RESPIRATORY SYSTEM

- The respiratory tract is functionally divided into 2 parts:

1) …… Part
2) …… Part

- Clinically, the respiratory tract is divided into:

1)
2)

- The wall of the tract is divided into:

1)

2)

3) Supportive layer

4)

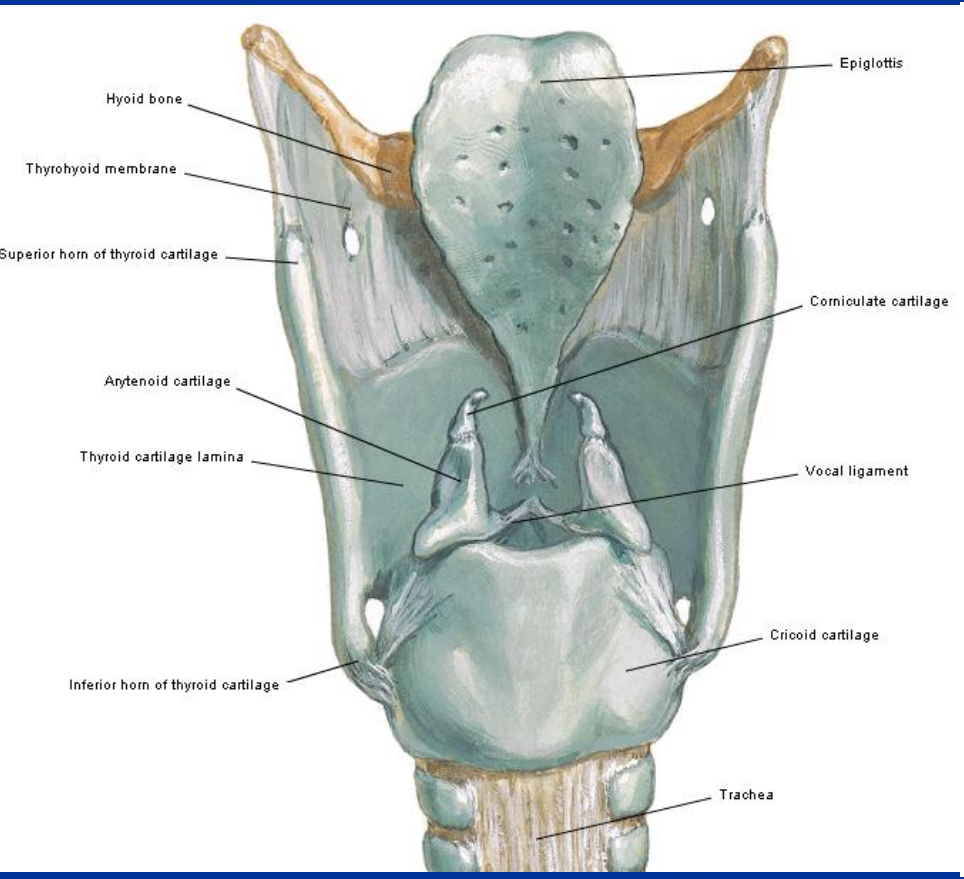
Mention the components of each layer.

What are the types of epithelium seen in the respiratory tract?

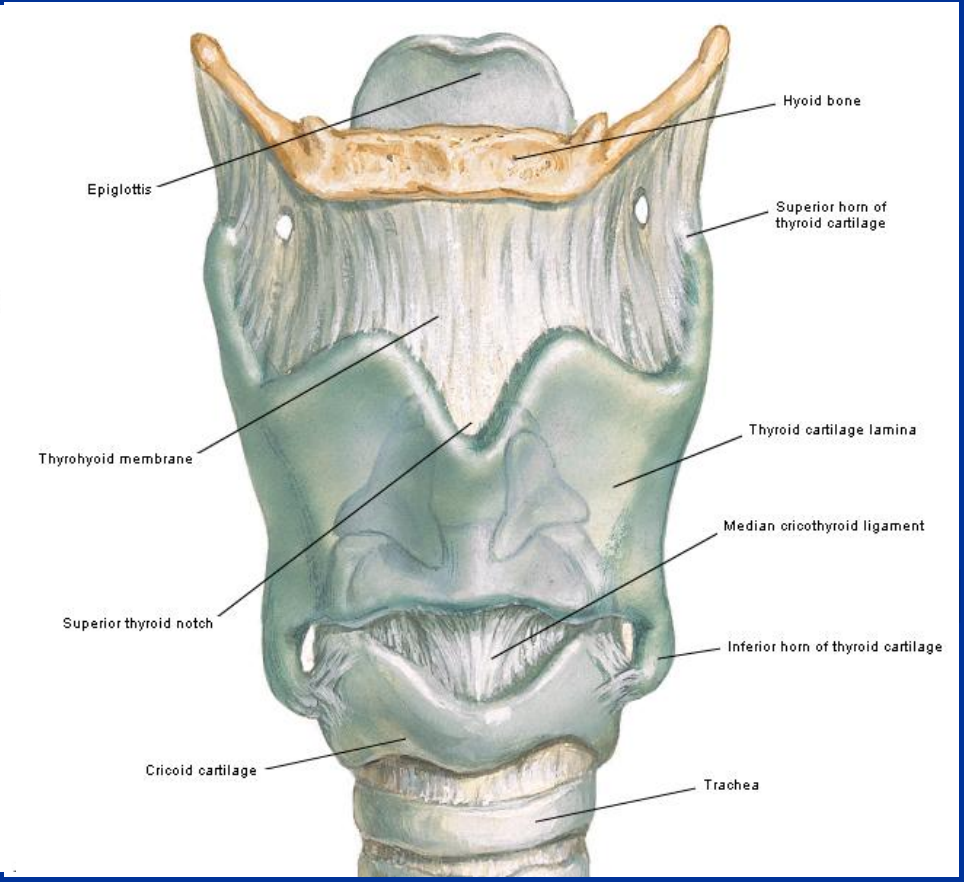
What are the cells seen in the respiratory tract?

The Larynx

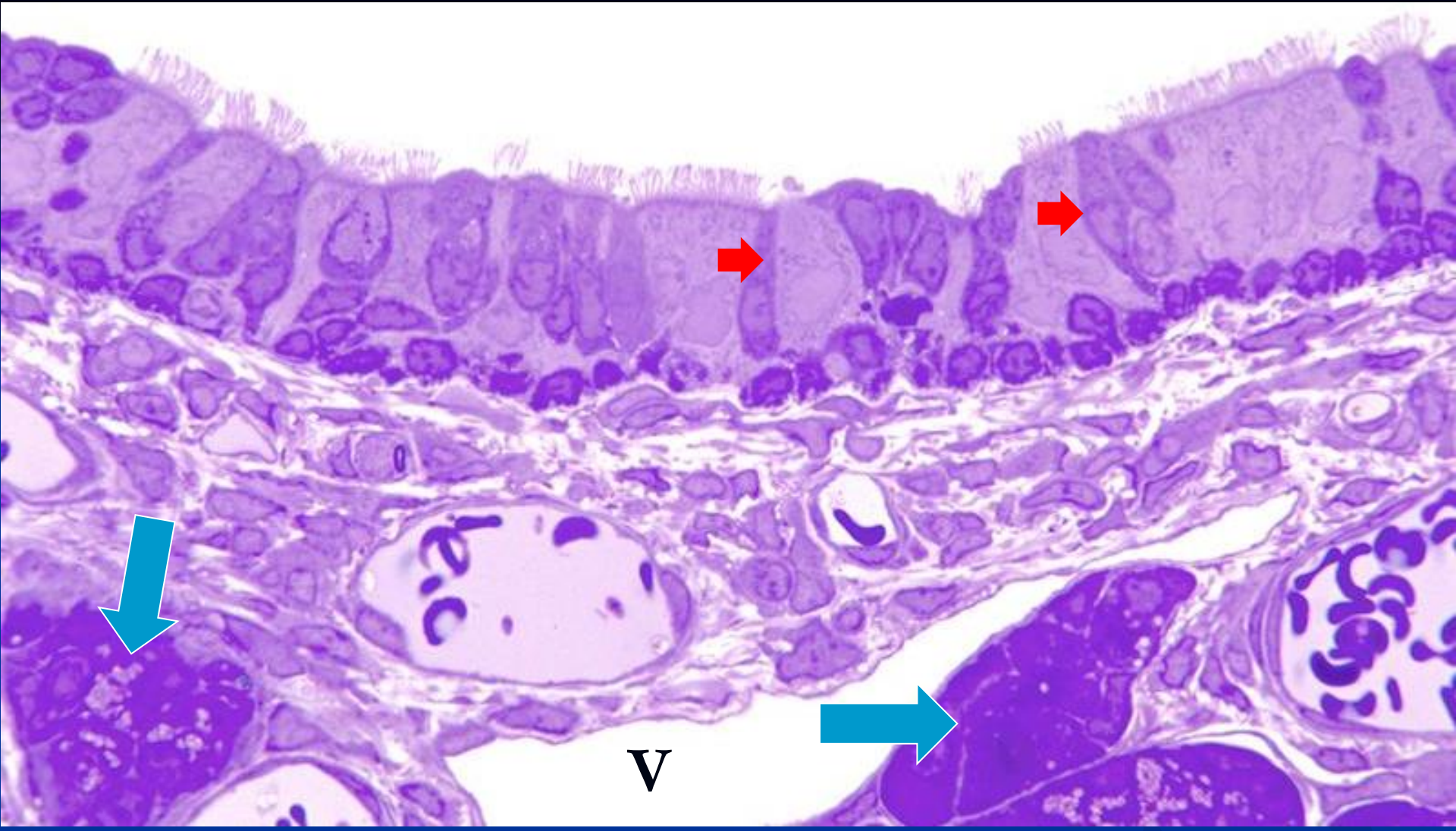
Posterior View



Anterior View



- Study the anatomical structure of the larynx.
- What are names of cartilages forming the larynx?
- What are the type(s) of cartilage in the larynx?
- Can you describe the functions of each of them?

