

Surface

Marking

THORAX

1. Lines of pleural reflections
2. Lung borders and fissures
3. Trachea
4. Heart borders
5. Apex beat
6. Surface projections of valves of heart

HEAD AND NECK

Arteries	Veins	Nerve	Gland /other
1. Common carotid artery	1. Internal jugular vein	1. Accessory nerve	1. Thyroid gland
2. Facial artery in the face	2. Subclavian vein		2. Parotid gland and duct
	3. External jugular vein		3. Pterion

ABDOMEN

Surface marking of	Surface projection of
1. Regions and planes of abdomen	1. Stomach
2. Superficial inguinal ring	2. Liver
3. Deep inguinal ring	3. Fundus of gall bladder
4. McBurney's point	4. Spleen
5. Renal angle	5. Duodenum
6. Murphy's point	6. Pancreas
	7. Ileo-caecal junction
	8. Kidneys
	9. Root of mesentery

UPPER LIMB

Arteries (palpation)	Veins	Nerves	Connective tissue/other
1. Axillary artery	1. Basilic vein	1. Axillary Nerve	1. Flexor retinaculum
2. Brachial Artery	2. Cephalic vein	2. Radial Nerve	
3. Radial Artery	3. Median cubital vein	3. Ulnar Nerve	
4. Ulnar artery		4. Median Nerve	
5. Superficial palmar arch			
6. Deep palmar arch			

LOWER LIMB

1. Femoral artery	1. Great saphenous vein	1. Femoral nerve	1. Saphenous opening
2. Popliteal artery	2. Small saphenous vein	2. Sciatic nerve	2. Mid-inguinal point
3. Posterior tibial artery		3. Common peroneal nerve	
4. Dorsalis pedis		4. Deep peroneal nerve	

Upper

limb

Surface Marking

Axillary Artery:

↳ Abduct arm at right angle

a = midpoint of clavicle

b = lower end of lateral wall of axilla (just in front of posterior axillary fold)

Brachial artery:

↳ Abduct arm at right angle

a = midpoint of clavicle

b = lower end of lateral wall of axilla (just in front of posterior axillary fold)

c = in anterior midline of forearm at level of neck of radius, medial to biceps tendon

Radial Artery:

a = at level of neck of radius, medial to biceps tendon

b = in front of distal forearm, on lateral side (at the site of radial pulse)

Ulnar Artery:

a = at level of neck of radius, medial to biceps tendon

c = medial border of forearm at junction of upper $\frac{1}{3}$ & lower $\frac{2}{3}$

d = lateral to pisiform bone

Superficial palmar arch:

a = lateral side of pisiform bone

b = medial to hook of hamate

c = centre of palm at level of distal border of extended thumb

d = on distal border of thenar eminence in line with cleft between index & middle fingers

Deep Palmar Arch:

e = distal to hook of hamate

f = at proximal end of first intermetacarpal space.

Cephalic Vein, Basilic Vein, Medial Cubital Vein:

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→ Follow origin, course, termination as mentioned before

Axillary Nerve:

a = acromion process

b = insertion of deltoid

c = 2cm above midpoint between 'a' & 'b'.

Draw curved horizontal line from 'c'.

Radial Nerve:

a = lateral wall of axilla

b = junction of upper $\frac{1}{3}$ & lower $\frac{2}{3}$ of line joining insertion of deltoid & lateral epicondyle

c = in front of elbow, at level of lateral epicondyle, lateral to biceps tendon

d = at junction of upper $\frac{2}{3}$ & lower $\frac{1}{3}$ of lateral border of forearm

e = distal part of anatomical snuff box

Posterior Interosseous N.

f = c

g = junction of upper $\frac{1}{3}$ & lower $\frac{2}{3}$ of line joining posterior aspect of radial head & Lister's tubercle of radius

h = 1cm medial to Lister's tubercle on the back.

Ulnar Nerve:

a = lower end of lateral wall of axilla

b = middle of medial border of arm

c = on the back of medial epicondyle on ulnar N. which can be rolled here with the fingers

d = just lateral to pronator bone

(In lower $\frac{2}{3}$ of forearm, ulnar N. lies medial to ulnar artery & lateral to FCU tendon)

Median Nerve:

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- Mark brachial artery
- Now mark median N. lateral to brachial artery in upper half & medial to artery in lower half of arm
- a = in midline at bend of elbow (at level of neck of radius)
- b = in front of wrist, 1cm medial to FCR tendon.

Flexor Retinaculum:

Mark — pisiform

- tubercle of scaphoid
- crest of trapezium
- hook of hamate

→ join these points

Cephalic Vein:

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Origin: begins as a continuation of lateral end of dorsal venous arch



Course: crosses roof of anatomical snuff box



ascends along radial border of forearm



continues in front of elbow along lateral border of biceps



pierces deep fascia at lower border of pectoralis major



deltopectoral groove



at infraclavicular fossa, pierces clavipectoral fascia



Termination: drains into axillary vein

Basilic Vein:

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Origin: begins as continuation of medial end of dorsal venous arch



Course: runs along medial border of forearm



winds round the elbow & reaches anterior aspect



continues in front of elbow along medial side of biceps



pierces deep fascia at the middle of arm



Termination:

unites with brachial vein & runs along medial side of brachial artery



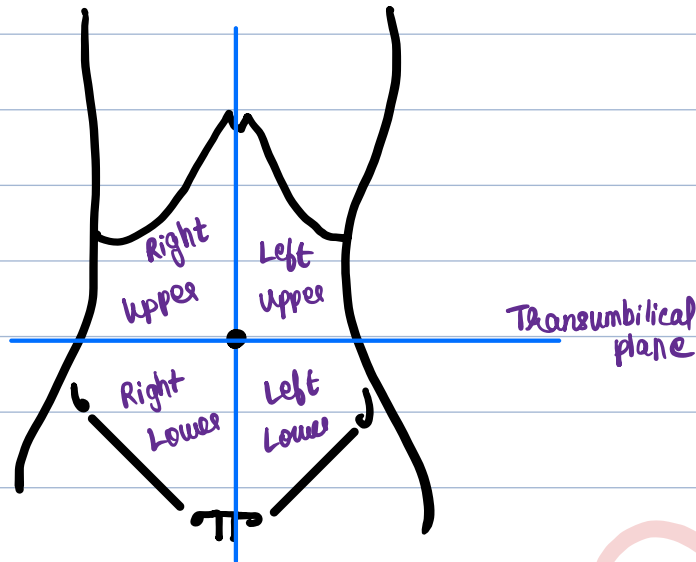
becomes continuous with axillary vein at lower border of teres major

