

Anatomy

Faculty of Medicine - JU2017

Sheet

Slides

Number

2

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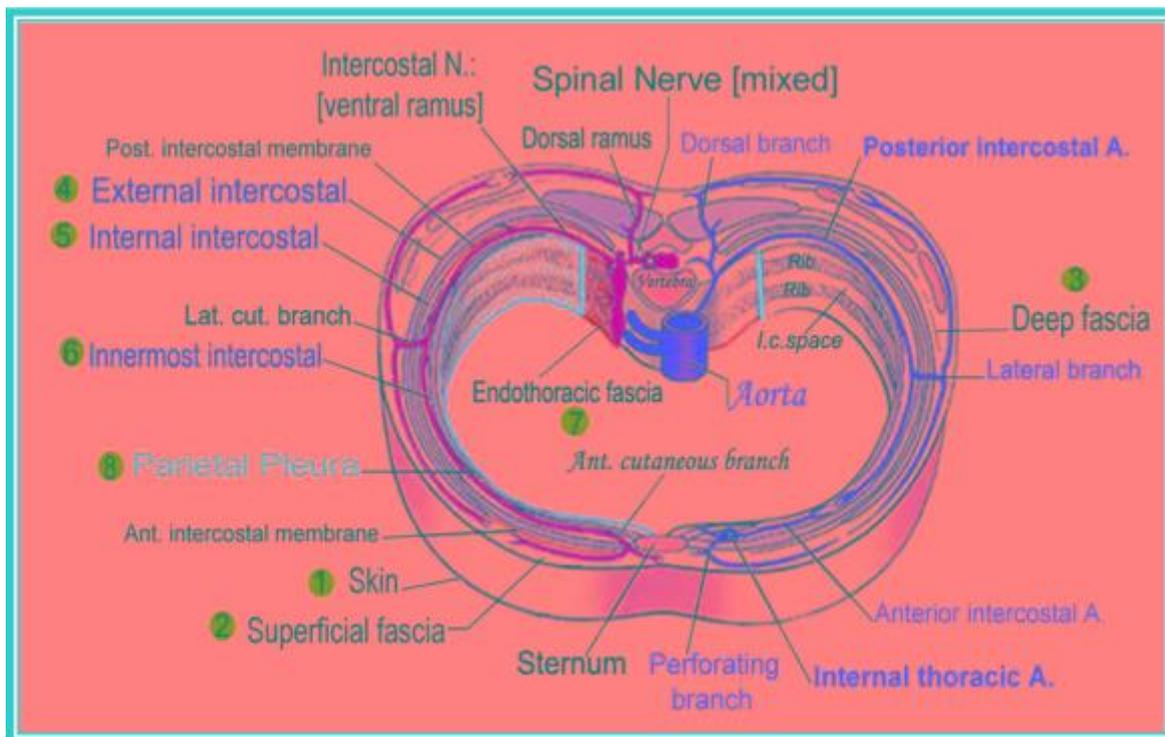
Doctor

Maher Al-Hadidi

THORACIC WALL

The thoracic wall forms 8 layers.

1. Skin
2. Superficial fascia
3. Deep fascia
4. ⇒external intercostal muscle
5. ⇒internal intercostal muscle
6. ⇒innermost intercostal muscle
7. endothoracic fascia (it's like the glue that connects the pleura to the lungs)
8. parietal pleura (surrounds the lungs)



intercostal muscles

they are oriented in 3 directions, like jeans and 3 ply fabrics. If they were parallel they would be easy to open. The external and internal ICM are perpendicular to each other. These are the muscles of respiration. These muscles are circular

- external ICM: downward forward
- internal ICM: downward backward
- innermost ICM: horizontal (upward backward).

There are spinal nerves in the neck called cervical spinal nerve (C7 to T1) forming the brachial plexus. Then we have T1 to T12 nerves that pass between sequential ribs, called intercostal nerves. The nerve below rib no. 12 is called subcostal nerve. The intercostal nerves supply ALL the structures (1-8 above) segmentally from external to internal so if an injury happened to one of these nerves all the 8 layers will be affected.

Nerves originate from the ventral rami of the spinal cord (similar to the brachial plexus). We have 12 ribs but 11 intercostal nerves and 1 subcostal nerve.

