

CHRONIC BRONCHITIS

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Chronic Bronchitis - gist

- Damage to air ways caused mainly by chemicals
- **Sources:** Cigarette smoke, Industrial gases, Motor vehicle exhaust et.c.

Definition: Persistent *productive cough* for at least *3 months* in at least *2 consecutive years* with out any identifiable cause.

Chronic Bronchitis

- Damage to air ways caused mainly by chemicals
- **Sources:** Cigarette smoke, Industrial gases, Motor vehicle exhaust et.c.

Chronic Bronchitis

Importance:

- CB may progress to COLD
- Result in cor pulmonale & heart failure
- Result in metaplasia / dysplasia > Carcinoma

CHRONIC BRONCHITIS

DEFINITION:

- Persistent *productive cough* for at least 3 *months* in at least 2 *consecutive years* with out any identifiable cause.
- Chronic asthmatic bronchitis – intermittent bronchospasm and wheezing.

CHRONIC BRONCHITIS

Pathogenesis:

- Chronic irritation by inhaled substances
(*Tobacco smoke-90%, grain, cotton, Si dust*)
- Microbiologic infections – *trigger exacerbations*
- Middle-aged men – more common
- Smokers – 4 to 10x more common

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Features of CB:

Initially:

- Hypersecretion of mucus (Proteases from PMNs)
- Hypertrophy of submucosal glands in trachea and bronchi

With chronicity:

- Marked increase in goblet cells of small airways

Increase in goblet cells and hypertrophy of submucosal glands are of protective metaplastic reaction against the irritants

Irritants > EGF receptor stimulation > up regulation of MUC 5AC gene (a mucin gene)

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Hypersecretion of mucus is the basis
for smaller air way obstruction

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Cigarette smoke: Plays primary initiating role

Role of infection: Plays a secondary role

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Action of Cigarette smoke:

1. Interferes with ciliary motility
2. Direct damage to epithelium
3. Inhibits alveolar leucocytes to clear bacteria

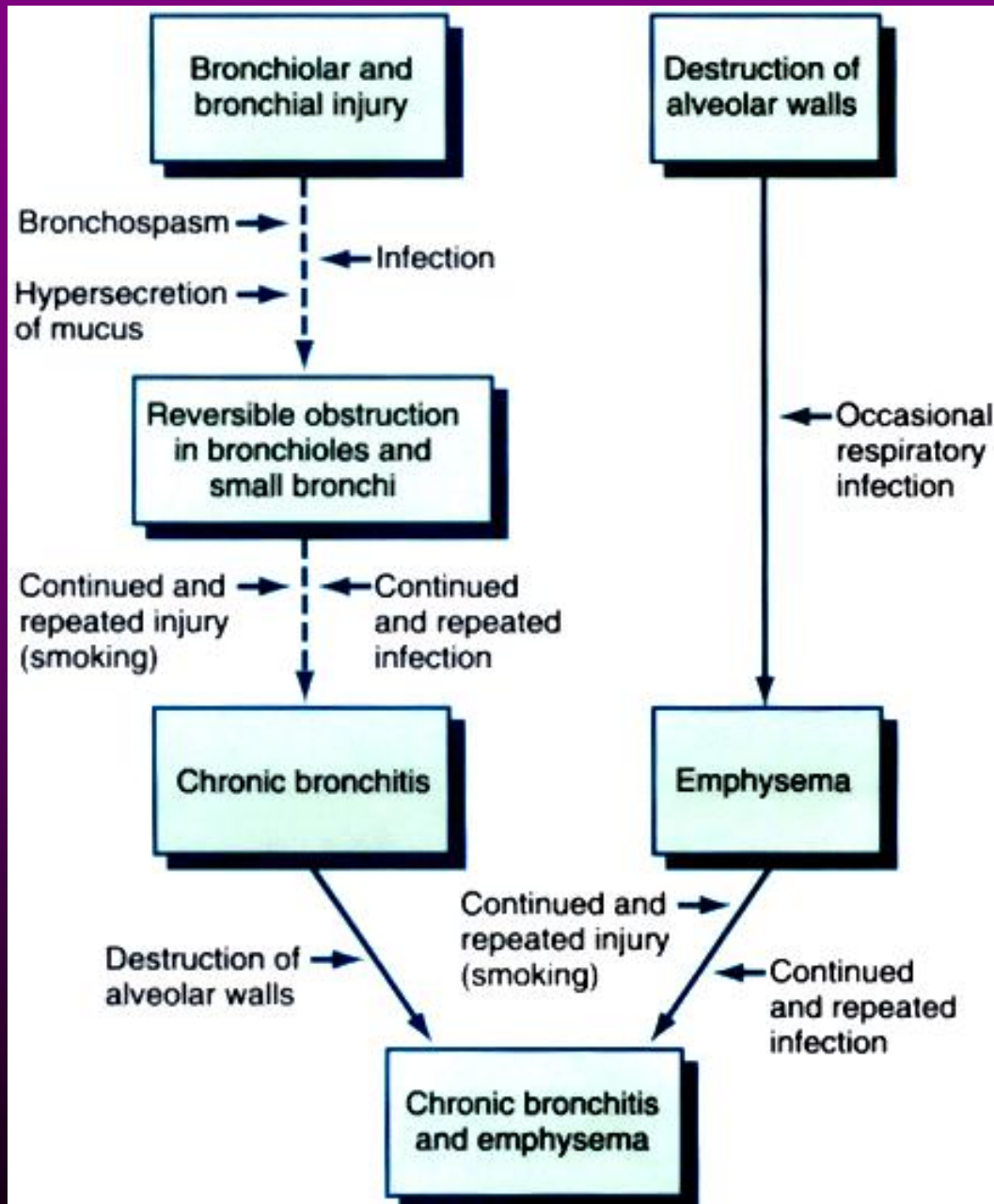


Figure 15-9
Schematic representation of evolution of chronic bronchitis (*left*) and emphysema (*right*).

CHRONIC BRONCHITIS

Morphology:

- Hyperemia and edema of mucus membranes
- Excessive mucus / mucopurulent secretion
layers the epithelial surfaces

CHRONIC BRONCHITIS

SMALL AIRWAYS SHOW:

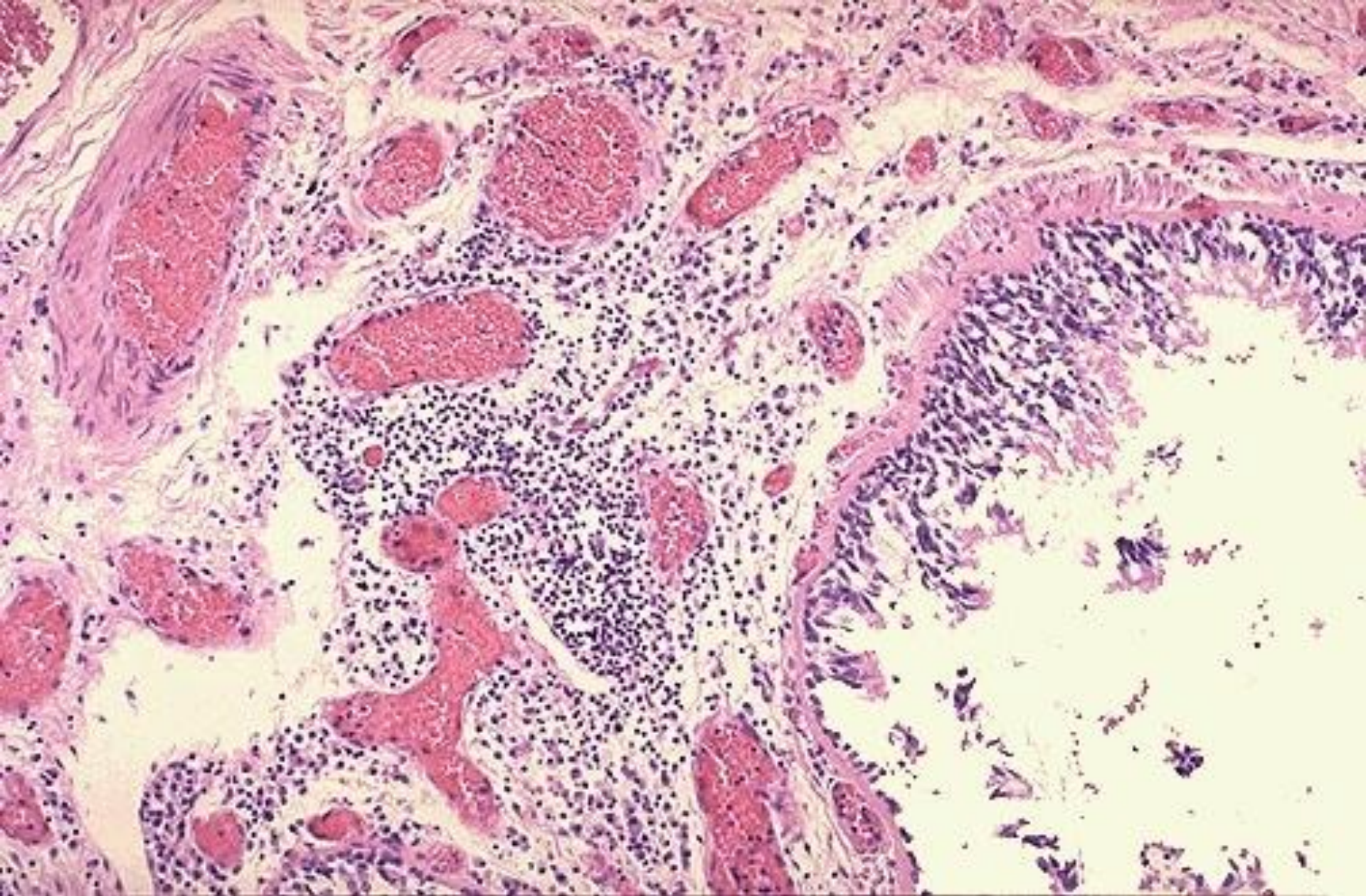
- Goblet cell metaplasia with mucous plugging
- Clustering of pigmented alveolar MØ
- Inflammatory cell infiltration
- Fibrosis of the bronchiolar wall
- Bronchiolitis obliterans
- Bronchial epithelium may exhibit squamous metaplasia and dysplasia