Abdomen

- Transpyloric plane = Addison's plane
- Right & Left Vertical Planes = Midclavicular Plane

4 Quadrants:

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9 Regions:

1 = Right hypochondrium

2 = Epigastric region

3 = Left hypochondrium

4 = Right lumbar region

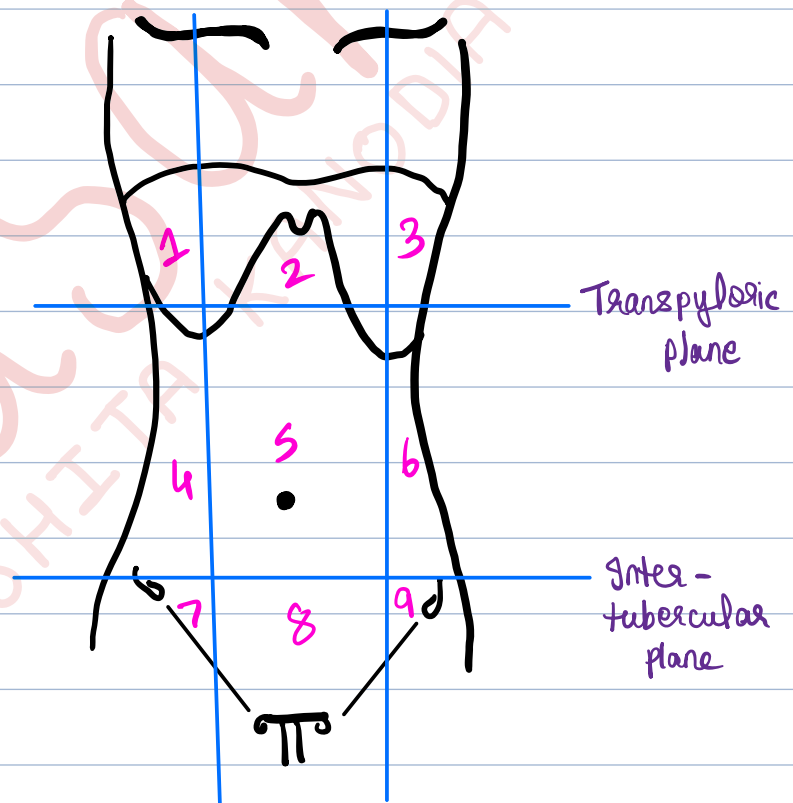
5 = Umbilical region

6 = Left lumbar region

7 = Right iliac fossa

8 = Hypogastric region

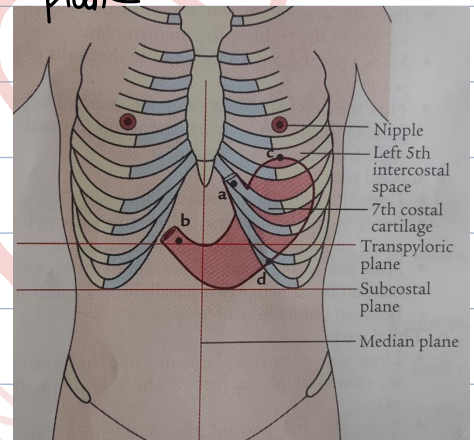
9 = Left iliac fossa



- Lower border of hand - **Transpyloric Plane**
Placed on manubrium sternum
- Line joining ASIS - **Transtubercular Plane**
- Midclavicular Lines

Stomach:

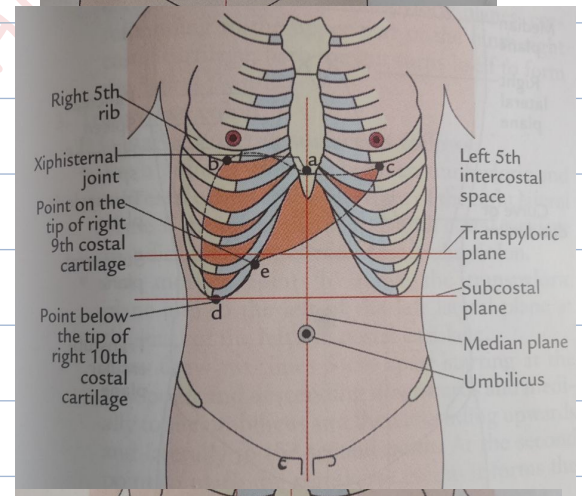
- a: 2.5cm to left of median plane on 7th costal cartilage
 - b: 1.2cm to right of " // on transpyloric plane
 - c: Left 5th intercostal space
 - d: between tip of 9th & 10th costal cartilage
- Subcostal Plane: lower border of rib cage.