Note: *any things between 2 ribs is called: intercostal

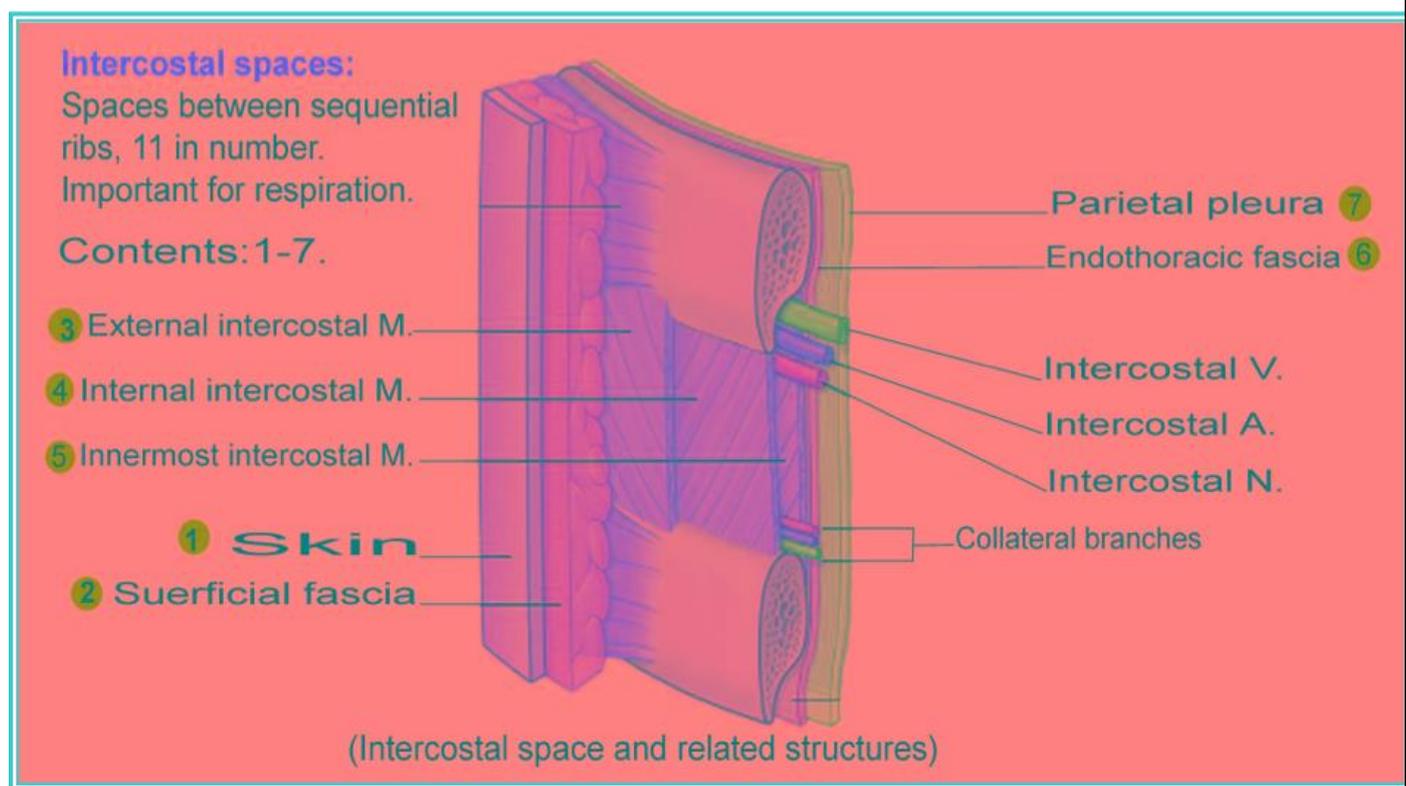
*Any thing under one rib is called subcostal

Note: dorsal means from the back

Ventral ramus= intercostal nerve if it passes between 2 ribs

The intercostal nerve extends from vertebrae to sternum(half) and another nerve extends to supply the other half from the opposite side.

intercostal nerve block⇒shingles pain (الحزام الناري) and it will look like pimples on the skin and as we said before all the 8 layers will be effected so if we opened the patient we will see the same pimples on the pleura supplied by the blocked nerve



The intercostal veins and arteries supply all structures between ribs. They are arranged from superior to inferior as VAN (vein, artery, nerve) and are found in the neurovascular bundle, which is located in the costal groove. NEURO=nerve, VASCULAR= vein and artery. There are collateral branches located superior to the rib. The first 2 intercostal arteries originate from the subclavian artery that gives a branch called the superior intercostal artery, which gives 2 branches to the 1st and 2nd intercostal spaces. And the rest arteries originate from the Thoracic Aorta

→to inject a needle to take a sample of pleural fluid we insert in inferiorly to the rib.

Pleura

It is made of protein like egg white. **Pleurisy** (PLOOR-ih-see) is a condition in which the pleura — a membrane consisting of a layer of tissue that lines the inner side of the chest cavity and a layer of tissue that surrounds the lungs — becomes inflamed. Also called pleuritis, **pleurisy** causes sharp chest pain (pleuritic pain) that worsens during breathing. It is pain from pleura. If a person gets out in cold and water enters the chest till it reaches the pleural cavity inducing severe staking pain.

The pleura have 3 parts:

1. Parietal pleura
2. Visceral pleura , that covers the lung
3. pleural cavity: a potential space that contains a 50 ml of a serous fluid for frictionless and smooth breathing and this space becomes true only in disease and the most common example is (pleural effusion) السوائل حول الرئة

In the cavity there is no air and no pressure, that's for the free movement of the lungs.

REVIEW (slides)

3 intercostal muscles

- arranged in 3 circular layers around thoracic cavity.
- oriented in 3 different directions (3 ply sheet).
- They reinforce intercostal spaces during inspiration.
- NERVE SUPPLY: supplied segmentally by nerve of its own space.

Intercostal nerves

- 11 in number, while the 12th is called subcostal nerve.
- Originates from ventral rami of thoracic spinal nerves.
- Motor to muscles and Sensory to Skin and Pleura.

Intercostal arteries

- 11 in number, while the 12th is the subcostal artery.
- 1st and 2nd from subclavian artery, the subclavian artery gives the superior intercostal artery which gives two branches.
- 3rd and 12th from thoracic aorta.