CHRONIC BRONCHITIS

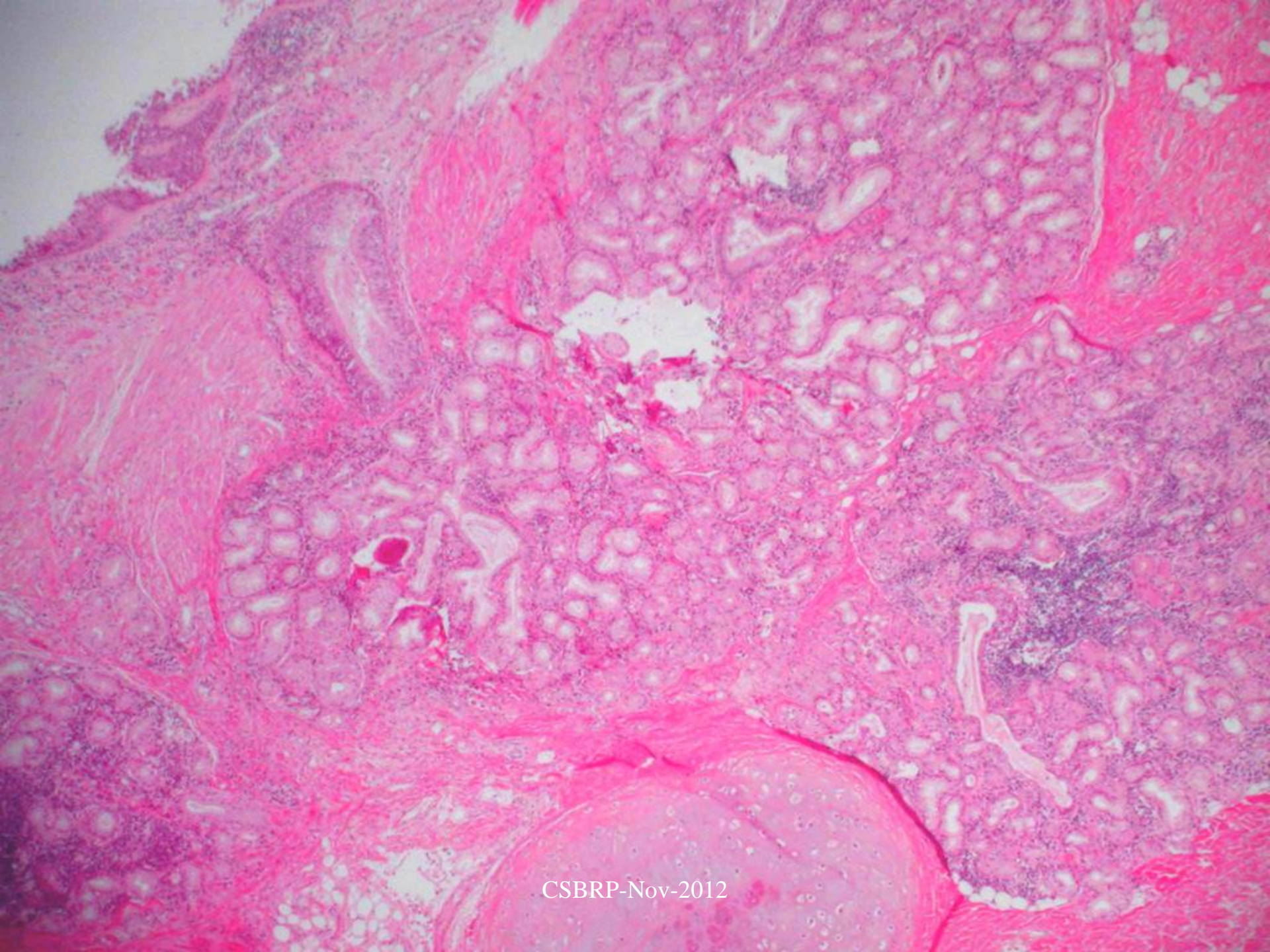
Characteristic histological feature:

- Lymphocytic infiltration
- Enlargement of mucin secreting glands of trachea and bronchi *i.e. Increased size of mucous glands*
- *REID Index: Normal is 0.4*