Liver:

- a: middle of xiphisternal joint
- b: below R nipple on R 5th rib
- c: Left 5th intercostal space
- d: just below tip of R 10th costal cartilage
- e: tip on 9th costal cartilage (R) ⇒ **fundus of gall bladder.**
↳ (slight notch)

e = **Murphy's Point**



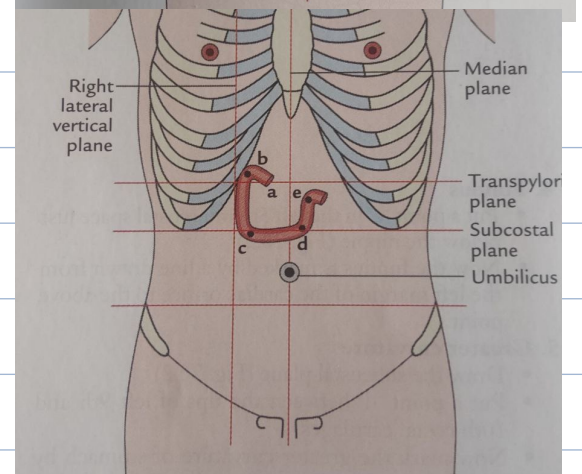
Duodenum:

Transpyloric Plane (TPP)

- a: on TPP, 1.2cm to right of median plane
- b: 2.5cm above & lateral to 'a'

Mid-Clavicular Line (MCL)

- c: 7.5cm below TPP, medial to MCL
- d: in subcostal plane, left of median plane

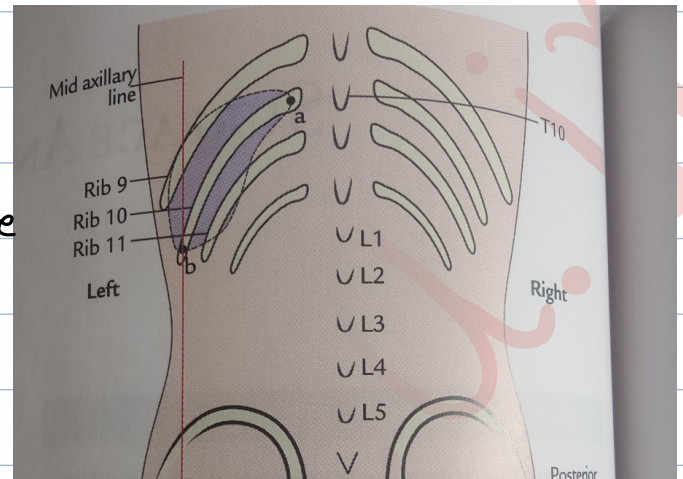


c: 2.5cm to left of median plane ; 1cm below TPP $\Rightarrow$ duodenojejunal flexure

Spleen: (on the back of abdomen)

a: 5cm lateral to T10 spine

b: on left 10th rib in mid-axillary line



Pancreas:

- Draw - Trans tubercular , transpyloric planes
- median & mid-clavicular lines

- Mark curve of duodenum (b & c)

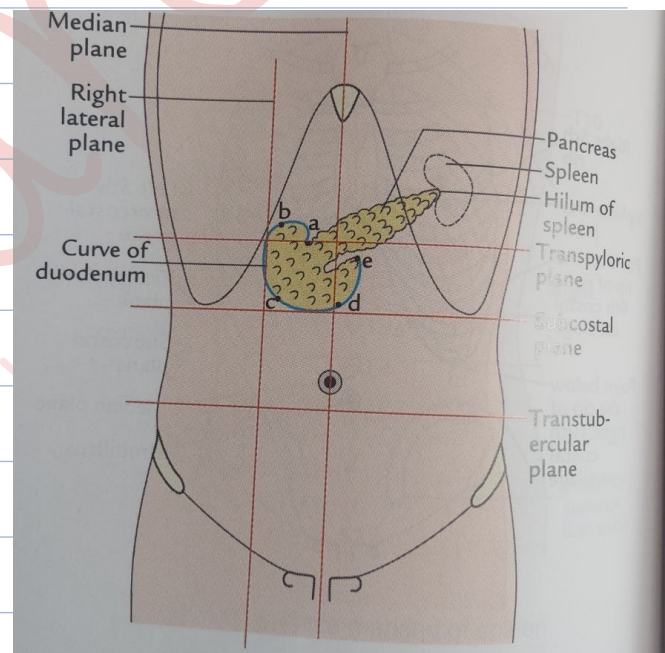
a: on TPP, 1.2cm to right of median plane

b: 2.5cm above & lateral to 'a'

c: 7.5cm below TPP, medial to mcl

d: in subcostal plane, left of median plane

e: 2.5cm to left of median plane ;
1cm below TPP $\Rightarrow$ duodenojejunal flexure



Tail: up to hilum of spleen

Body: 2 parallel lines 10cm long & 3cm apart

Root of Mesentery: from duodenojejunal flexure to ileocaecal junction

Ileocaecal Junction: point of intersection of midclavicular & transtubercular planes

Kidneys:

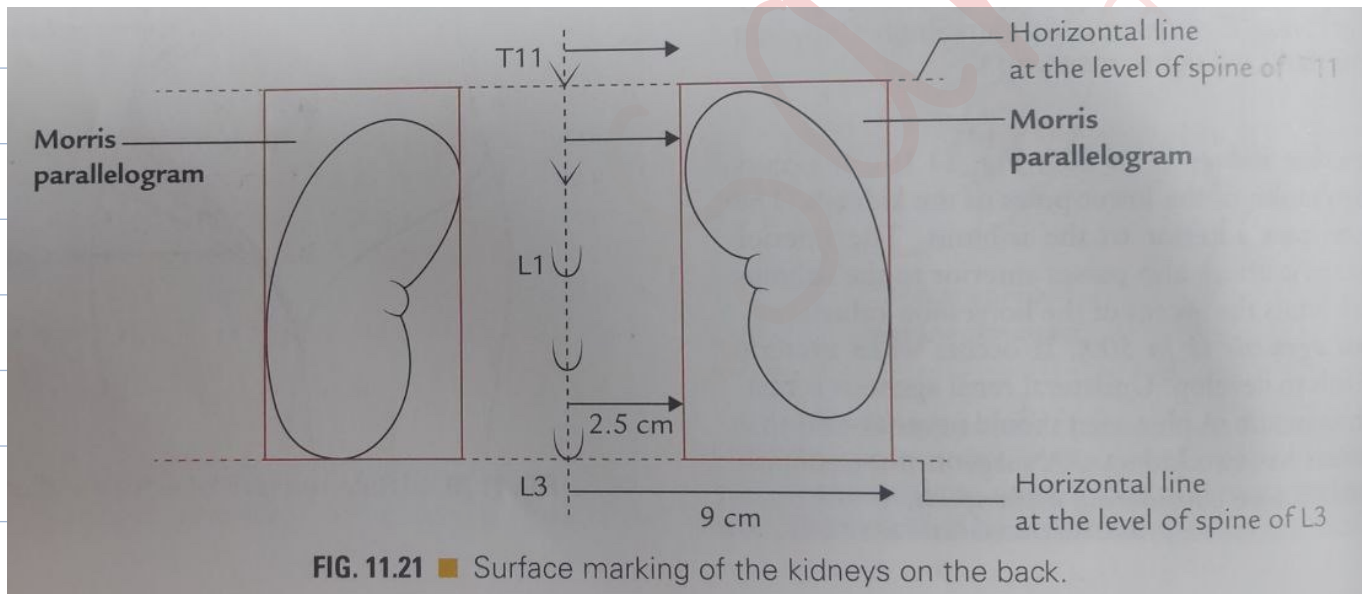
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In the front: • Draw median & transpyloric planes

