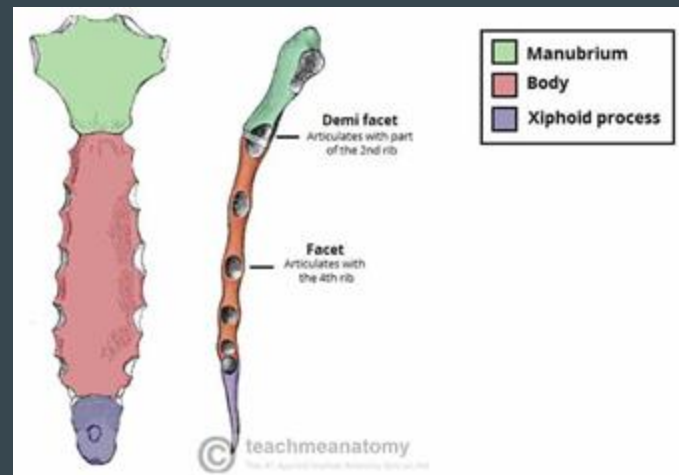
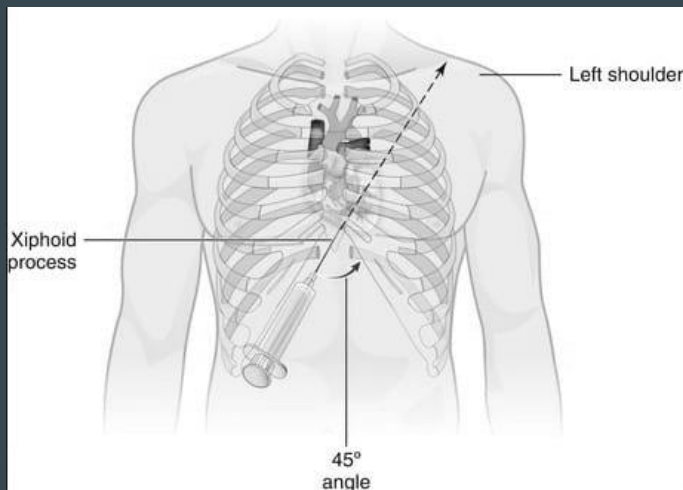
## Modified Mason-Likar Electrode Placement

AHA Label	IEC Label	Electrode Location
V1 (red)	C1 (red)	Fourth intercostal space at the right sternal border.
V2 (yellow)	C2 (yellow)	Fourth intercostal space at the left sternal border.
V3 (green)	C3 (green)	Midway between locations V2 and V4 (C2 & C4).
V4 (blue)	C4 (brown)	Mid-clavicular line in the fifth intercostal space.
V5 (orange)	C5 (black)	Anterior axillary line on the same horizontal level as V4 (C4).
V6 (purple)	C6 (purple)	Mid-axillary line on the same horizontal level as V4 and V5 (C4 & C5).
LA (black)	L (yellow)	Just below the clavicle of the left arm.
RA (white)	R (red)	Just below the clavicle of the right arm.
LL (red)	F (green)	Lower left abdominal quadrant.
RL (green)	N (black)	Lower right abdominal quadrant.



# Pericardiocentesis

- Not expected to know much
- All you need to know:
  - Subxiphoid approach
  - Aim needle towards left shoulder
  - Echocardiogram to guide needle



# Respiratory examination

- Trachea
- Cricosternal distance
- Investigations / procedures

# Trachea

- Use SCM heads as a point
- Trace down adam's apple

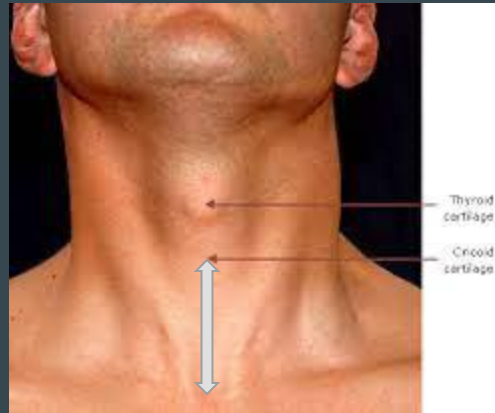


# Trachea

- What does a central trachea indicate?
- What about when it's not central?
  - Pneumothorax (mainly tension PTX) → pushes mediastinum to the contralateral side
    - E.g. L.sided tension PTX = trachea deviates to the right
  - Atelectasis (lung collapse) → pulls mediastinum to the ipsilateral side of the atelectasis
    - E.g. L.sided atelectasis = trachea deviates to the left