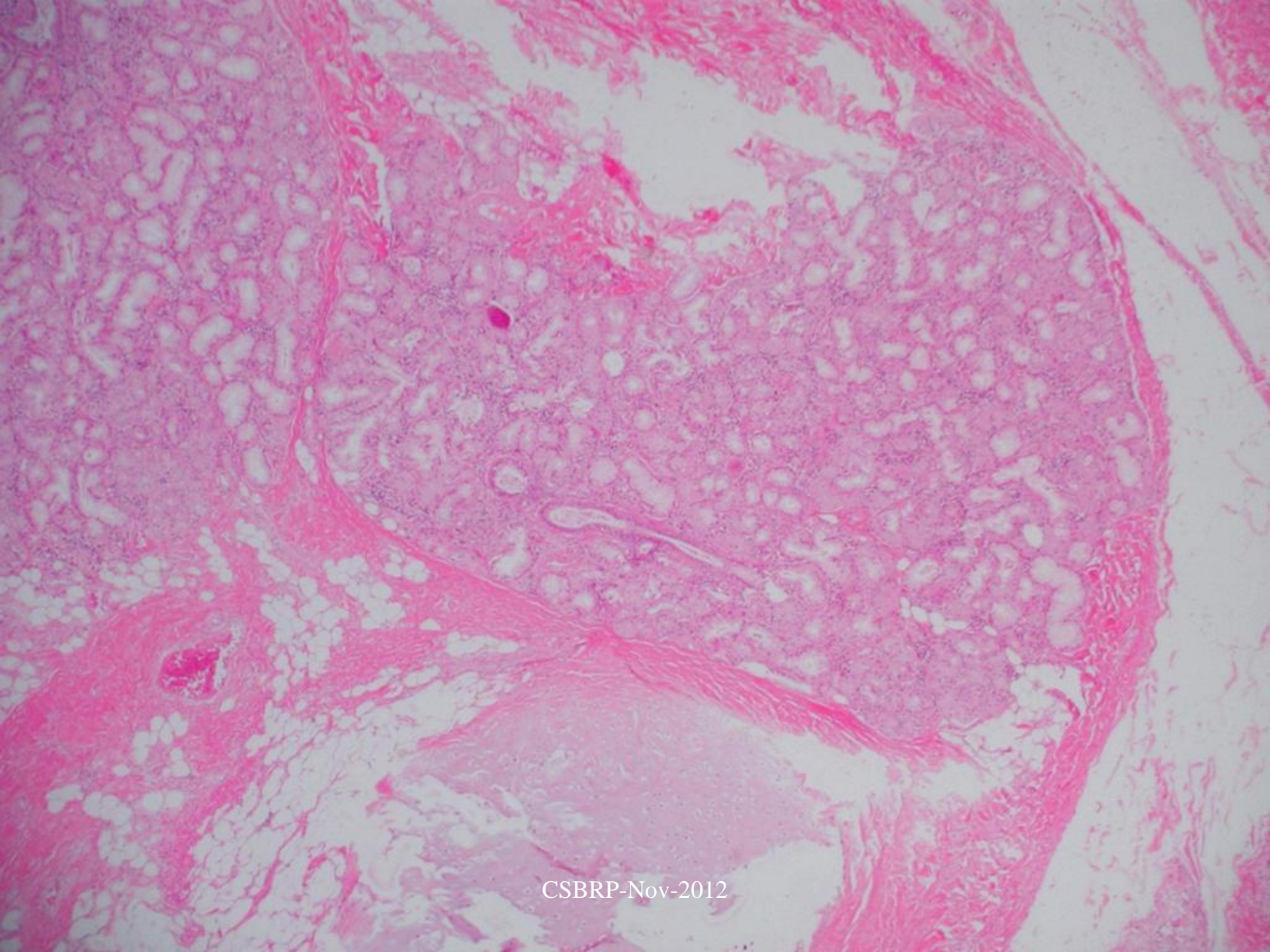
Ratio of the thickness of the mucous gland layer to the thickness of the wall between the epithelium and the cartilage