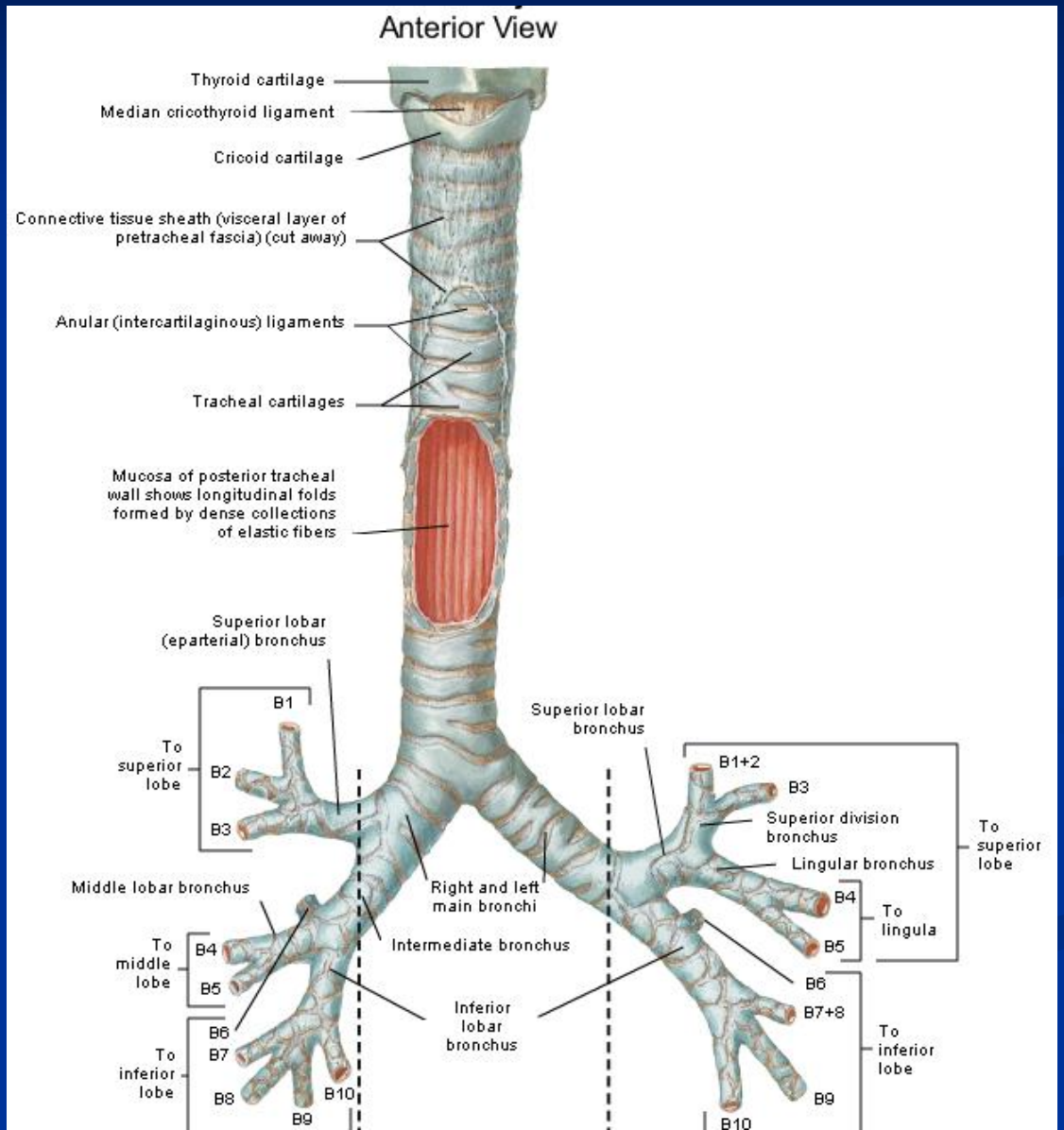


Laryngeal Mucosa

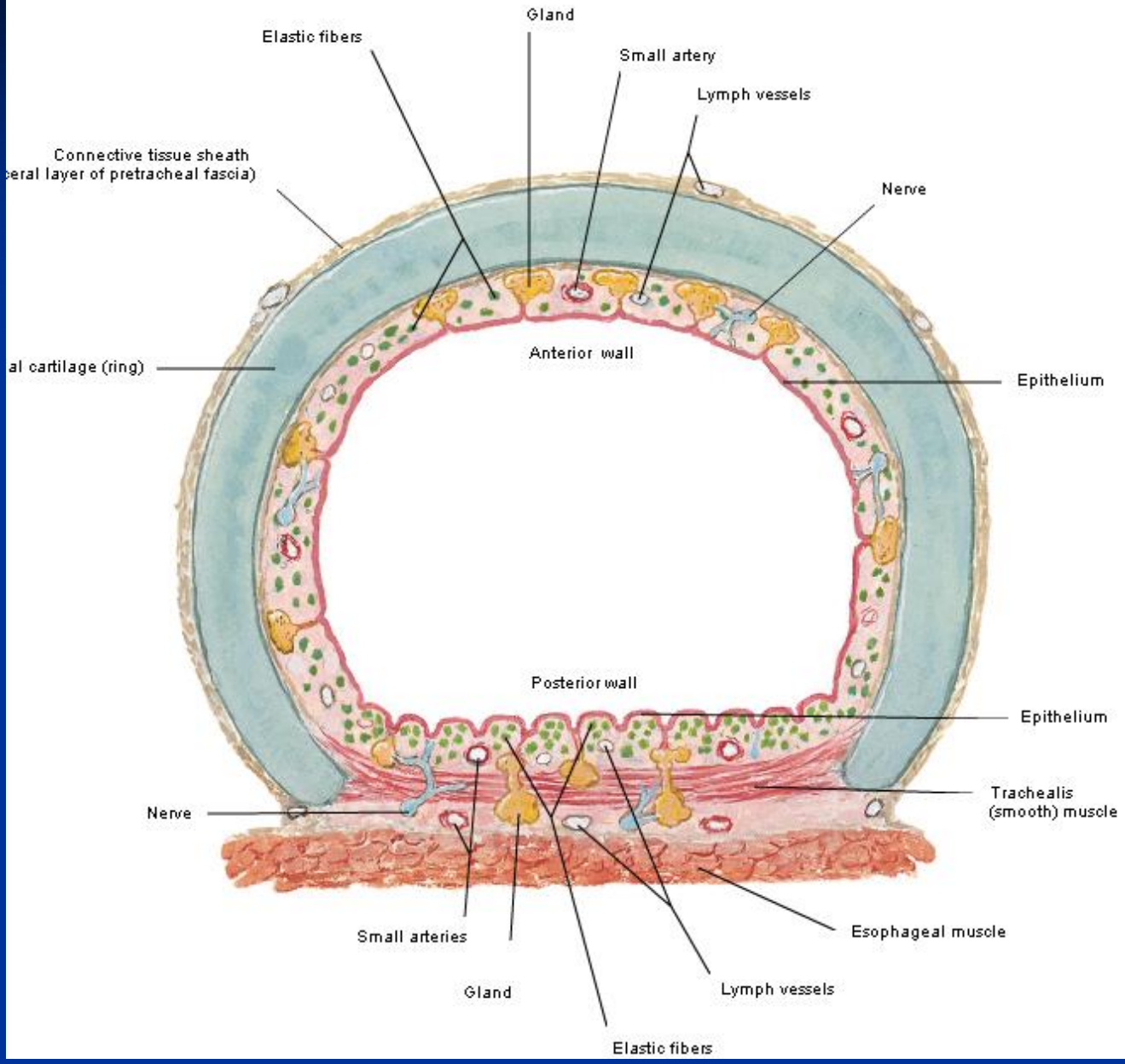
Red arrows= Goblet cells
Blue arrows= seromucous glands
V= Vein

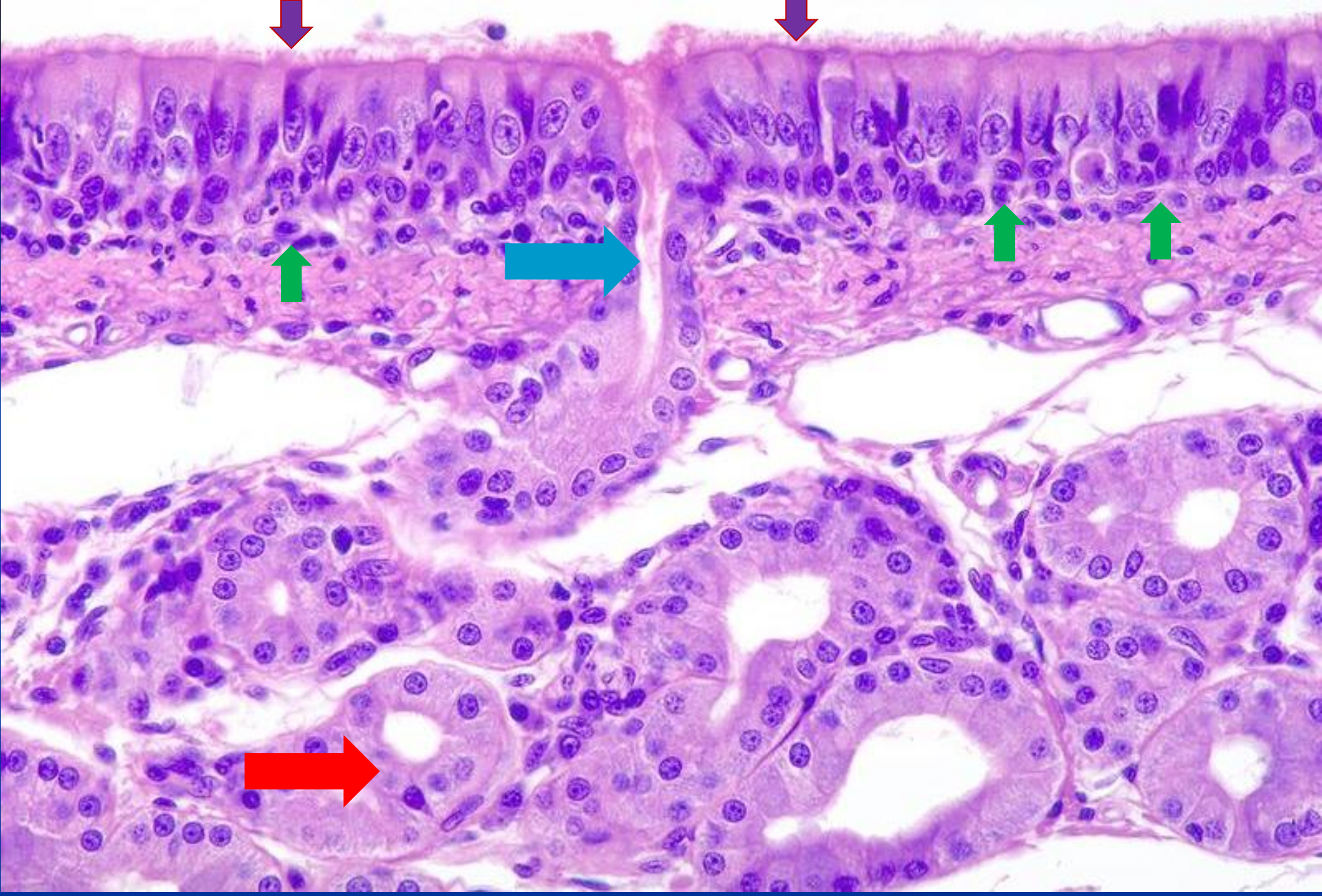
Notice the cilliated epithelium, and the high vascularity of the connective tissue.