a: 5cm to (R) of median plane, a little below TPP
 5cm to (L) of " " " " above TPP } centre of hilum
 (at lower border of L1)

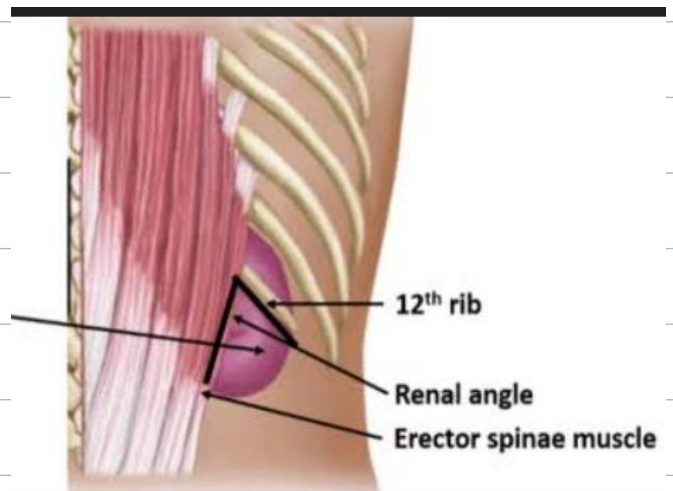
On the back: (Morris' Parallelogram)

- Horizontal line at level of T11 spine
- Horizontal line at " " L3 spine
- 2 vertical lines - 2.5cm away from posteromedian plane
 - 9cm " " " "



Renal Angle:

- angle b/w lower border of 12th rib & lateral border of erector spinae muscle
- overlies lower part of kidney
- Tenderness in this area $\Rightarrow$ Perinephric Abscess



Deep Inguinal Ring:

- 1.25 cm above mid-inguinal point

(mid-inguinal point is midpoint of line joining ASIS & pubic tubercle)

Superficial Inguinal Ring:

- above & lateral to pubic crest

McBurney's Point:

- Junction of lateral $\frac{1}{3}$ & medial $\frac{2}{3}$ of line joining ASIS & umbilicus

↳ base of appendix

Notes

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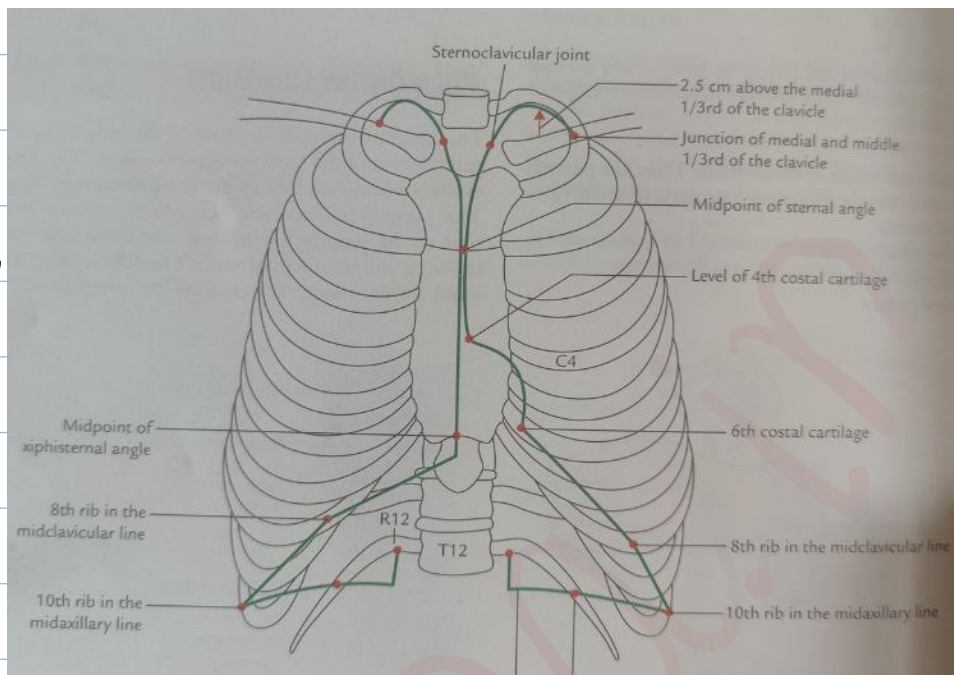
Pleura:

Parietal Pleura:

Cervical Pleura: curved line drawn b/w

- Sternoclavicular joint
- junction of medial $\frac{1}{3}$ & middle $\frac{1}{3}$ of clavicle

(Summit: 1 inch above medial $\frac{1}{3}$ of clavicle)



Costomediastinal Line:

Right Right sternoclavicular joint → Midpoint of sternal angle
 midpoint of xiphisternal joint ←

Left Left sternoclavicular joint → midpoint of sternal angle → 4th costal cartilage
 6th costal cartilage, 3cm from midline ←

