RESPIRATORY SYSTEM

It consists of the lungs , and the passages through which air reaches the lungs.

Nasal cavities - pharynx – larynx – trachea – bronchi – bronchioles.

NASAL CAVITIES

Three parts

- The VESTIBULE
- OLFACTORY MUCOUS MEMBRANE -
  The ROOF and 1cm on lateral and medial wall
- Rest of the nasal cavity -RESPIRATORY MUCOSA

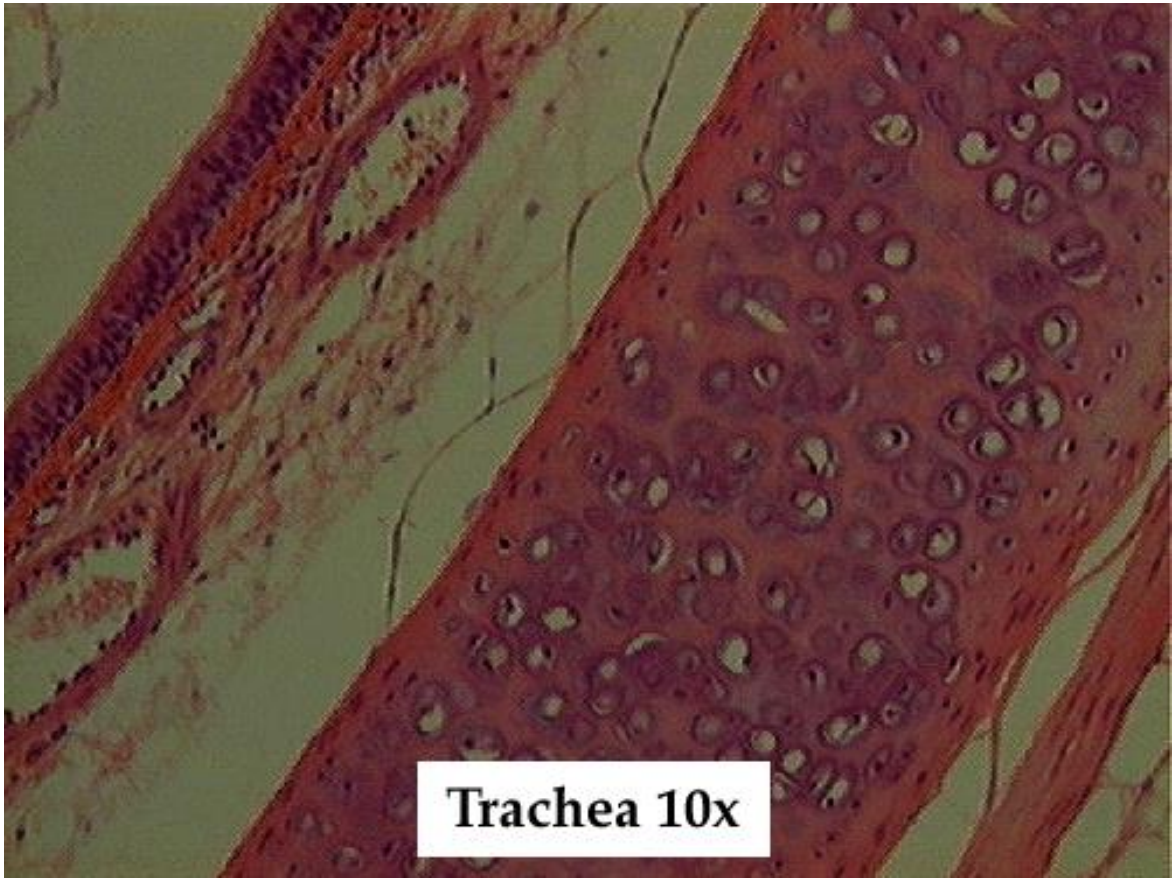
TRACHEA

- Cartilage internally line by mucus membrane and externally by the fibrous coat. The lining epithelium is psuedostratified ciliated columnar (respiratory epithelium) with plenty of goblet cells are there.

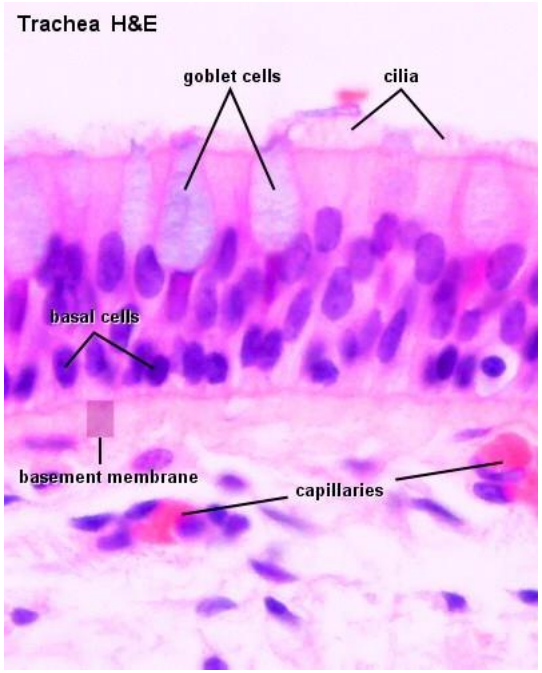
- The Submucous coat contains numerous serous and mucous glands and occasional lymphoid tissue.