The Trachea

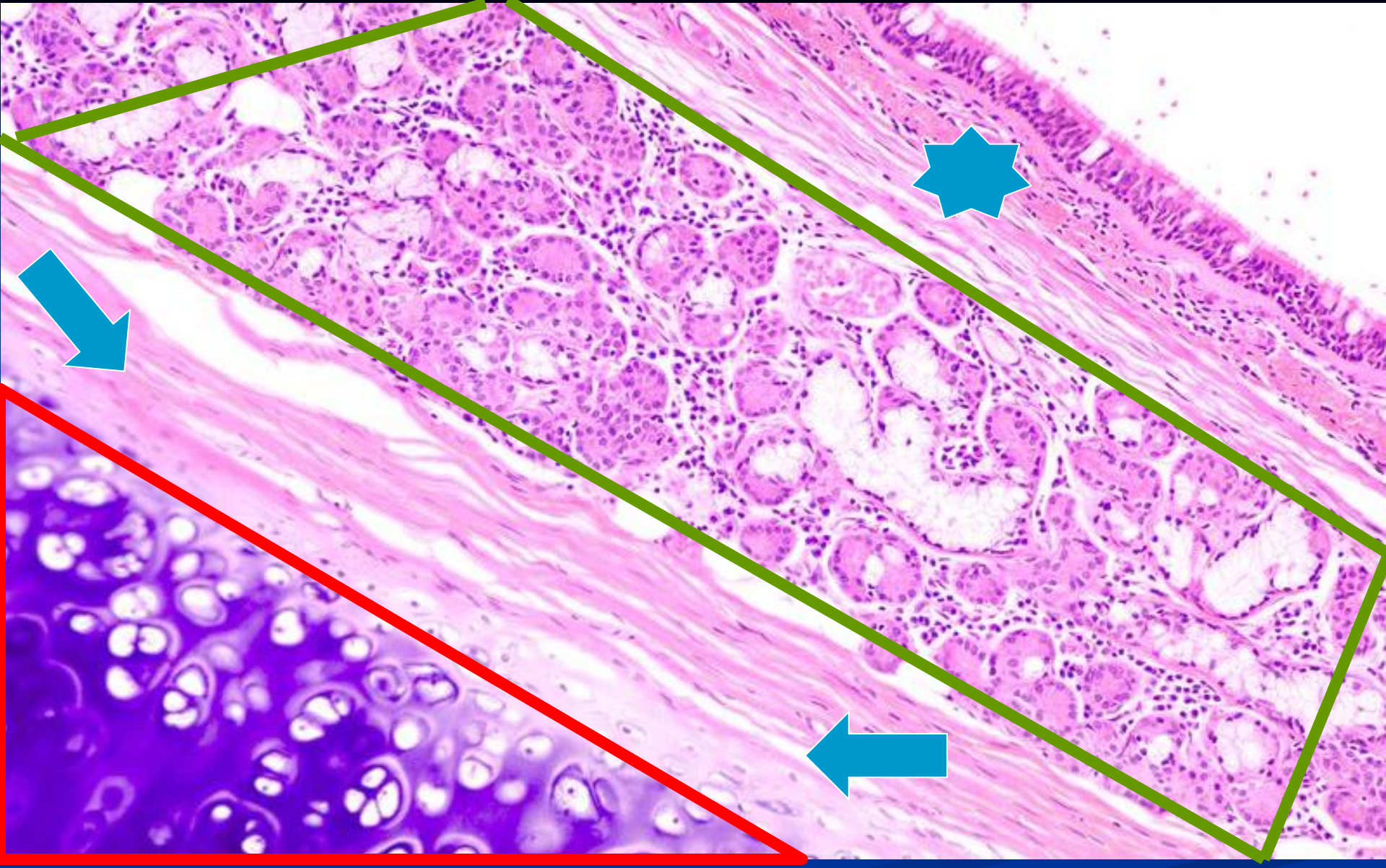

Anterior View
Thyroid cartilage
Median cricothyroid ligament
Cricoid cartilage
Connective tissue sheath (visceral layer of pretracheal fascia) (cut away)
Anular (intercartilaginous) ligaments
Tracheal cartilages
Mucosa of posterior tracheal wall shows longitudinal folds formed by dense collections of elastic fibers
Superior lobar (eparterial) bronchus
B1
To superior lobe
B2
B3
Middle lobar bronchus
To middle lobe
B4
B5
B6
B7
To inferior lobe
B8
B9
B10
Right and left main bronchi
Intermediate bronchus
Inferior lobar bronchus
Superior lobar bronchus
B1+2
B3
Superior division bronchus
Lingular bronchus
B4
B5
To lingula
To superior lobe
B6
B7+8
To inferior lobe
B9
B10

Trachea
Cross Section

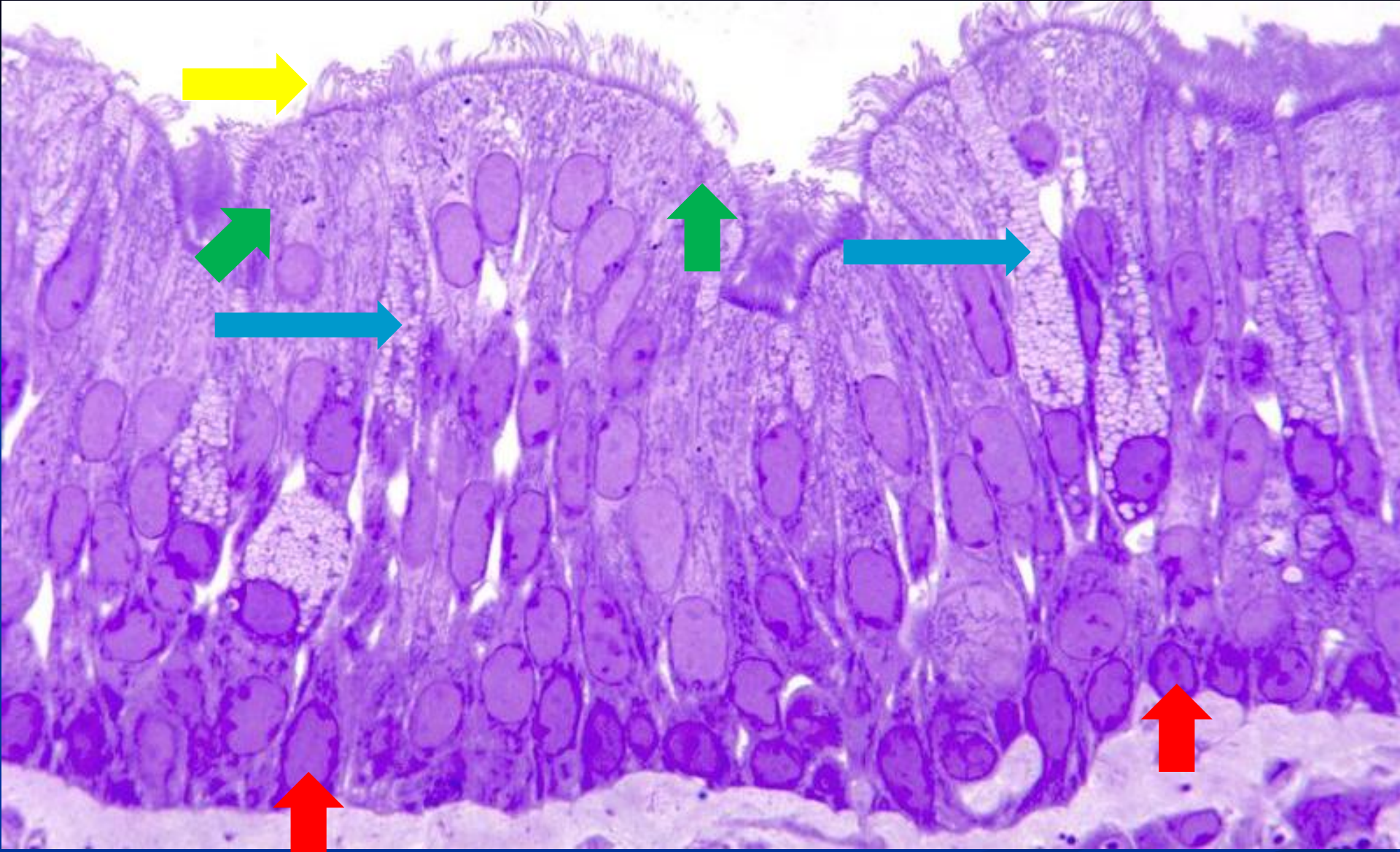




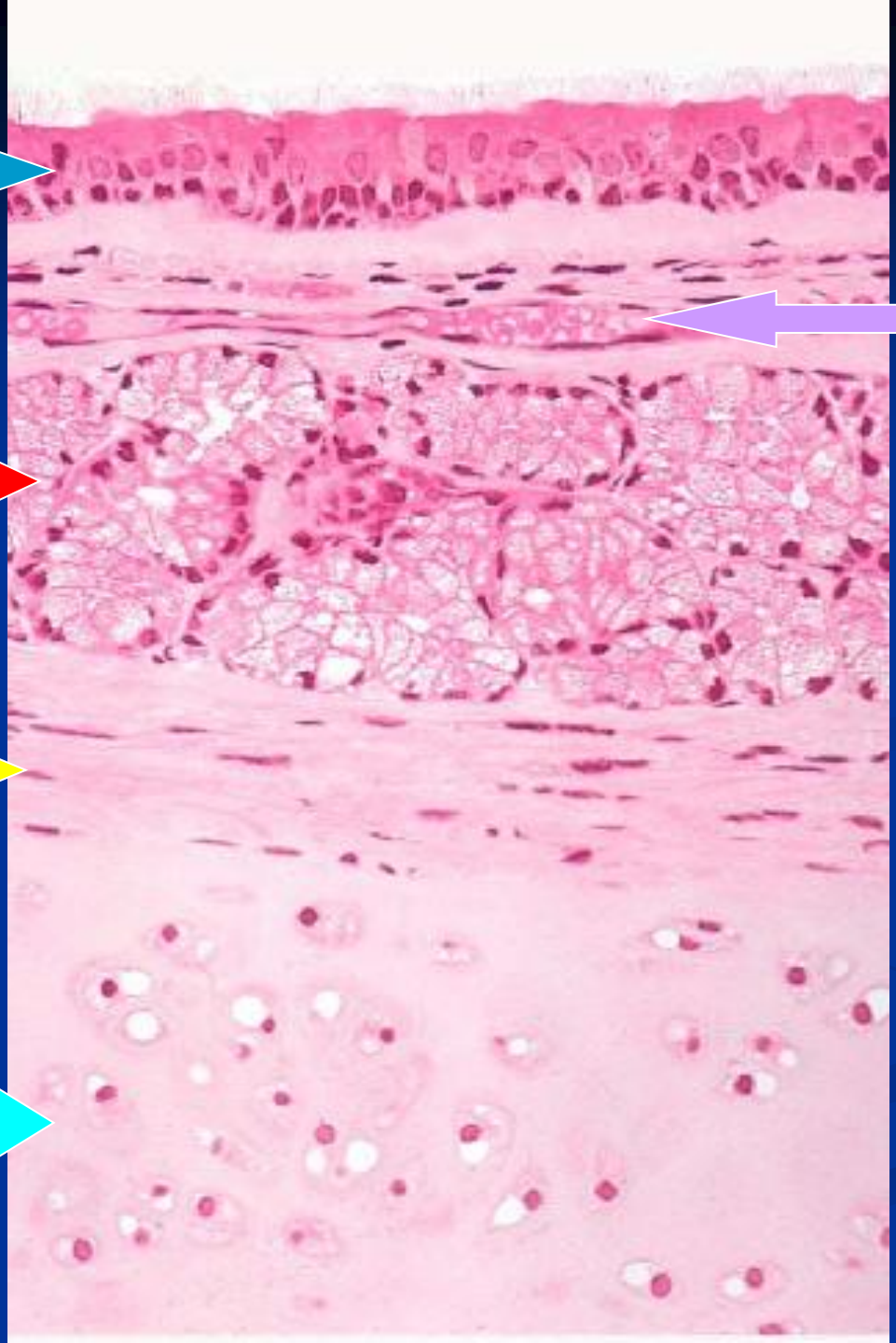
What are the POINTED structures?