# Cricosternal distance

- Distance between the inferior border of the cricoid cartilage and the superior border of the manubrium (sternum)



- Clinical significance? →  
reduced in hyperinflated lungs (e.g. COPD)

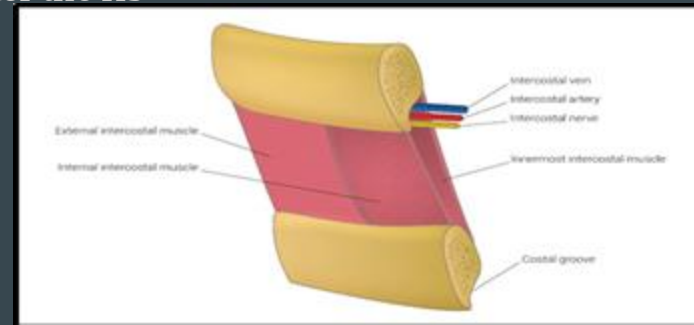


# Investigations / procedures

- Decompression of pneumothorax
- Chest drain

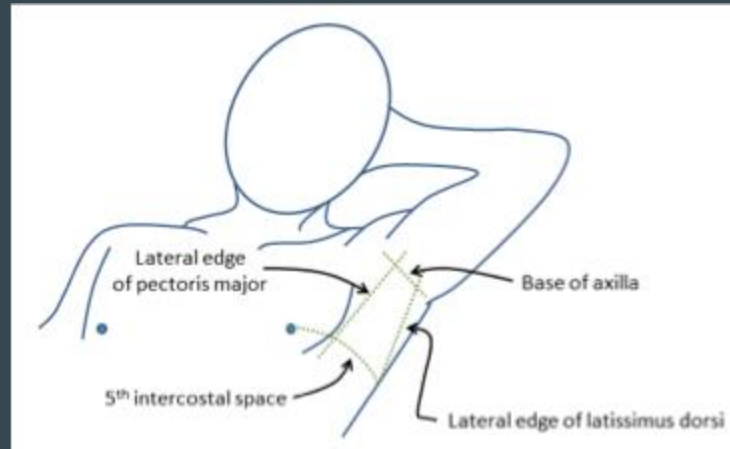
# PTX decompression

- Currently there are 2 options for where you can insert the needle
  - 2nd intercostal space, midclavicular line
  - 5th intercostal space, midaxillary line (ATLS guidelines)
- Either will be acceptable in the OSCE
  - Keep up to date with guidelines as 5th intercostal may become the 1st option
  
- Do you insert the needle above or below a rib?
  - Ideally above - avoid the neurovascular bundle running under the rib



# Chest drain

- Triangle of safety
  - Lateral border of pec major
  - Lateral border of lat dorsi
  - 5th intercostal space
- Insert drain above rib (like aspirating a PTX)