Costodiaphragmatic Line:

Right xiphisternal point → 8th rib in midclavicular line →
 2cm lateral to spine of T12 ← 12th rib at lateral border of erector spinae ← 10th rib in midaxillary line

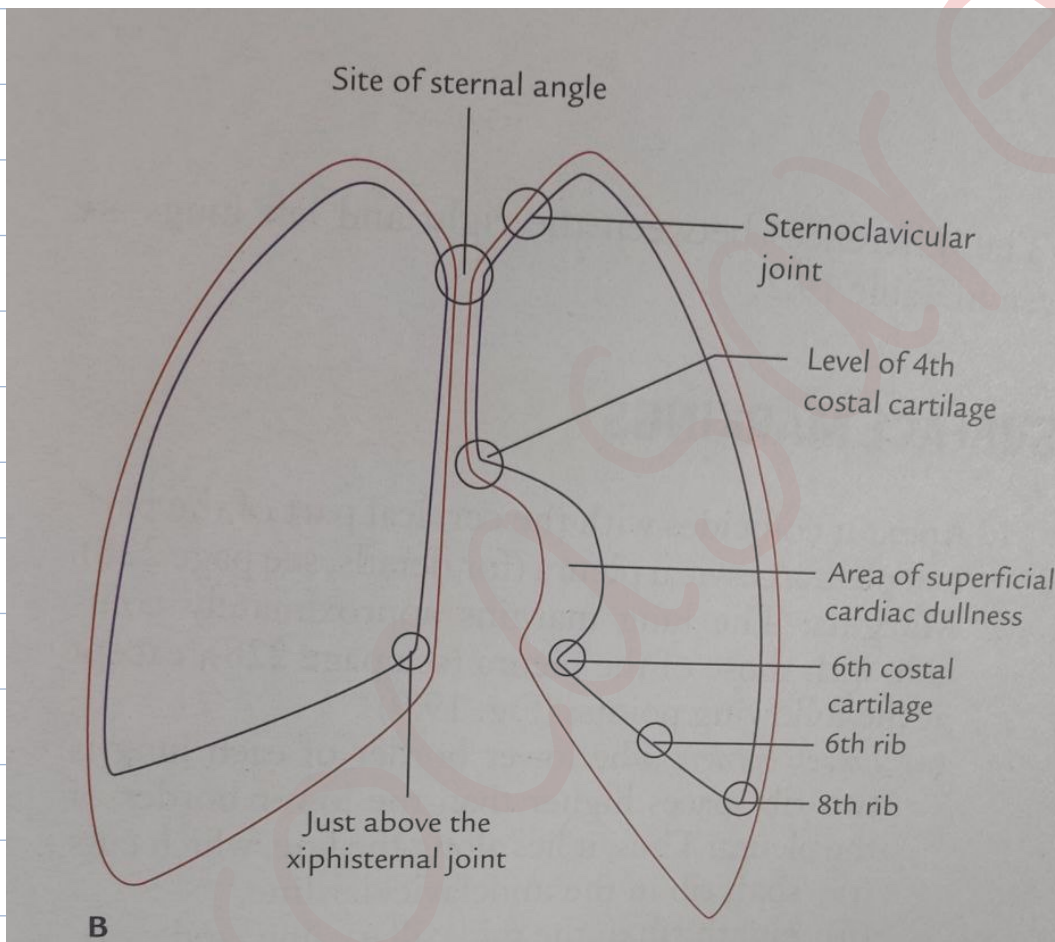
Left 6th costal cartilage, 3cm from midline → ... (same as right side) ...

Visceral Pleura:

Apex: coincides with cervical pleura

Margins: coincide with parietal pleura except at:

- Lower border: 2 rib spaces higher than lower border of pleura
- Anterior border of L Lung: has cardiac notch which passes behind 4th & 5th intercostal spaces
- Posterior border: level of spine of T10



Trachea:

a: lower border of cricoid cartilage in median plane

b: on sternal angle, 1cm to the (R)

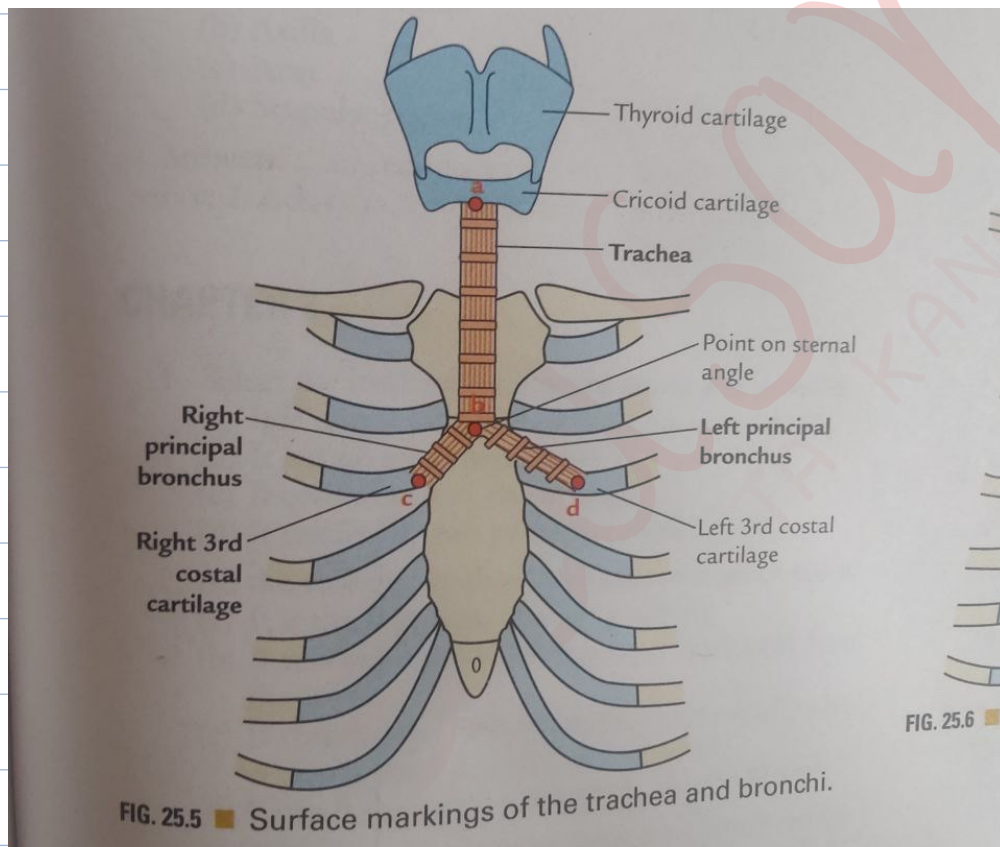
• Two parallel lines joining a & b 2cm apart. $\Rightarrow$ Trachea