The red triangle is enclosing …….?
The green box is enclosing ……?
The blue star is present in the ……?
The blue arrows are pointing at the …..?



What are the POINTED structures ?
What are their functions?

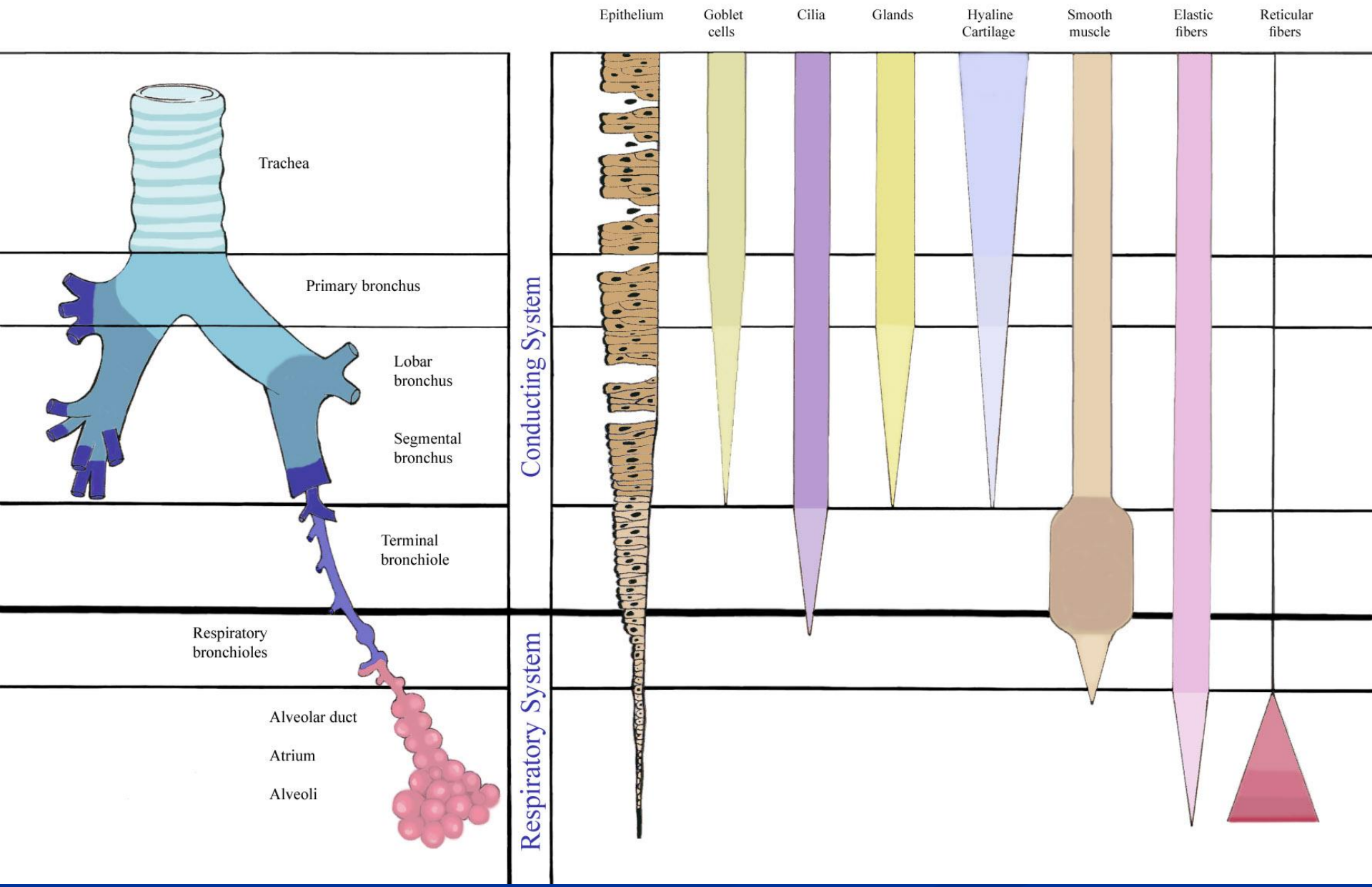


What are the POINTED structures?