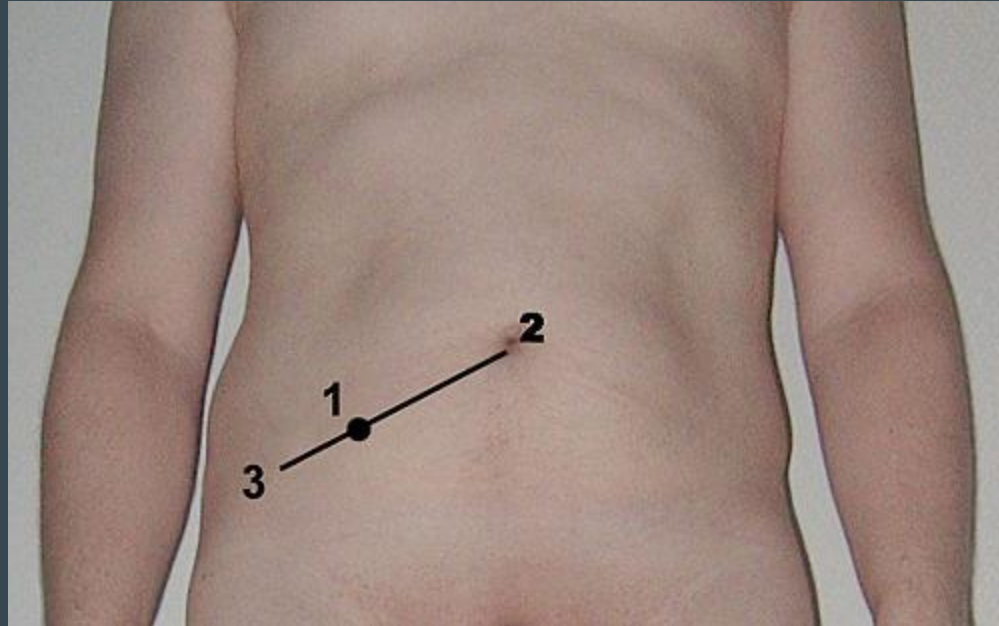


# Abdo exam

- Mcburney's point
- Where is the liver?
- Where is the spleen?
- Bifurcation of abdominal aorta → L & R common iliacs
- Liver biopsy

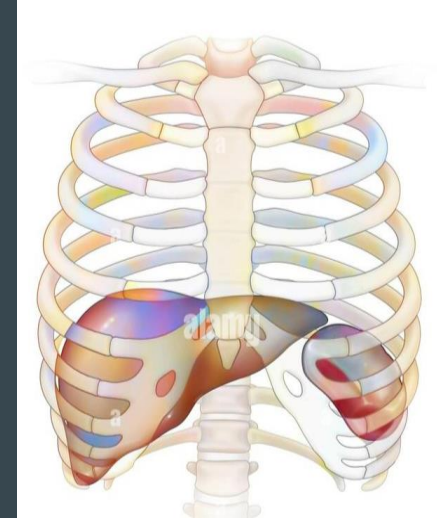
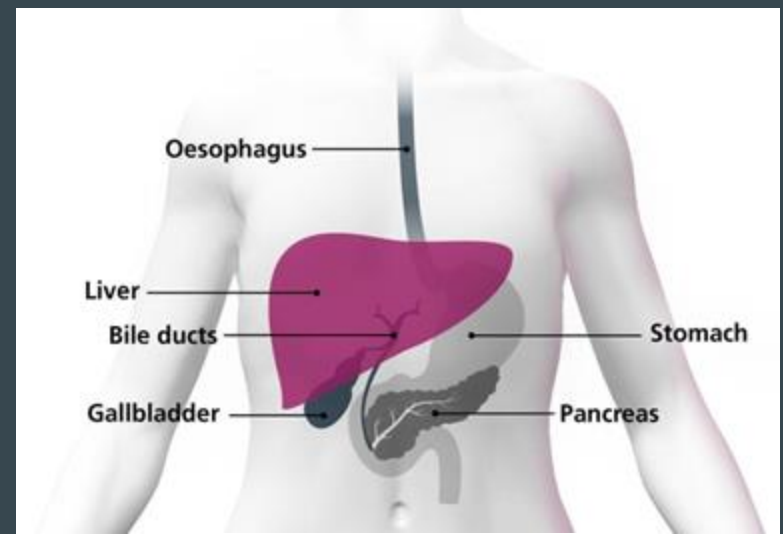
# McBurney's point