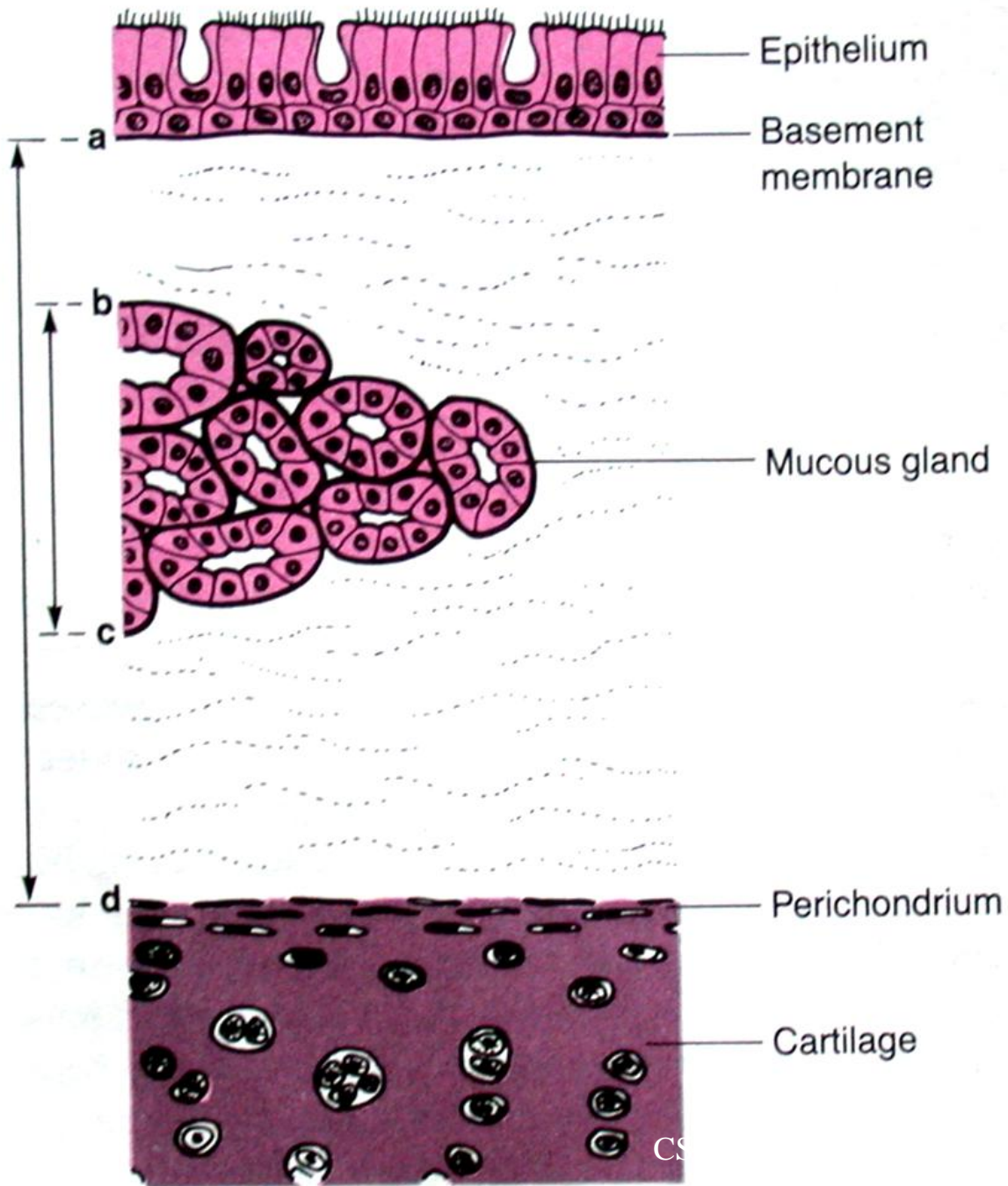
Chronic inflammatory cells infiltration in submucosa of bronchus