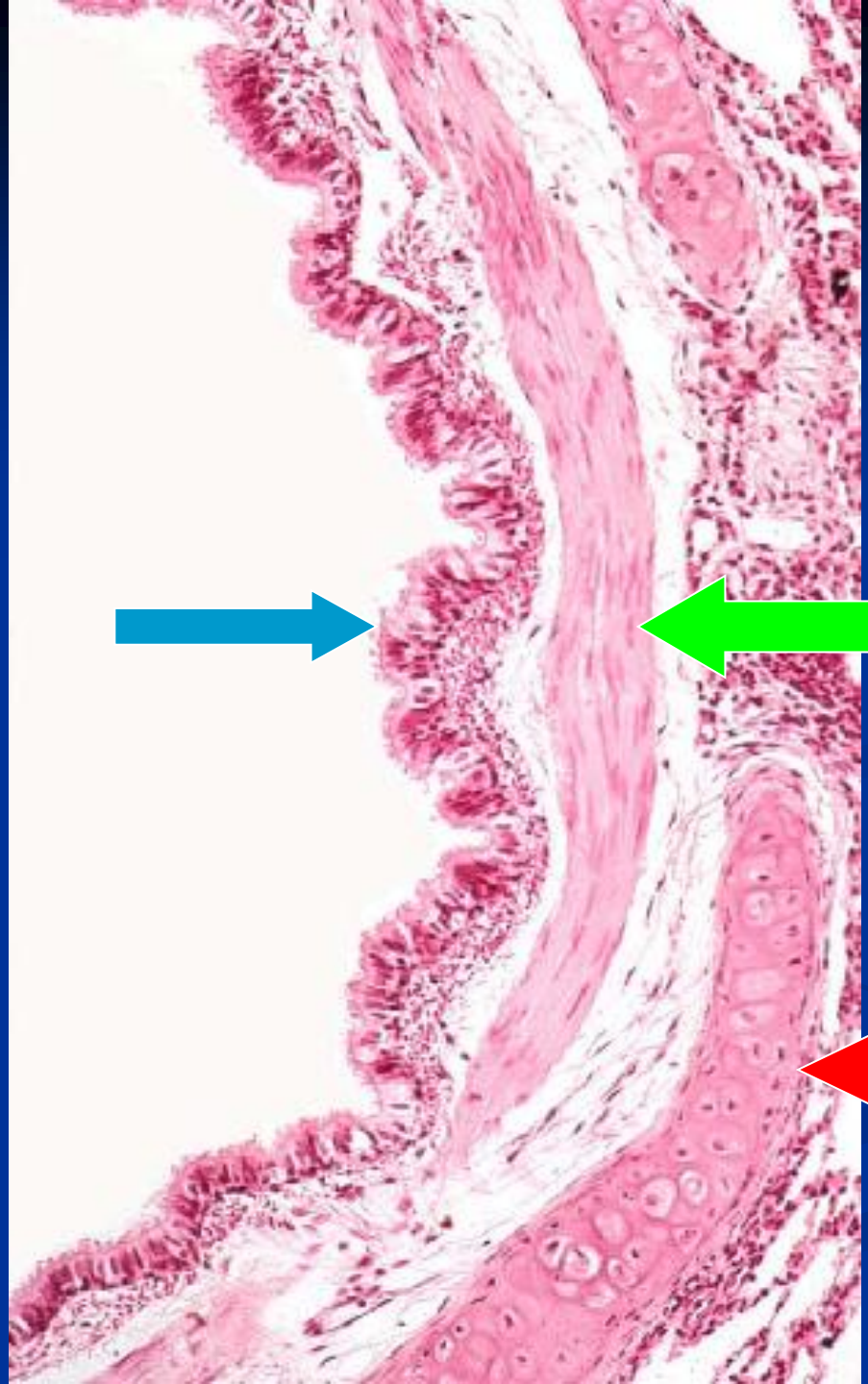
Bronchi, Bronchioles and alveoli

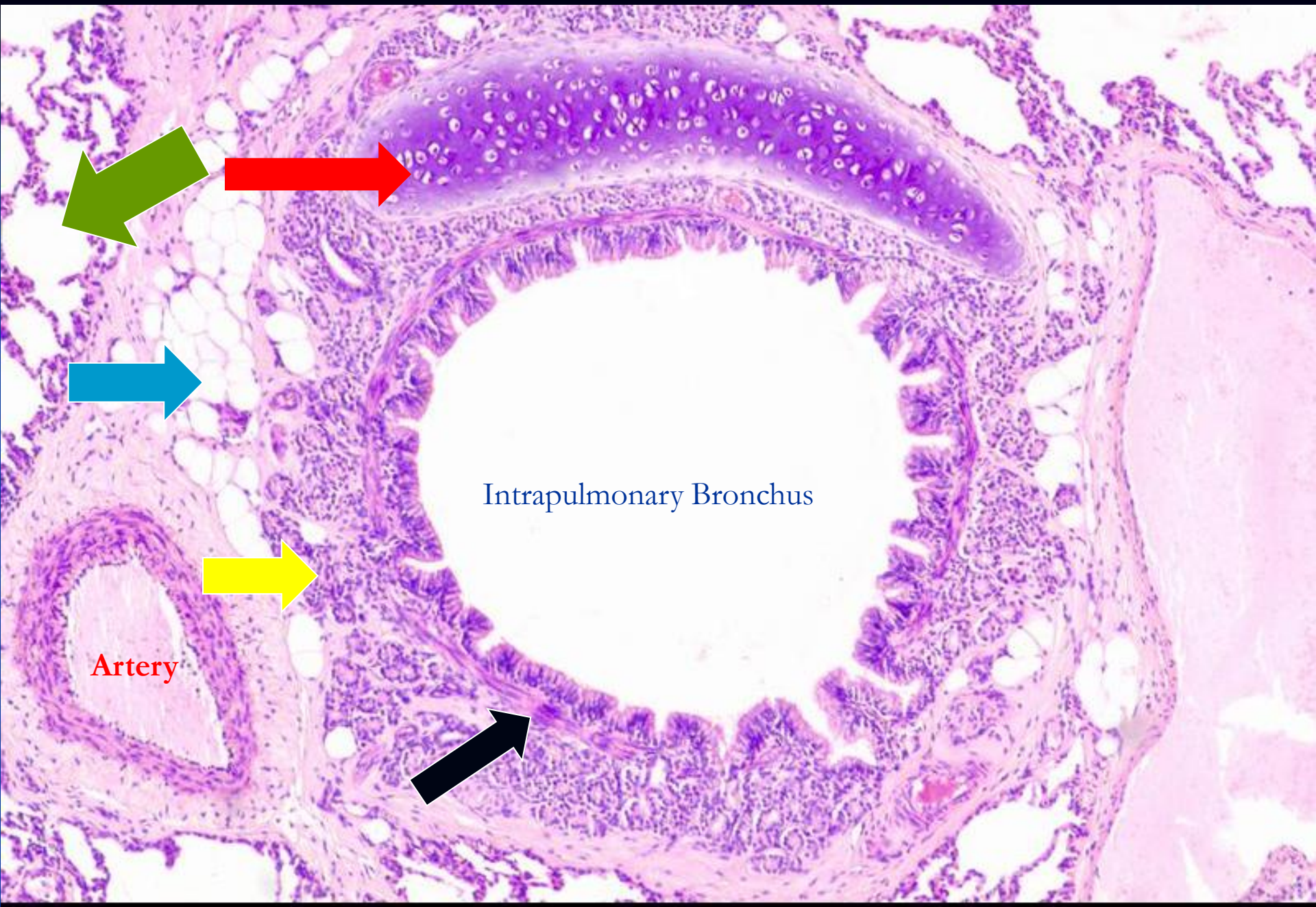
- Bronchi branch repeatedly.
- The mucosa of major bronchi is similar to the trachea.
  - Cartilage becomes interrupted instead of continuous C shaped in the trachea.
  - Smooth muscles appear in between cartilage plates.
  - Mucosa Associated Lymphatic Tissue (MALT) increase distally.

- Bronchi are either:
  - Extrapulmonary
  - Intrapulmonary
- How can you differentiate between bronchi the trachea and bronchi?
- How can you differentiate between intra and extra pulmonary bronchi?
- How can you differentiate between intrapulmonary bronchi and terminal bronchioles?

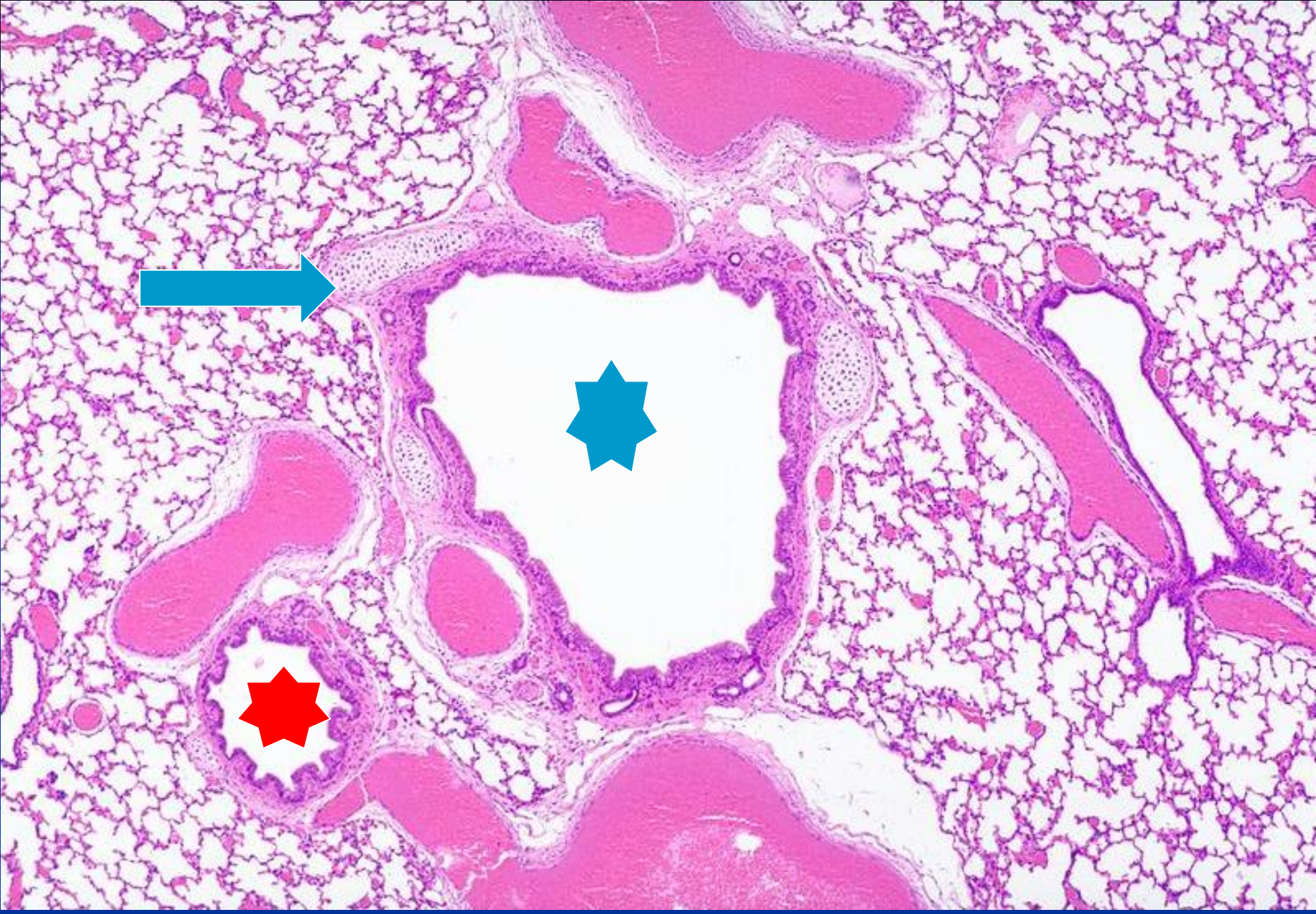

Epithelium
Goblet cells
Cilia
Glands
Hyaline Cartilage
Smooth muscle
Elastic fibers
Reticular fibers
Trachea
Primary bronchus
Lobar bronchus
Segmental bronchus
Terminal bronchiole
Respiratory bronchioles
Alveolar duct
Atrium
Alveoli
Conducting System
Respiratory System

- What are the structural changes at the level of terminal bronchioles?
- At the level of respiratory bronchioles, the wall becomes interrupted by alveoli, what is the significance of that?
- What happens to smooth muscles, elastic fibres? What is the significance of that?
- What is the function of the pleura? Describe its histological structure.



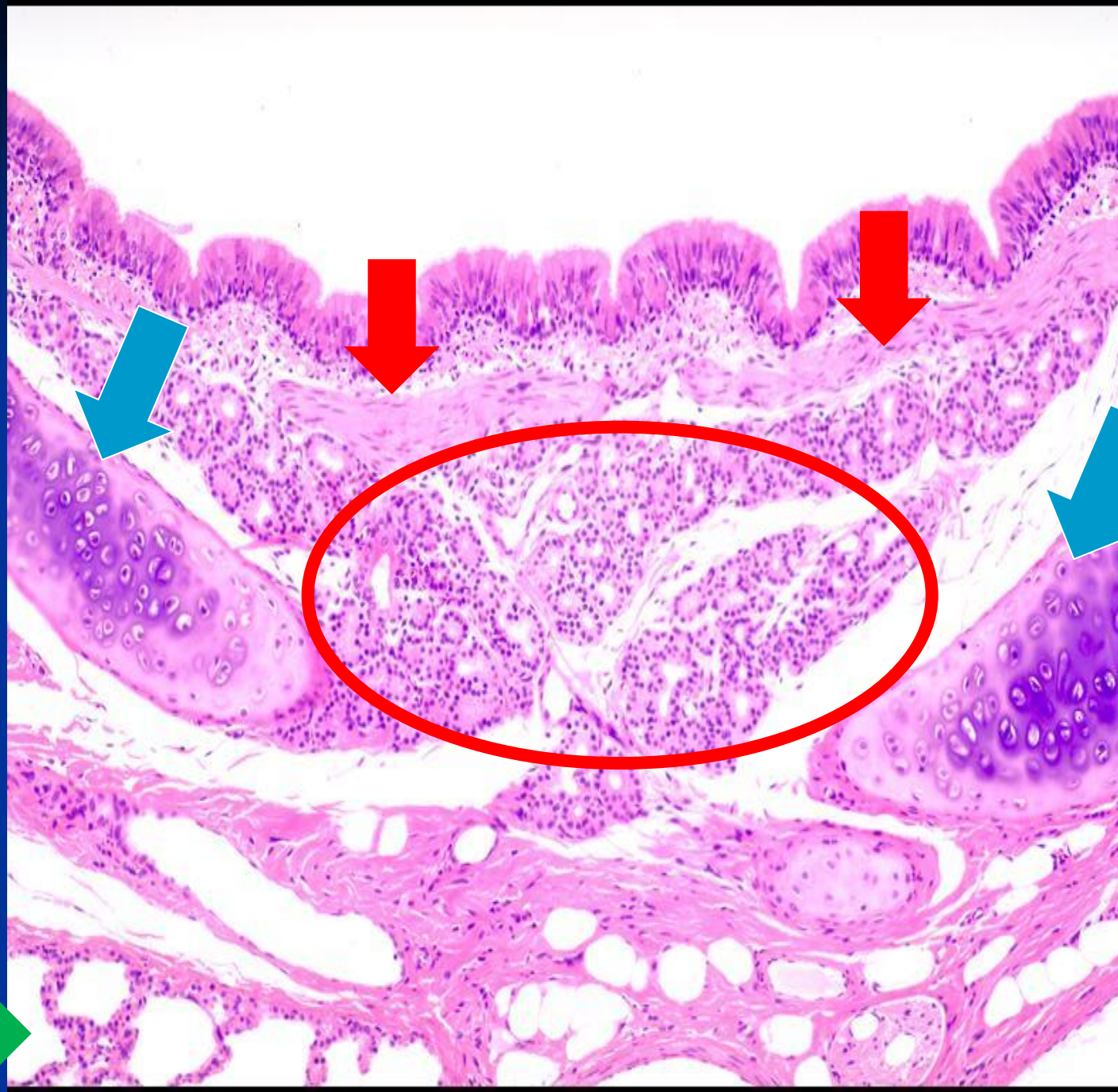


What are the pointed structures?