- Location of the appendix



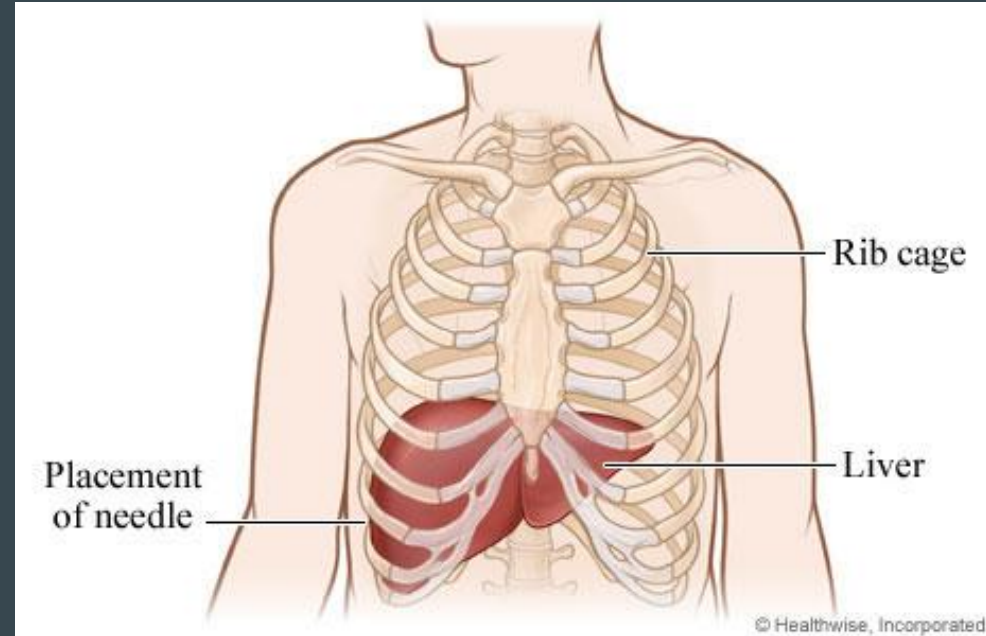
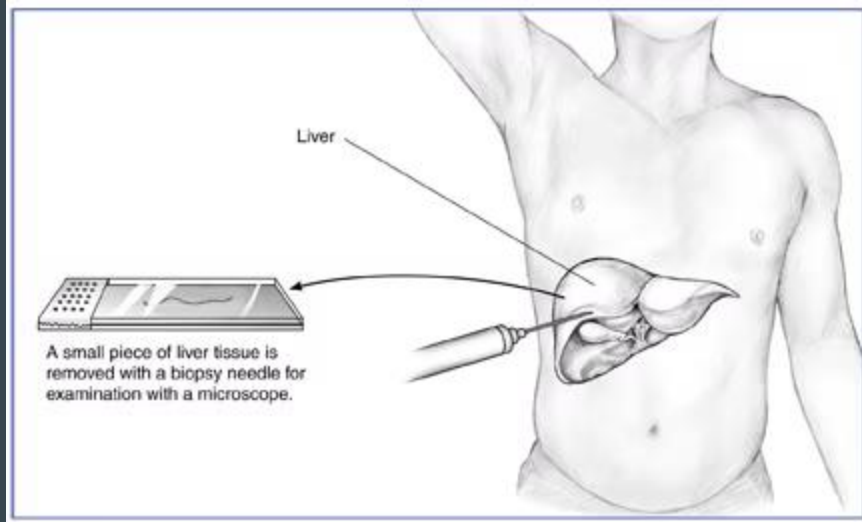
# Where is the liver?

- Right sided
- Covered by which ribs?
  - Superiorly = 7th rib
  - Inferiorly = 11th rib
- Significance?
  - If you can palpate the liver below the ribcage - likely hepatomegaly