- 15-20 “ C “ shaped cartilages connected by fibro elastic membrane. The end of cartilage is connected by smooth muscle. There are C shaped cartilage deficit behind and composed of non articular hyaline cartilages. First ring is broadest. Last ring presents a triangular process known as the “carina”.

TRACHEA



TRACHEA


Trachea H&E
goblet cells
cilia
basal cells
basement membrane
capillaries

Lining epithelium of bronchus is ciliated columnar and provided with goblet cells, mucous and serous glands.

TEN TYPES OF CELLS ARE DETECTED IN TRACHEOBRONCHEAL TREE. - Ciliated , Serous , Goblet, Brush , Intermediate , Clara and Argentaffin cells.

- The CLARA cells are non ciliated , posses blunt luminal projections and lamellated bodies in the cytoplasm. They are possible secrete surfactant fluid.

LUNGS

- THREE COATS - SEROUS COAT

  SUB-SEROUS AREOLAR TISSUE

  PULMONARY SUBSTANCE

D

- **SEROUS COAT - Derived from pulmonary pleura**

- **SUBSEROUS COAT - Consist of elastic fibro – areolar tissue**

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Fibro elastic septa

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Lung lobules(20,000)

- **PULMONARY SUBSTANCE : Includes all structures within lung lobules.**

LOBULE

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CONDUCTING BRONCHIOLES

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TERMINAL BRONCHIOLES(3 – 7)

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RESPIRATORY BRONCHIOLES

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ALVEOLAR DUCTS

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ATRIA --- AIR SACCULES --- ALVEOLI

- All these structure of lung unit are lined by simple squamous epithelium resting on basement membrane and surrounded externally by intense pulmonary capillary plexus.
- The structures intervening between air of lung alveoli and blood of pulmonary capillaries (air –blood barrier) are following

  1) flattened epi. Of alveoli

  2) basement membrane

  3)basement memb. Of capillary endothelium

  4) flattened capillary endothelium

Types of cells lining the alveoli : 1) Simple squamous epithelium

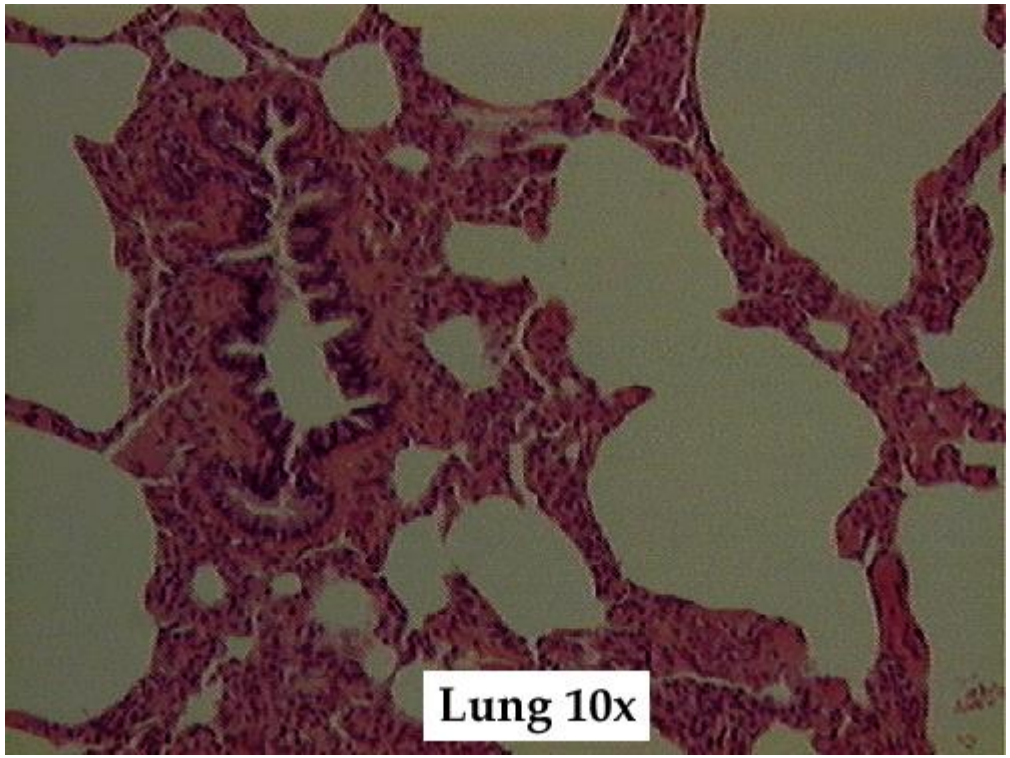
Type I cells

2)Large secretary cells

Type II cells

3) Alveolar phagocytes (HEART FAILURE CELLS)

LUNGS



Aknowledgement

- Inderbir Singh’s Textbook of Human Histology
- Textbook of Histology- Atlas and Practical Guide by JP Gunasegaran
- Difiore’s Atlas of Histology
- Images from Google
- Histology Text & Atlas -Brijeshkumar