c: sternal end of (R) 3rd costal cartilage

d: (L) 3rd costal cartilage, 3.5cm from median plane

bc = (R) principal bronchus

bd = (L) " "



Heart:

Right border: a: upper border of (R) 3rd costal cartilage ; 1cm from margin of sternum
b: (R) 4th intercostal space , 4cm from median plane
c: lower border of (R) 6th costal cartilage , 2cm from sternal margin

Lower border:

d: xiphisternal joint in median plane
e: left 5th intercostal space , 9cm from midline

Left border:

f: lower border of (L) 2nd costal cartilage , 1.25cm from sternal margin.

	VALVE	AUSCULTATORY AREA
<u>Pulmonary</u>	behind medial end of (L) 3rd costal cartilage	(L) 2nd intercostal space near sternum
<u>Aortic</u>	behind (L) half of sternum opposite to 3rd intercostal space	(R) 2nd intercostal space near sternum
<u>Mitral</u>	behind (L) half of sternum opposite to (L) 4th costal cartilage	(L) 5th intercostal space , 9cm from midline (Apex beat)
<u>Tricuspid</u>	behind (R) half of sternum opp. 4th & 5th intercostal spaces	(R) half of lower end of body of sternum

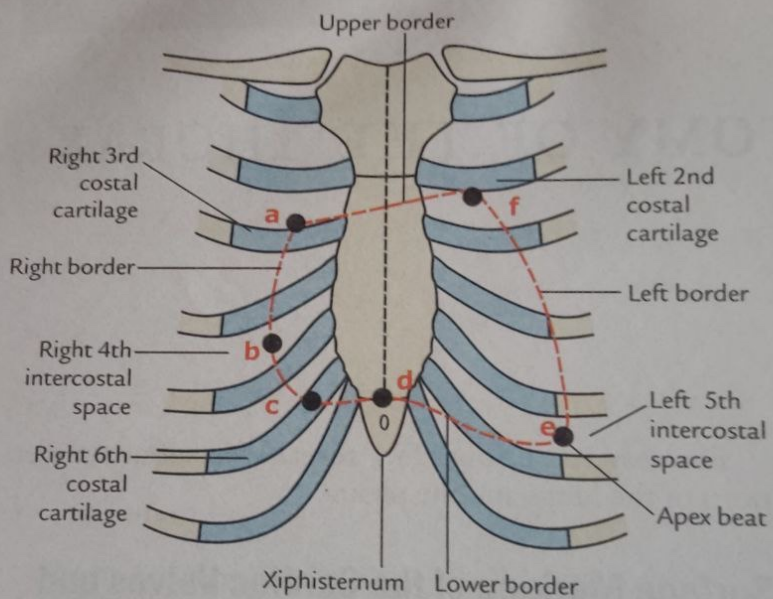
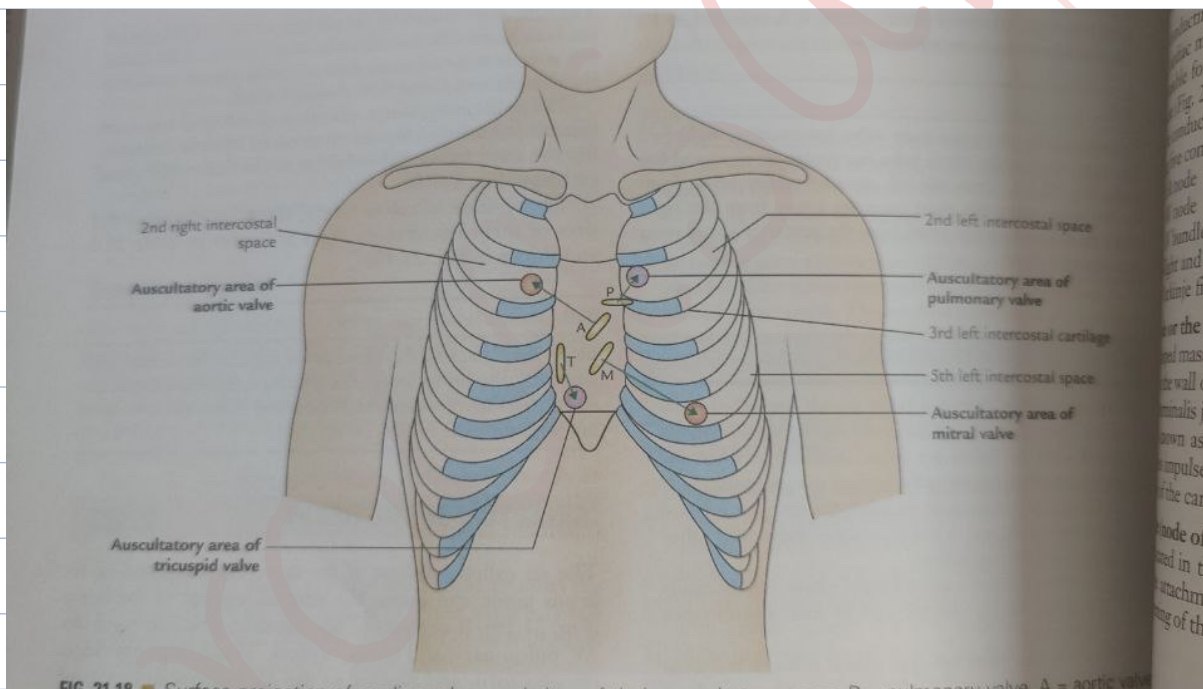


FIG. 25.2 ■ Surface markings of the heart on the anterior chest wall/sternocostal surface of the heart.