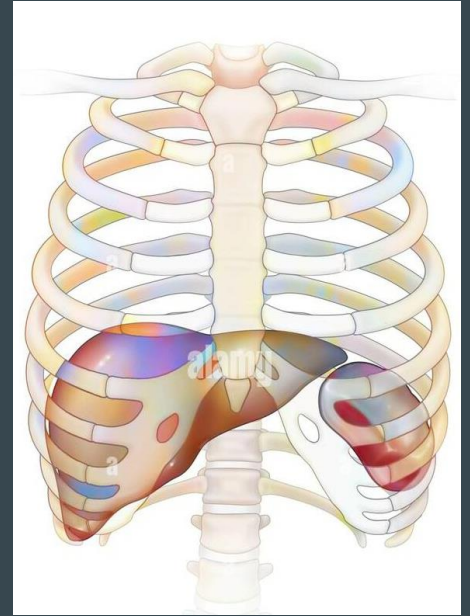
# Liver biopsy

- 9th intercostal space
- Mid-axillary line



# Where is the spleen?

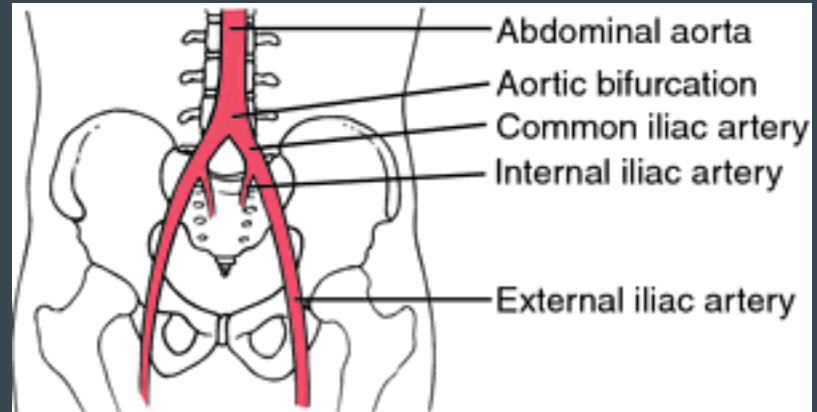
- Left sided
- Covered by which ribs?
  - Superiorly = 9th rib
  - Inferiorly = 11th rib
- Significance?
  - If you can palpate the spleen below the ribcage - likely splenomegaly





