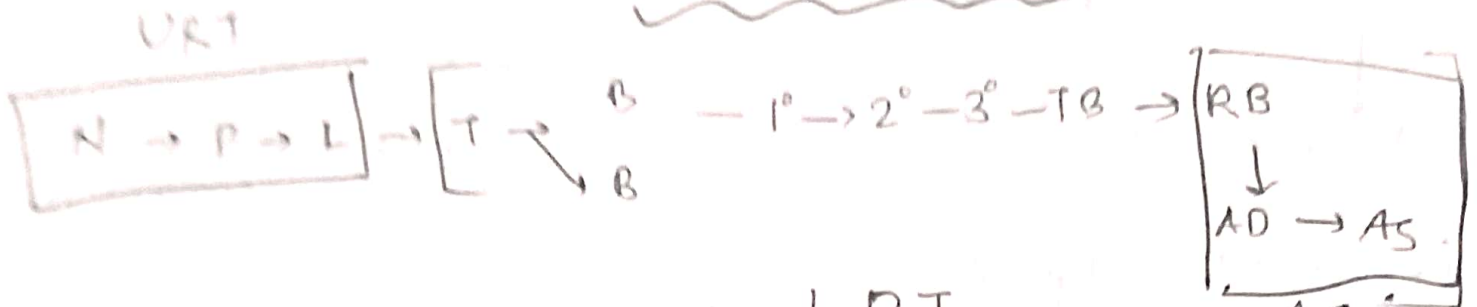
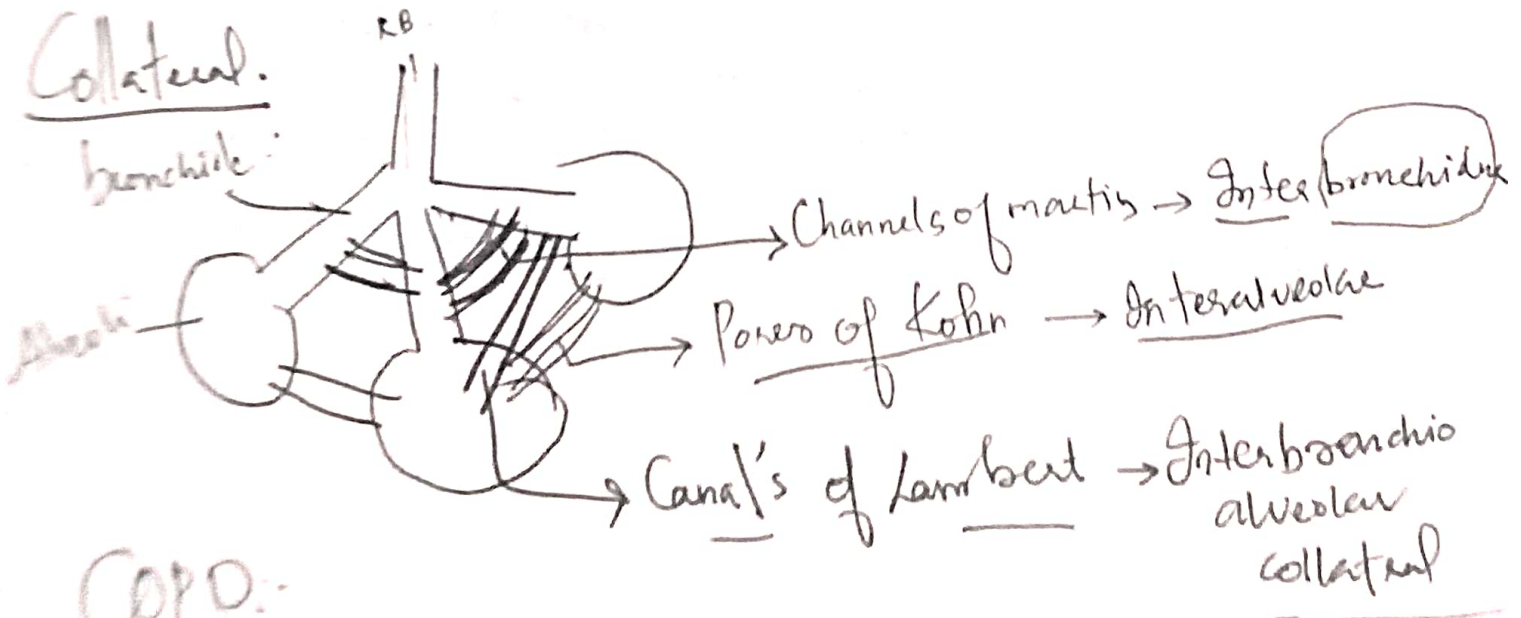
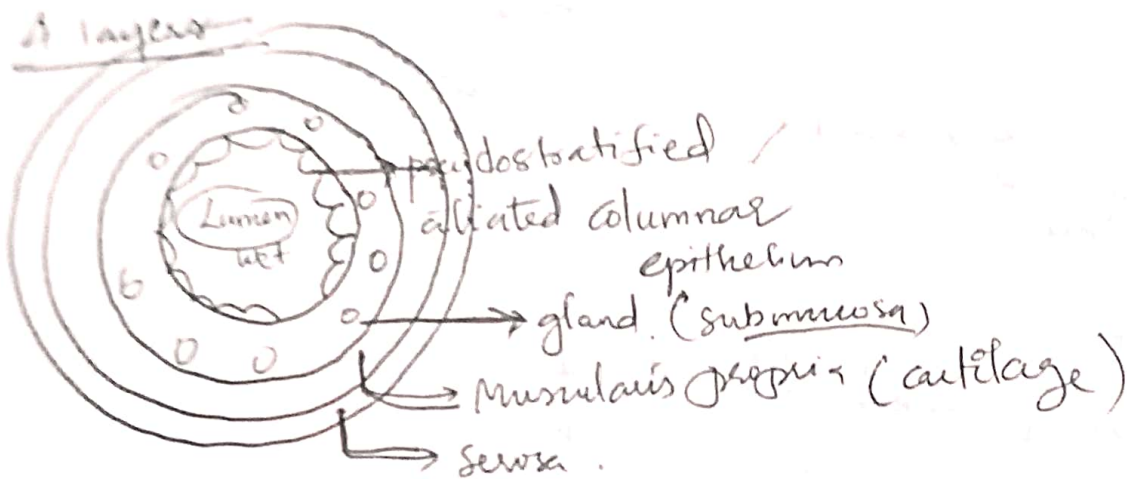