Head

&

Neck

Common Carotid Artery:

a: sternoclavicular joint

d: anterior border of sternocleidomastoid at level of upper border of thyroid cartilage.

Internal Jugular vein:

A: ear lobule

B: medial end of clavicle

External jugular vein:

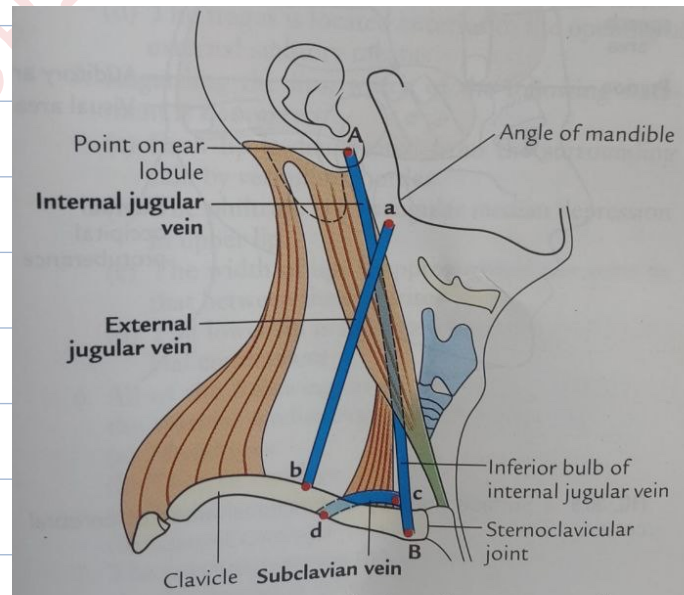
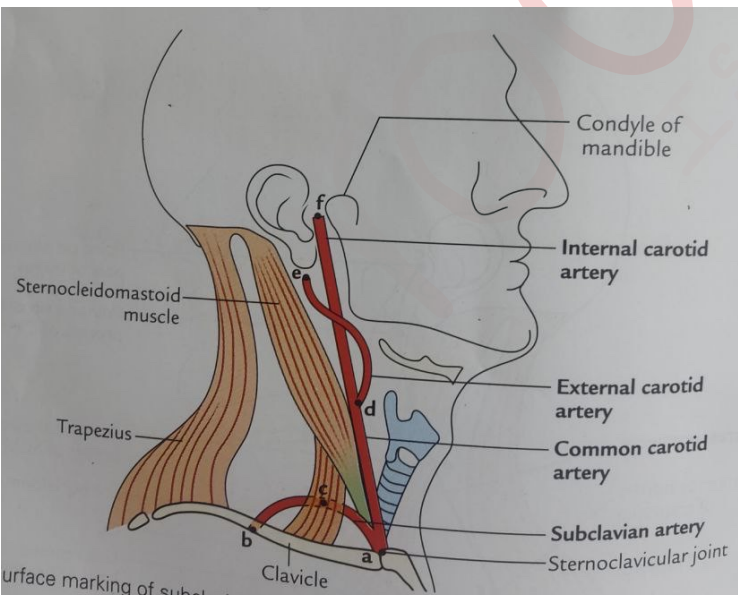
a: below angle of mandible

b: middle of upper border of clavicle

Subclavian Vein:

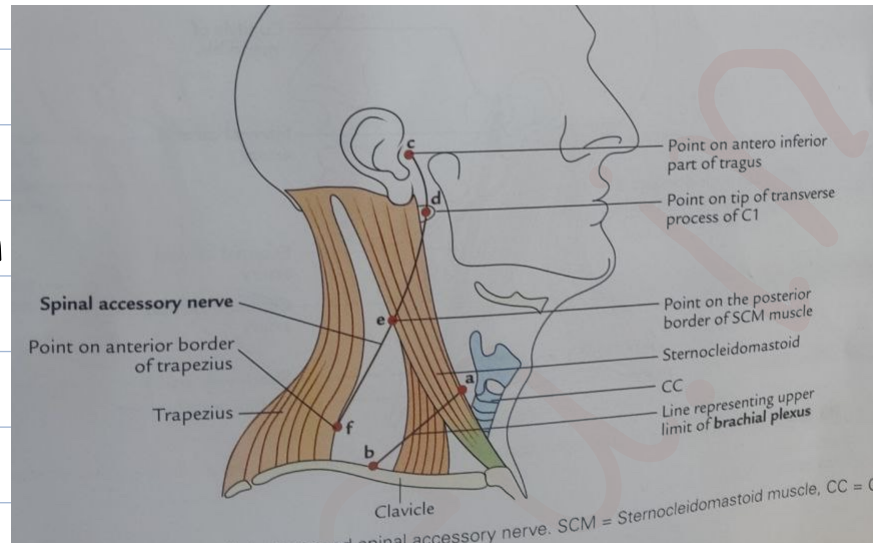
c: medial edge of clavicular head of sternocleidomastoid

d: medial to midpoint of lower border of clavicle.



Spinal Accessory Nerve:

- c: anteroinferior part of tragus
- d: tip of transverse process of atlas
- e: posterior border of sternocleidomastoid at junction of upper $\frac{1}{3}$ & lower $\frac{2}{3}$
- f: anterior border of trapezius 6cm above clavicle.