# Bifurcation of aorta?

- L4
- How can you locate L4?
  - Umbilicus
  - Iliac crest

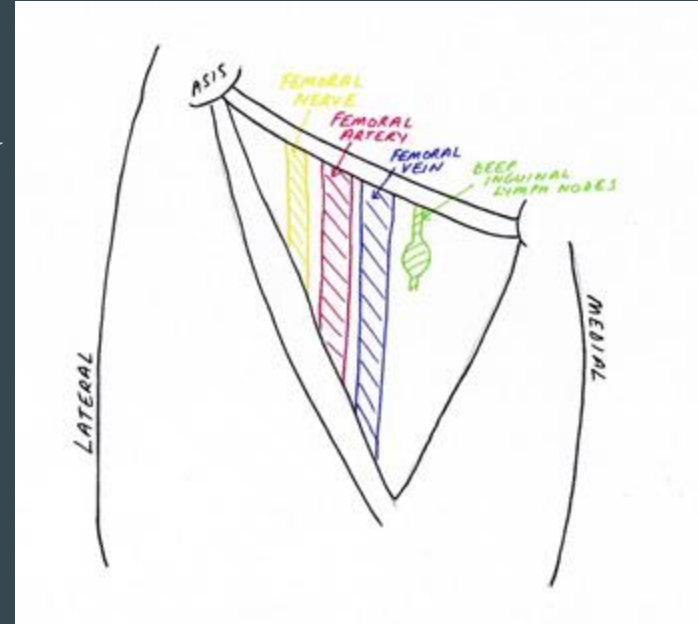


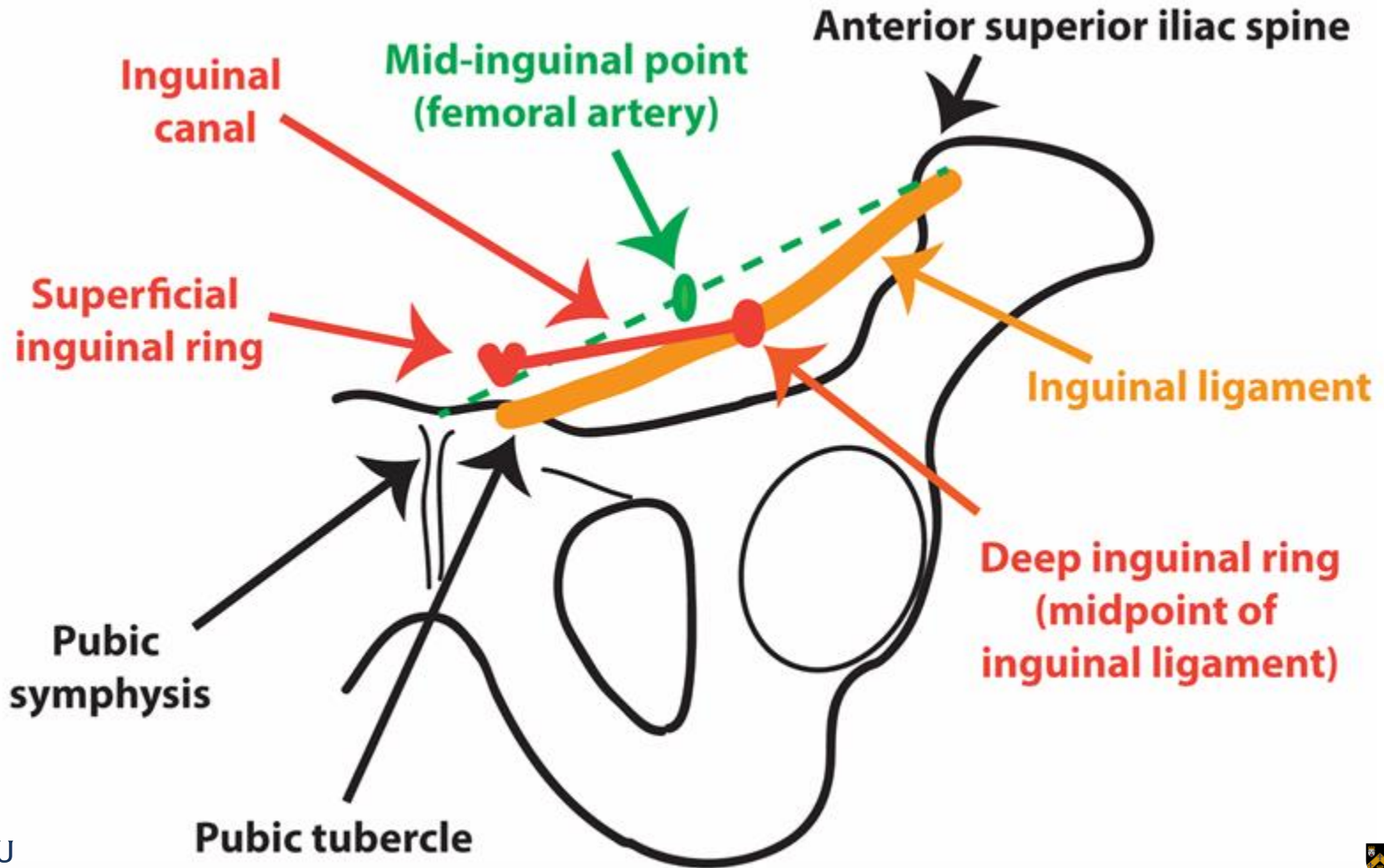
# Peripheral vascular exam

- Pulses
  - Femoral
  - Popliteal
  - Posterior tibial
  - Dorsalis pedis

# Femoral

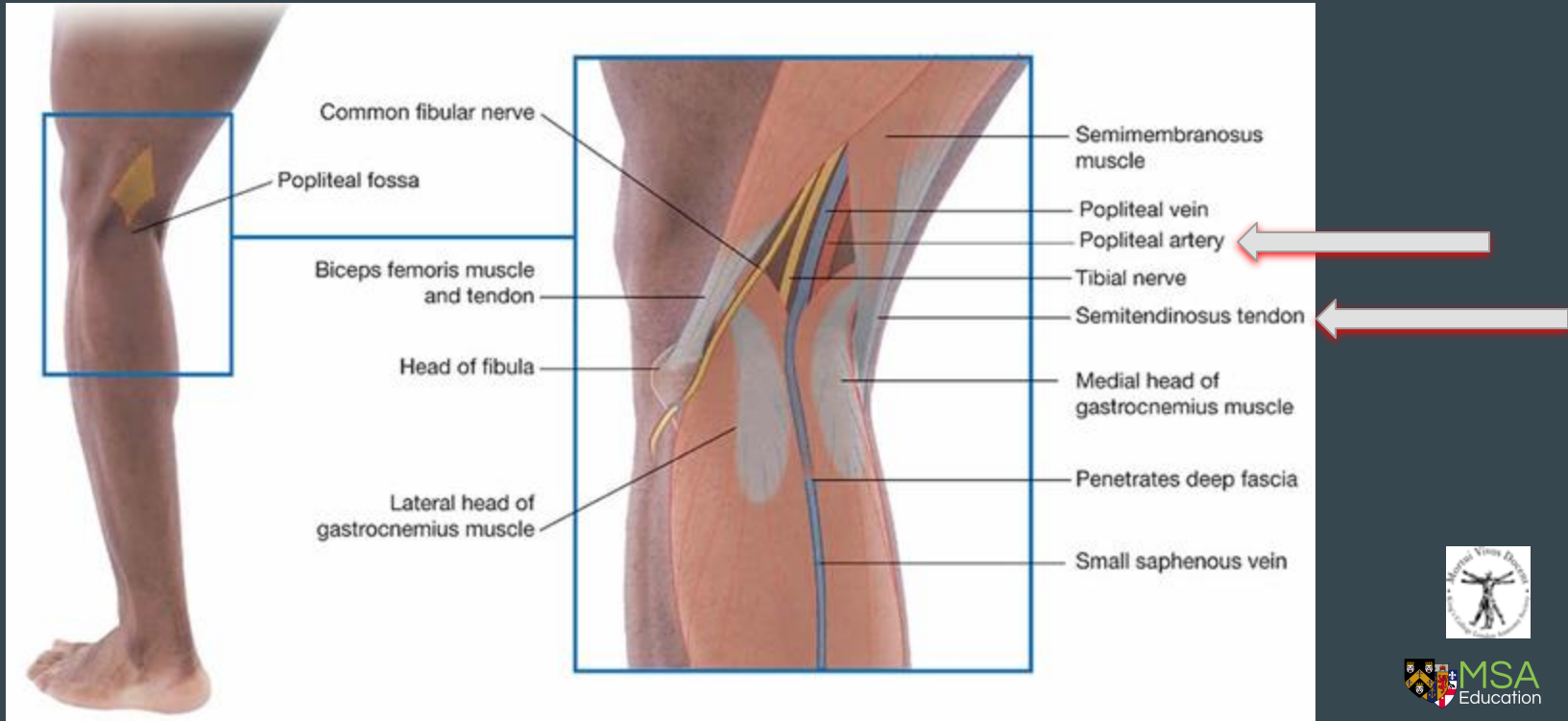
- NAVY
- Location of femoral artery - using surface anatomy
  - Mid-inguinal point
    - Halfway between ASIS → pubic tubercle





# Popliteus

- Just lateral to tendon of semitendinosus



