Trachea & bronchial tree

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objectives

• 1- Describe the histological structure of trachea.
• 2- Describe the histological structure of bronchial tree:
  • a- Bronchus.
  • b- Bronchioles.
• 3- Draw and label some diagrams.
Trachea is a thin walled tube, about 10 cm length, and 2.5 cm diameter, extends from the larynx into the thorax where it bifurcates into two primary bronchi.
trachea

• The wall consists of three layers:
  1- Mucosa: consists of:
    • a- Respiratory epithelium.
    • b- Lamina propria. It contains a muco-serous glands; tracheal glands.
  2- Submucosa. Contains 16-20 C-shaped cartilage rings.
    Contains trachealis muscle.
    Contains tracheal ligament.
  3- Adventitia.
trachea
Bronchial tree

• The trachea divides into two main bronchi, each enters the lung through the hilum, where arteries, veins, and lymphatics enter and leave the lungs.

• Each primary bronchus course downwards dividing into three secondary bronchi in the right lung, and two in the left lung, each supply a pulmonary lobe. These lobar bronchi divide repeatedly into bronchioles, then 5-7 terminal bronchioles.
• 1- Primary bronchus: has the same histological structure as trachea, except that the cartilage is a complete ring.
• 2- Secondary bronchus: has the same histological structure as trachea, except that the cartilage is in a form of isolated plates.
**bronchioles**

- They are an intralobular air ways with a diameter of 1-5mm or less. They are lined by respiratory epith., with few goblet cells. No glands and no cartilage present in their wall.
Terminal bronchiole

- They are lined by simple columnar or simple cuboidal cells, ciliated with Clara cells. Clara cells are non ciliated, and have an apical secretary granules.

- Lamina propria is rich in smooth muscle fibers, and elastic f.
Respiratory bronchiole

- Each terminal bronchiole gives two or three respiratory bronchioles. These are lined by simple ciliated cuboidal cells, with non ciliated Clara cells.

- Lamina propria is rich in smooth muscle fibers and elastic fibers. The wall of respiratory bronchioles is interrupted by the alveolar sacs and alveolar ducts.
summery

1- Trachea is a tube that connects larynx to the lungs.
2- Bronchial tree constitutes most of the conducting portion of respiratory system.
3- Most of the conducting portion is lined by respiratory epithelium.
4- As we go down the bronchial tree, the respiratory epithelium is simplified.