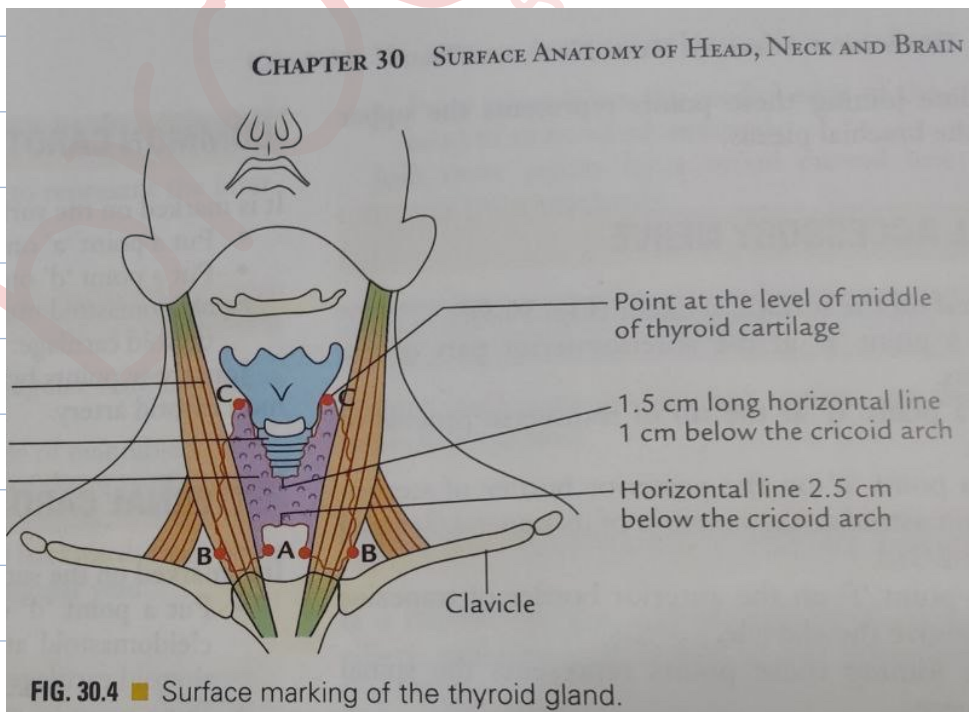


Thyroid gland:

- Isthmus: — Half inch line 1cm below cricoid arch
- Half inch line 2.5cm below cricoid arch

Lateral lobes:

- A: 1cm below lateral end of lower border of isthmus
- B: 2.5cm below & lateral to outer end of lower border of isthmus (on both sides)
- C: little in front of anterior border of sternocleidomastoid at level of laryngeal prominence (on both sides).

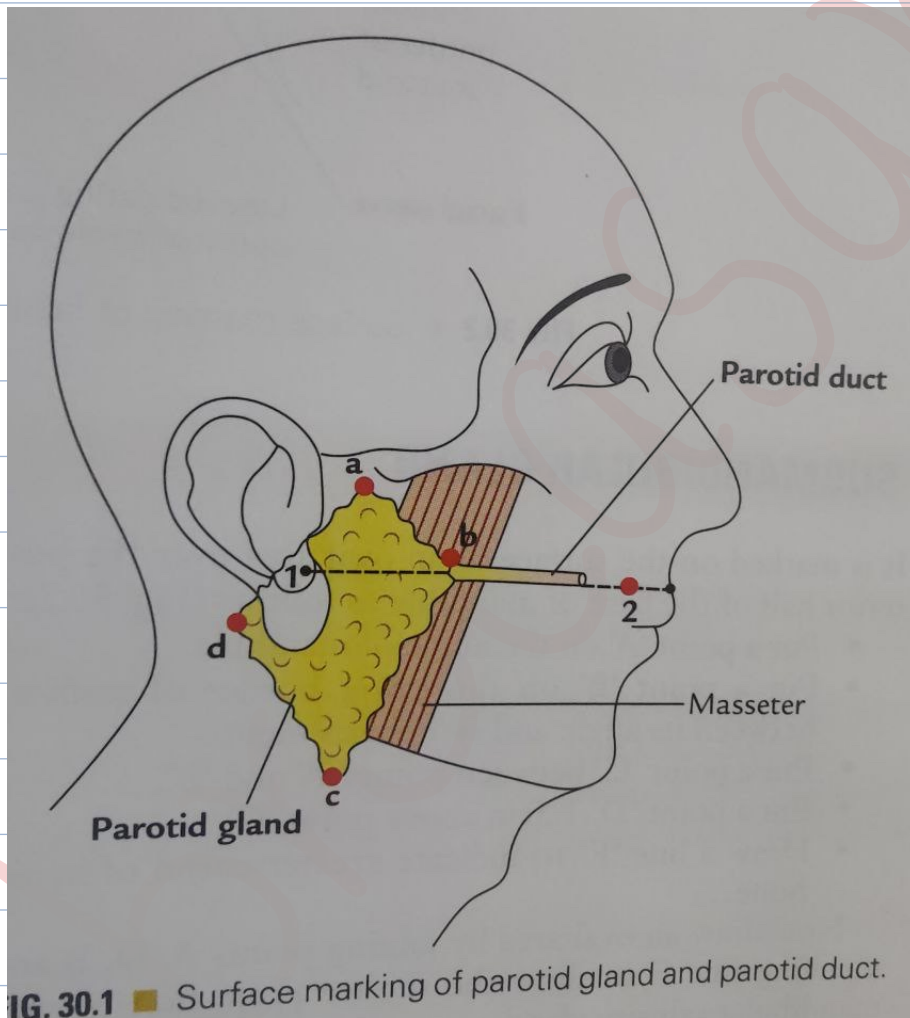


Parotid gland:

- a: upper border of head of mandible
- b: just above center of masseter
- c: 2cm below & behind angle of mandible
- d: on mastoid process

Parotid duct:

- 1: lower part of tragus of ear
- 2: midway b/w ala of nose & red margin of upper lip.



Facial artery: (tortuous course)

- 1: on base of mandible at anterior border of masseter
- 2: 1.2 cm lateral to angle of mouth
- 3: at medial angle of eye.

Pterion: 4 cm above midpoint of zygomatic arch, 2.5 cm behind fronto - zygomatic suture.