# Posterior tibial

- Posterior to medial malleolus



# Dorsalis pedis

- Lateral to tendon of extensor hallucis longus, distal to navicular bone



A 54y/o man is brought into the ED by the LAS. The patient is completely unresponsive. Upon assessment of his airway, there is an audible stridor.

What does this indicate?

What can you do about it?



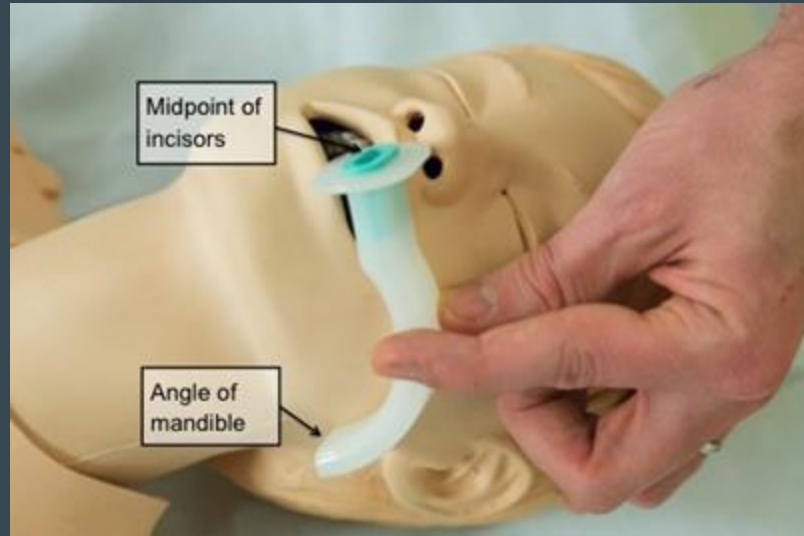
A 54y/o man is brought into the ED by the LAD. The patient is completely unresponsive. Upon assessment of his airway, there is an audible stridor.