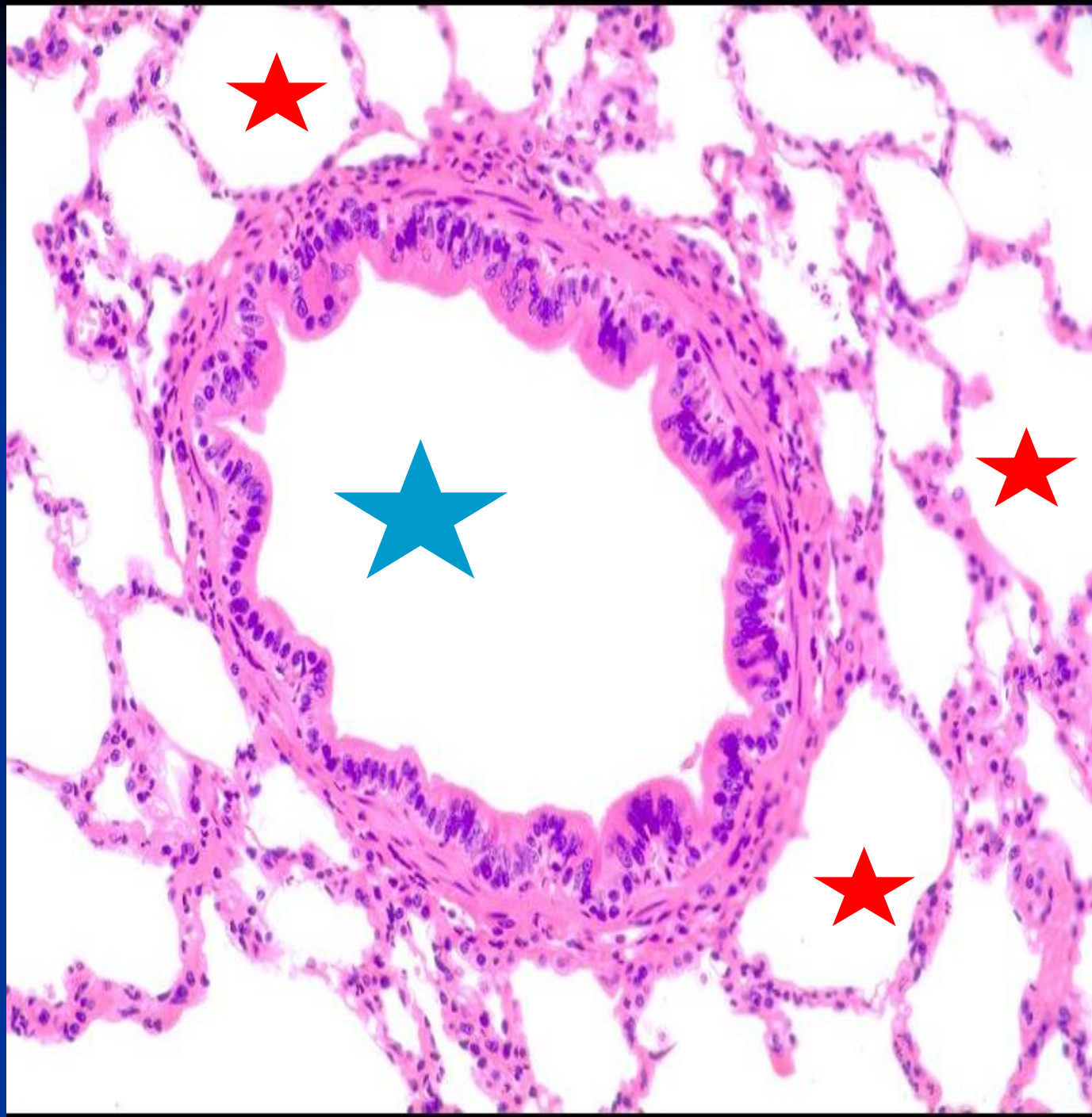


The stars are present in the lumens of ……? Blue , red …? The pointed structure is …?

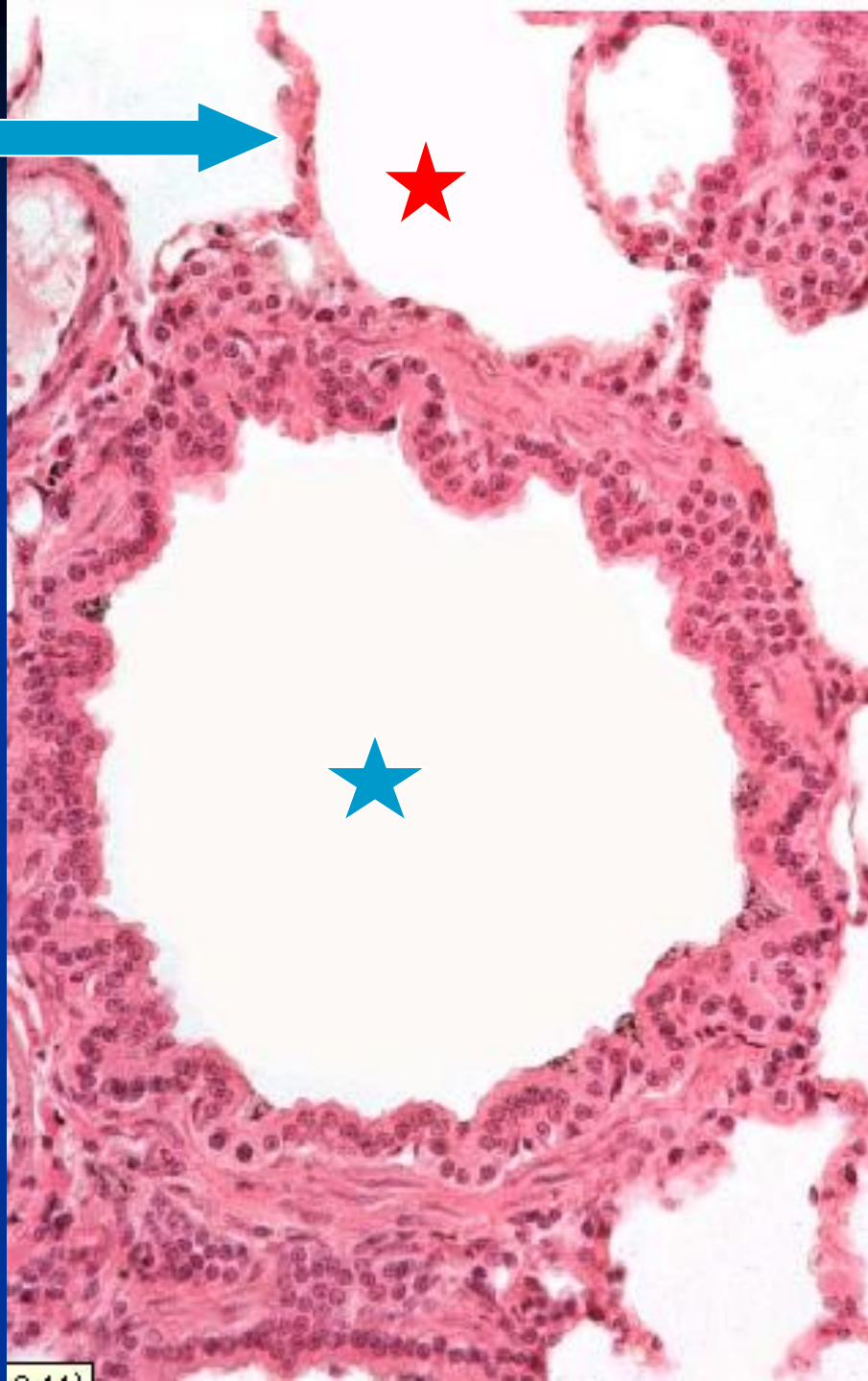
- What is this structure?
- The encircled structures are ….?
- What are the pointed structures?



The stars are present in the lumens of …?



The stars are present in ……? Why?
Describe them.
The arrow is pointing at ……..?

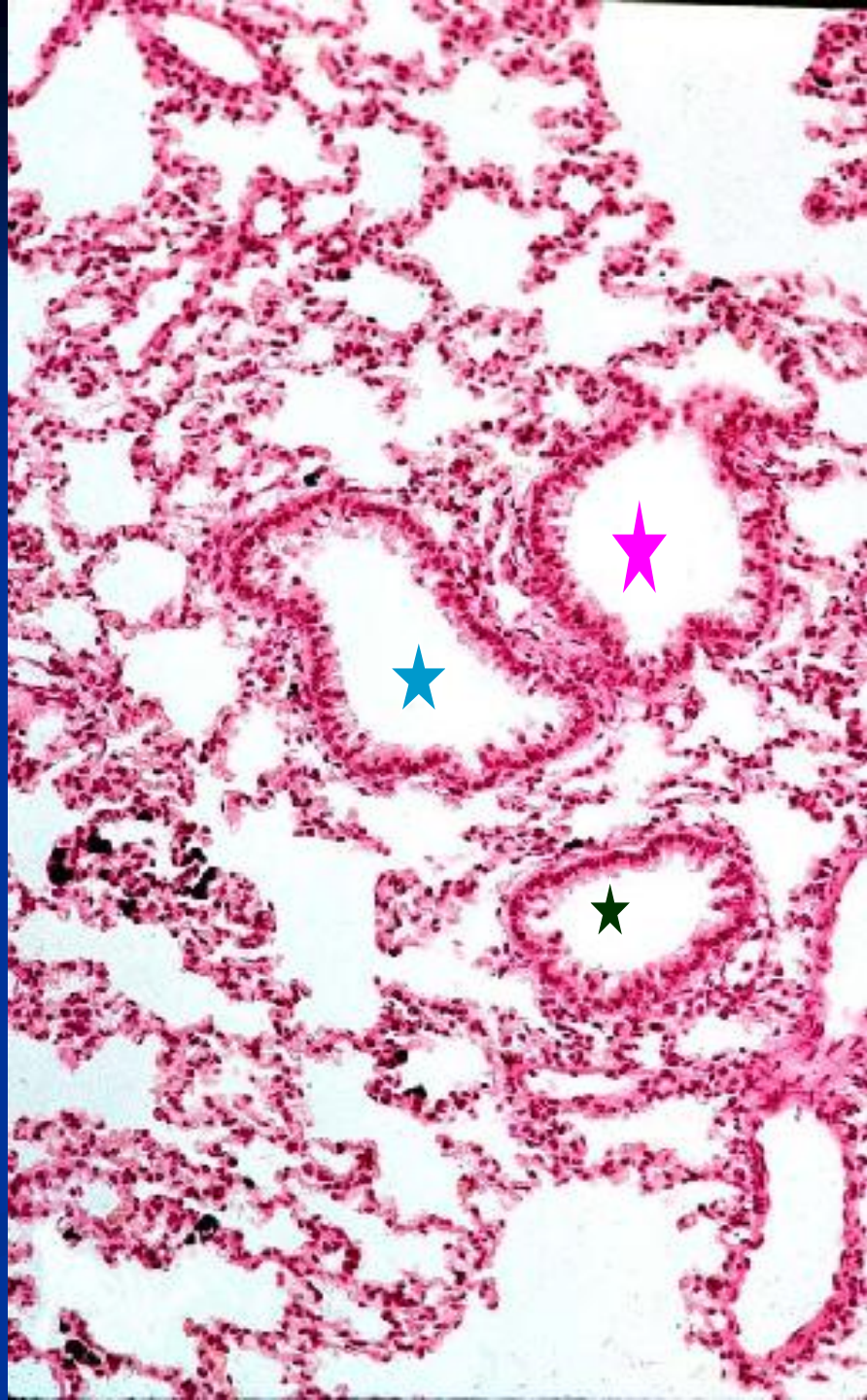


The stars are present in the lumens of …?