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REID Index

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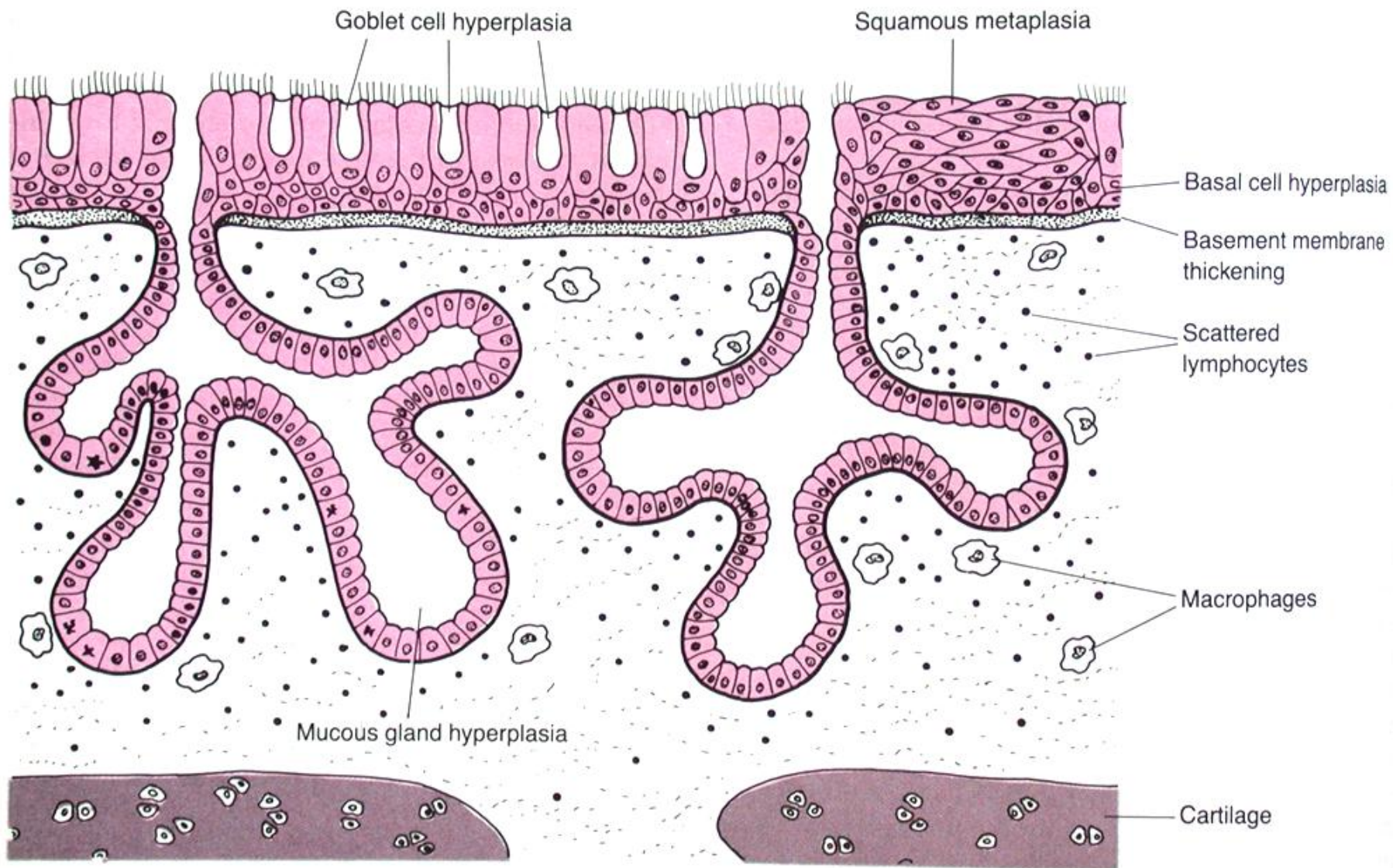
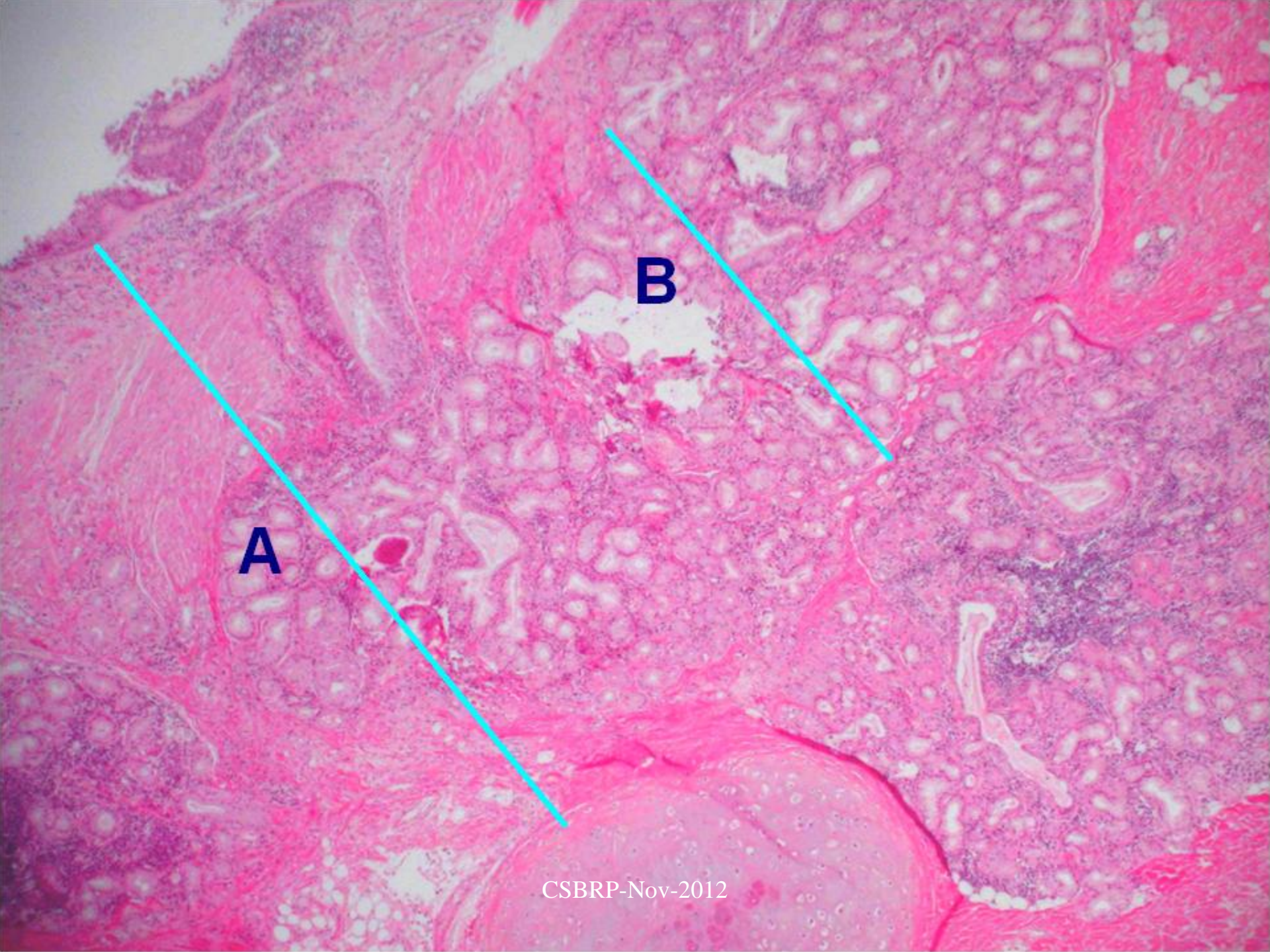


Figure 12-27. Morphologic changes in chronic bronchitis.





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CHRONIC BRONCHITIS

Clinical feature:

- Persistent productive cough
- Over the period the patient develops dyspnea on exertion
- With further progression – patient develops hypercapnea, hypoxemia and mild cyanosis
- They may land in emphysema
- Long standing cases – cor pulmonale and cardiac failure
- *Death may occur due to respiratory infections*

E N D

goto Bronchiectasis