What does this indicate? → compromised airway

What can you do about it? → airway adjunct (e.g. oropharyngeal / nasopharyngeal)

# Oropharyngeal airway

- Guedel
- How to measure the correct size?
  - Hard to hard
  - Incisors → angle of the mandible



A 54y/o man is brought into the ED by the LAD. The patient is completely unresponsive. Upon assessment of his airway, there is an audible stridor.

A gag reflex is elicited when the Guedel was inserted.

What does this mean?

What can we do next to secure the airway?

A 54y/o man is brought into the ED by the LAD. The patient is completely unresponsive. Upon assessment of his airway, there is an audible stridor.

A gag reflex is elicited when the Guedel was inserted.

What does this mean? → not tolerating Guedel (possible his GCS >8)

What can we do next to secure the airway? → nasopharyngeal

# Nasopharyngeal airway

- How do we measure this?
  - Soft to soft / tip to tip
  - Tip of nose → tip of tragus



A 32 y/o male presents to the GP practice with wrist pain after a FOOSH. When asked where the pain is, the patient points towards the base of his thumb near his wrist. The GP asks you:

What are the landmarks / borders of the anatomical snuffbox?

Why is it significant in this patient's case?

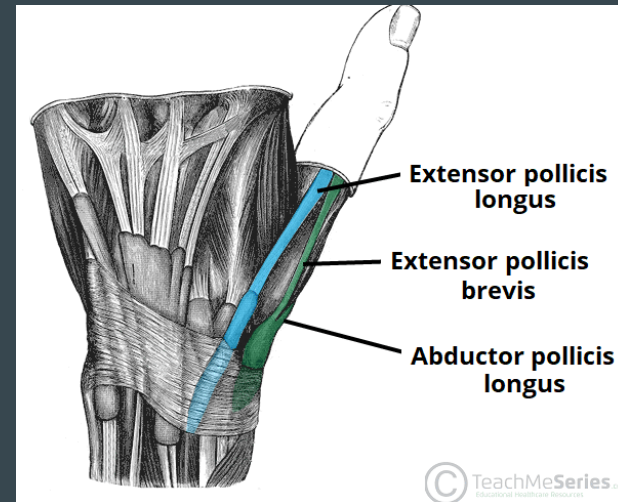
A 32 y/o male presents to the GP practice with wrist pain after a FOOSH. When asked where the pain is, the patient points towards the base of his thumb near his wrist. The GP asks you:

What are the landmarks / borders of the anatomical snuffbox?

- Medially = Extensor pollicis longus
- Laterally = Extensor pollicis brevis + abductor pollicis brevis
- Proximally = styloid process of radius

Why is it significant in this patient's case?

- ?Scaphoid fracture



# Muscles

- SCM
- Masseter
- Iliopsoas
- Rectus femoris
- Deltoid
- Brachioradialis
- Rotator cuff muscles

Muscles pull the insertion point towards the origin point!!!



# What have we covered today?

- Cardiac
- Resp
- Abdo
- Peripheral vascular
- A few miscellaneous ones
  - Guedel
  - NPA
  - Muscles



Thank you for attending the session -

Please fill in the feedback form:

<https://forms.gle/7U2PQGZSBWBkAzXC7>

MSA Contact Details:

- [tanzim.shahid@kcl.ac.uk](mailto:tanzim.shahid@kcl.ac.uk)
- [msa@kcl.ac.uk](mailto:msa@kcl.ac.uk)

Socials:

- <https://www.gktmsa.org/>
  - Insta: @gktmsa
  - Facebook: [www.facebook.com/gktmsa](https://www.facebook.com/gktmsa)
  - TikTok: @gktmedics
  - Twitter: @gktmsa
-