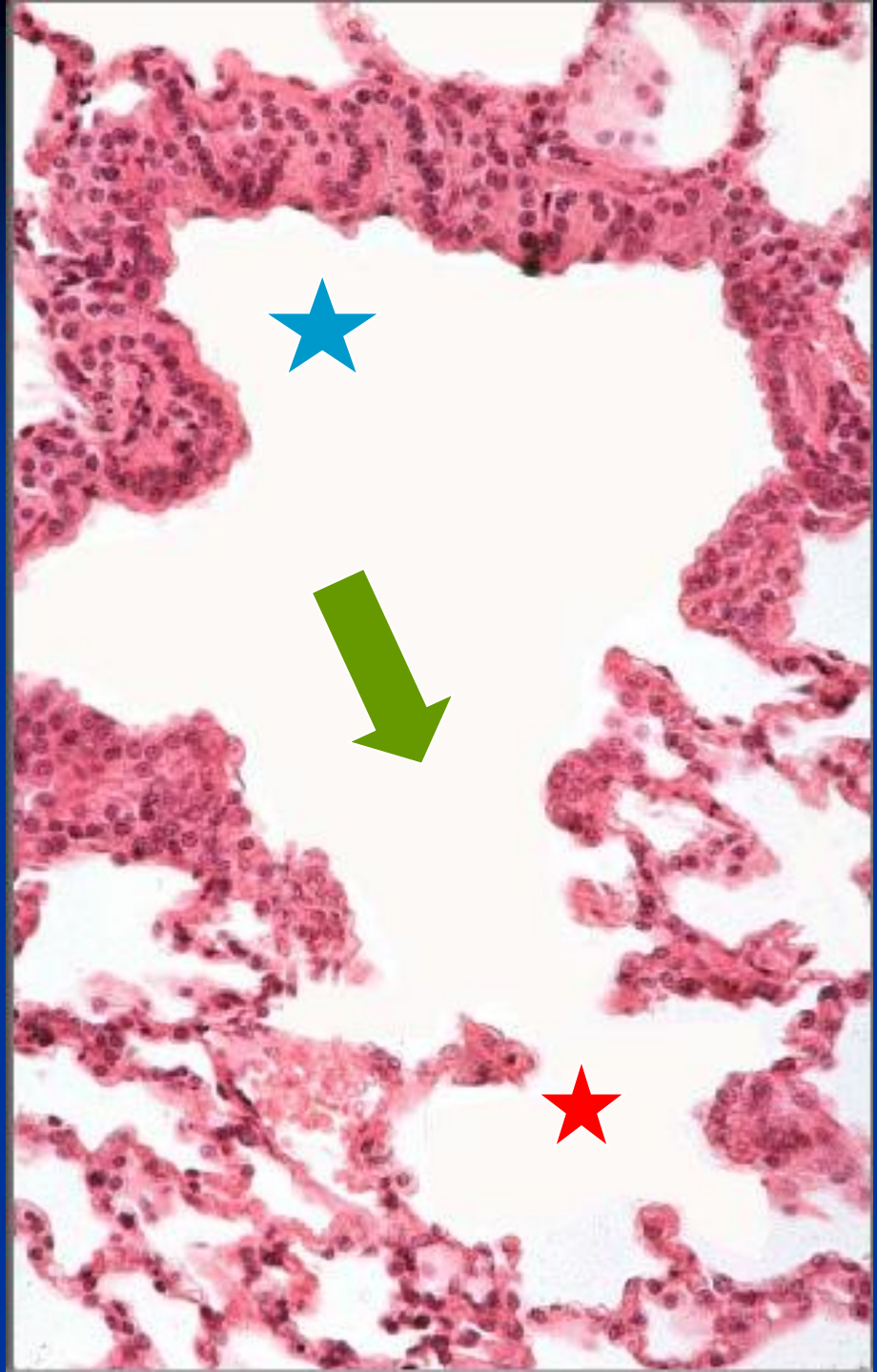
Blue ……

Pink ……

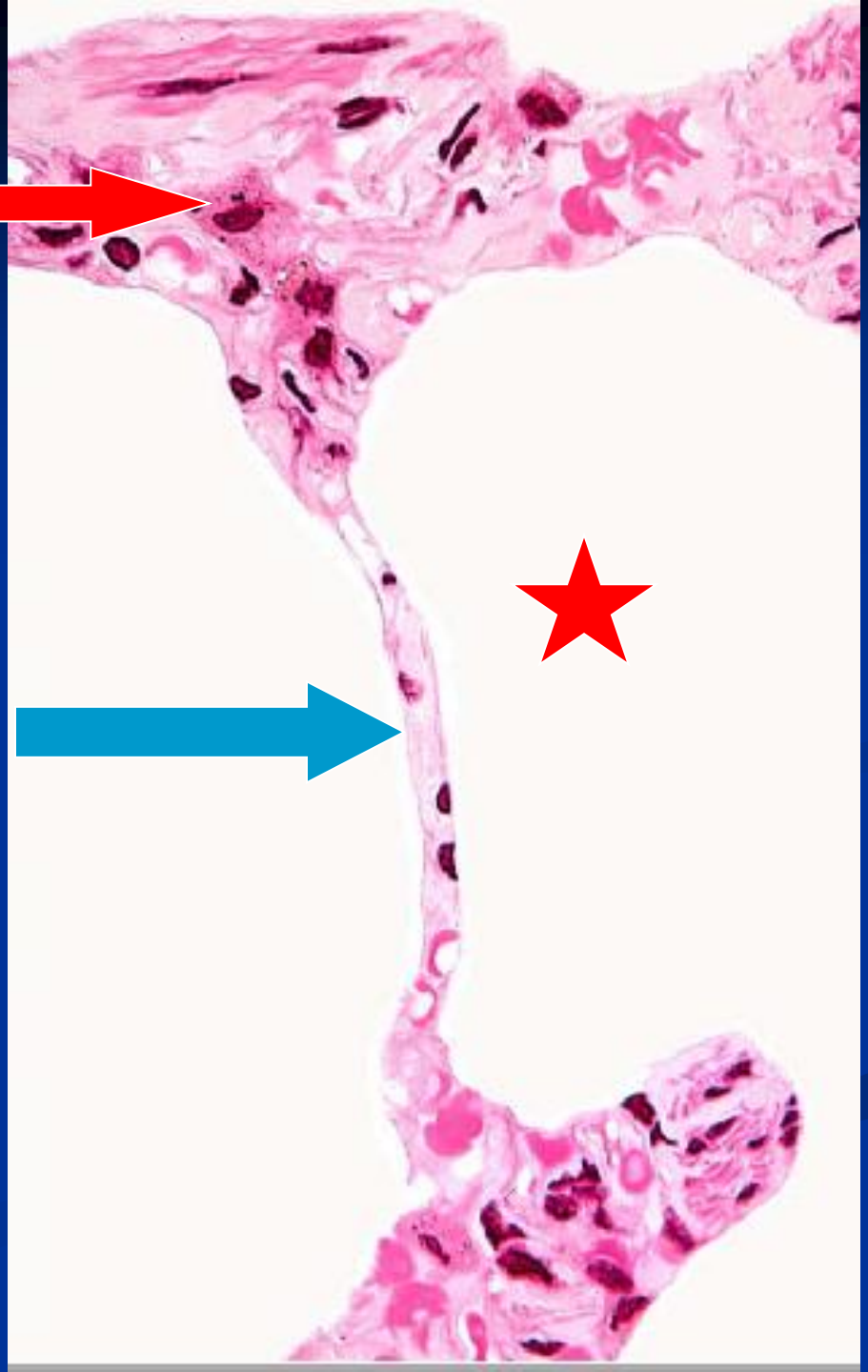
Black …..



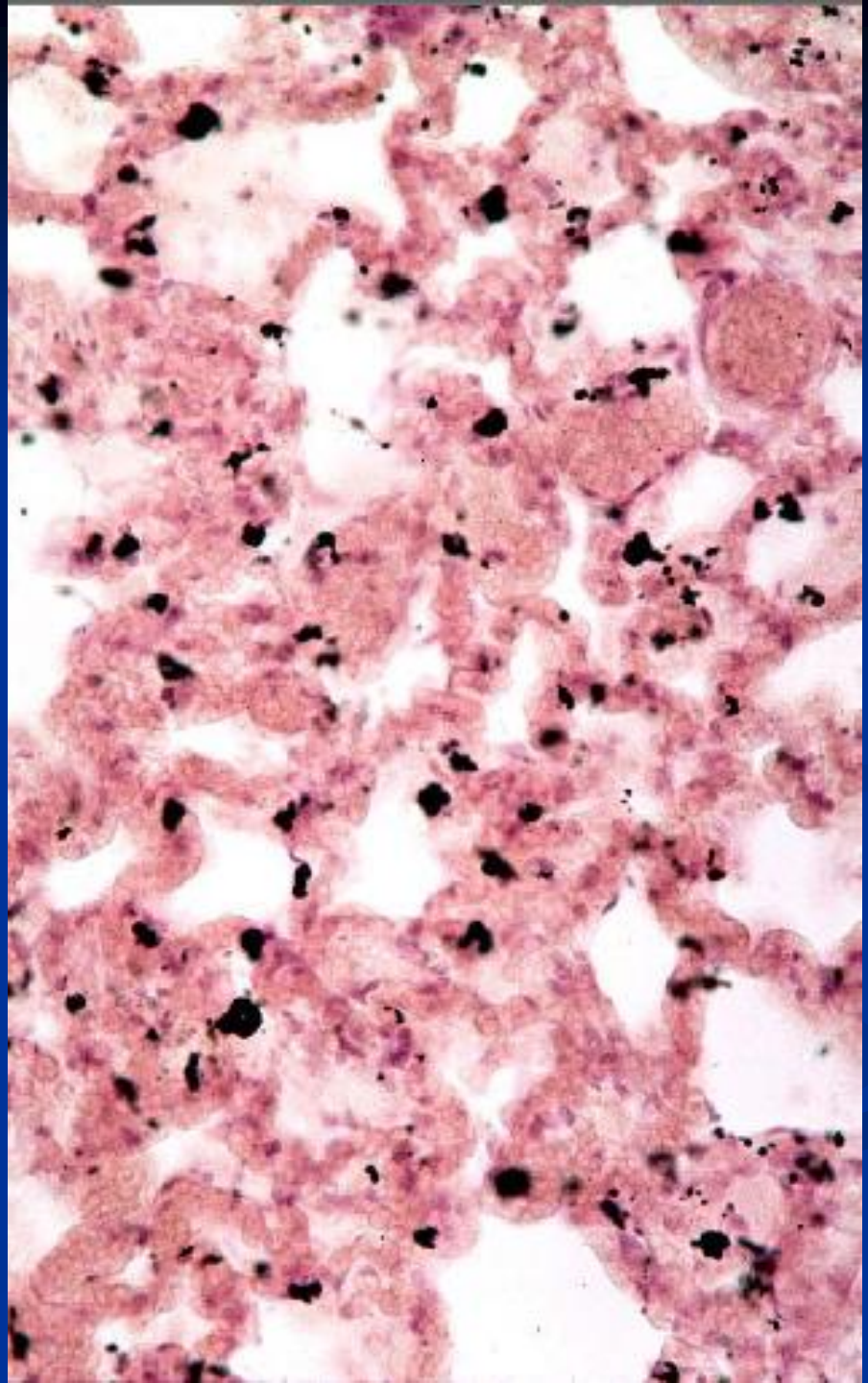
The blue star is in the lumen of ….?
The green arrow is pointing towards …..?
The red star is in the lumen of ……?



- The star is present in the lumen of …?
- The pointed structures are …?

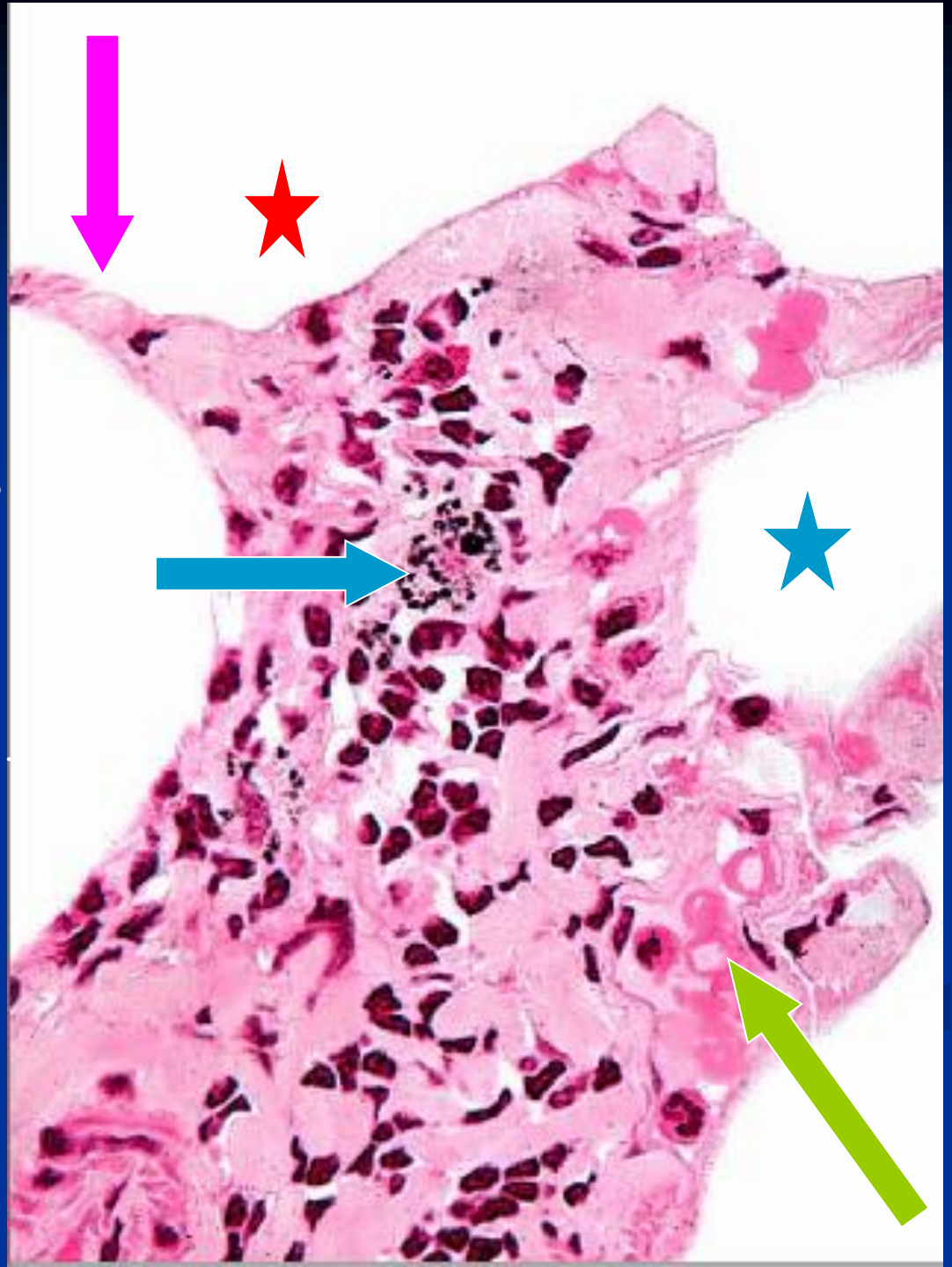


What are the black spots seen in this section?

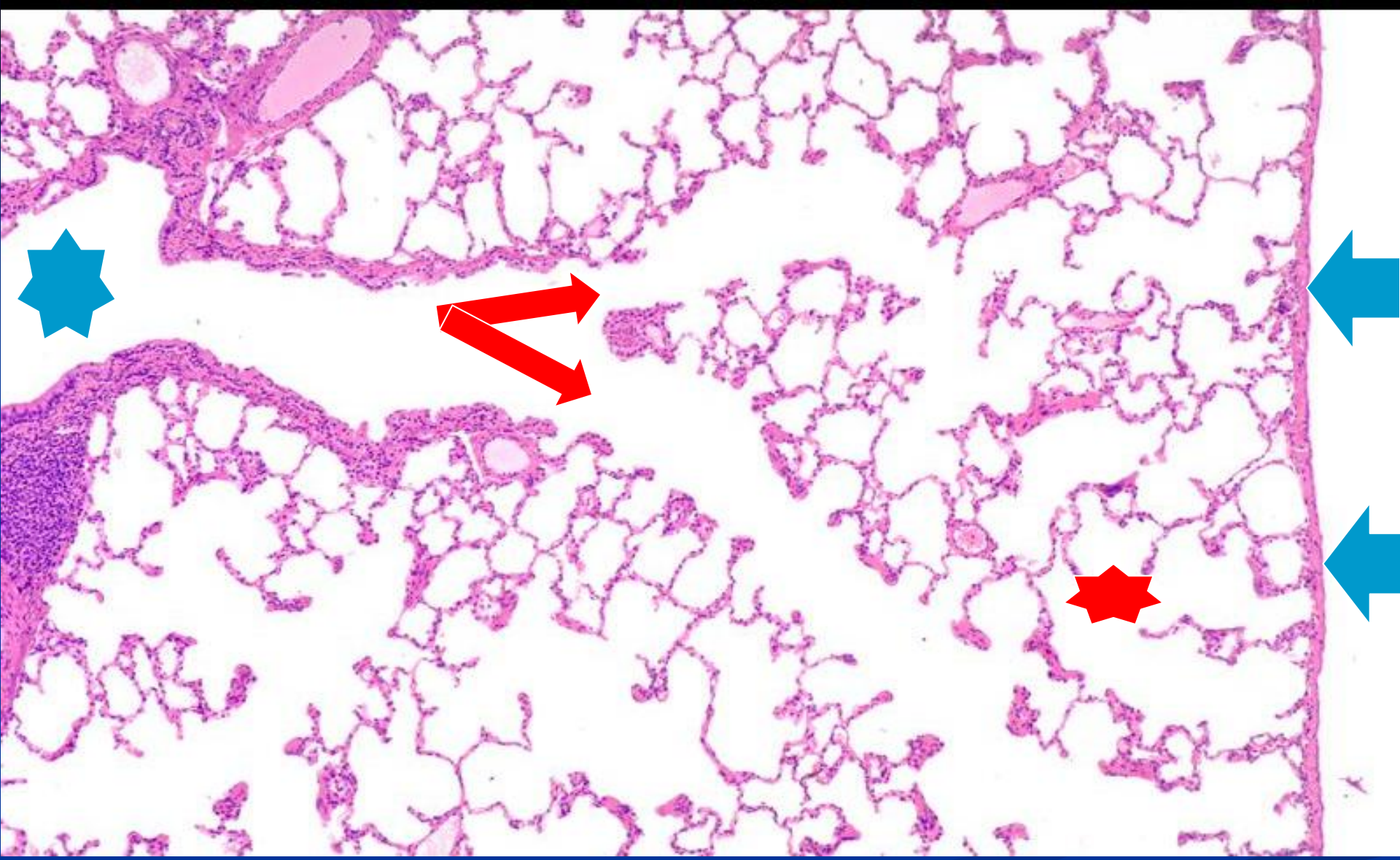


The arrows are pointing at …?
Blue ….
Green ….
Pink …..

The stars are in the lumen of …
Red ….
Blue ….



Scanning electron micrograph showing ciliated and non-ciliated cells in the terminal bronchioles.
What are the ciliated cells?
What are the non-ciliated cells?
What are the functions of these cells?



- The stars are present in …… ?
- The arrows are pointing at ….?

- What does each of the following terms mean.. :
  - Ronchi
  - Wheezes
  - Crepitations
  - Pneumonia
  - Pleurisy
  - Respiratory distress syndrome
  - Upper respiratory tract infection

- Describe the effects of tobacco smoking on the respiratory system.
- Describe the blood supply of the respiratory system.