Chronic Obstructive Pulmonary Disease



LRT.



COPD:

Defn: COPD are clinical terms for a gr of pathological conditions in which there is chronic partial or complete obstruction to the airflow at any level from trachea to the smallest airways resulting in functional disability of the lungs.

- I. Chronic Bronchitis
- II. Emphysema
- III - Bronchial Asthma
- IV. Bronchiectasis
- V. Small airways disease (Bronchiolitis)

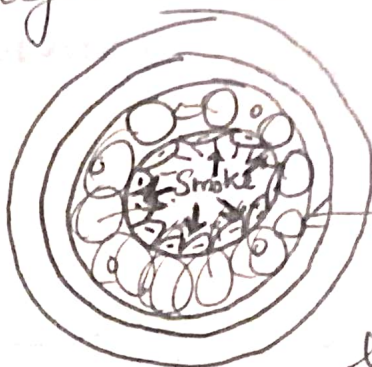
Feature	Chronic Bronchitis	Emphysema	Asthma	Bronchiectasis	Small airways disease
Location (level of obstruction)	Bronchus	Acinus	Bronchus	Bronchus	Bronchioles
Age of diagnosis	Adults	Adults	Extrinsic children Intrinsic adults	Adults	Children
Etiology	Smoking; Air pollution	Smoking	Extrinsic allergy Intrinsic viral infection	Infectious obstruction	Viral infection Smoke
Pathogenesis	Impaired ciliary movement	Def. of α -1 antitrypsin	IgE-sensitized mast cells	Damaged airways	Damage to surfactant
Major gross feature	Thickened bronchial wall	Distended air sacs	Overdistended lungs	Dilated bronchi & bronchioles	Occluded bronchioles

Chronic Bronchitis → It is a common condition defined clinically as persistent cough with expectoration on most days for at least three months of the year for 2 or more consecutive years.

→ More common in middle-aged males.

→ Pathogenesis

The cough is caused by oversecretion of mucus due to increase in number and size of submucosal glands of trachea and bronchi.

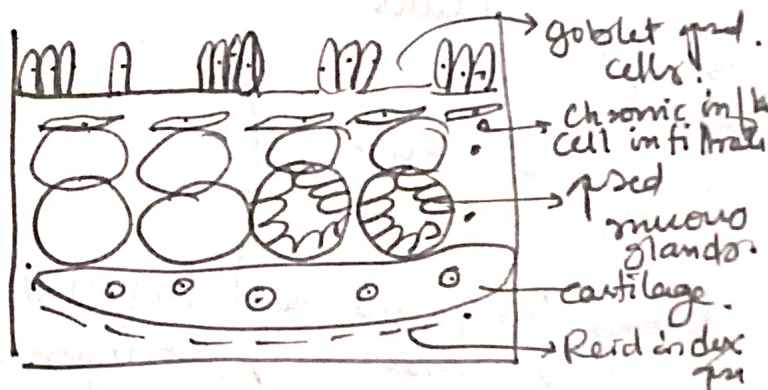


Obstruction by oversecretion by glands. Due to hypertrophy.

→ level of Obstron — Trachea & Bronchi.

↓
gr in size / number.

- Etiology
- 1) Smoking ✓
 - 2) Atm. pollution
 - 3) Occupation
 - 4) Infection



→ Grossly

→ Bronchial wall is thickened, hyperaemic & oedematous

→ lumen of the bronchi & bronchioles may contain mucus plugs and purulent exudate.

M/c Reid Index - Ratio = $\frac{\text{portion of S.M with gland}}{\text{Total submucosal thickness}}$
 $= a/b = \text{pscd}$

Clinical Features

Chest X-ray
 enlarged heart with prominent vessels.

Persistent cough with copious expectoration.
 Recurrent resp infn
 Dyspnoea
 blue bloaters
 features of RHF (cor pulmonale)
 which takes place due to lung problem.

Emphysema

↳ Disease of acini

Def: The WHO defines pulmonary emphysema as combination of permanent dilation of air spaces distal to the terminal bronchioles & the destruction of the walls of dilated air spaces.

Etiopathogenesis:

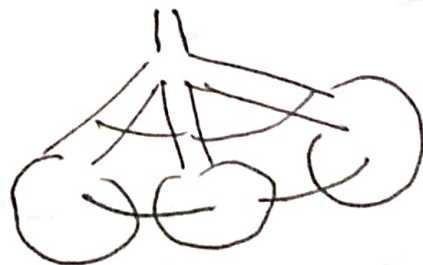
wall of alveoli
 (2 enzymes)

α -Trypsin
 Protease
 Elastin

anti protease
 α -antitrypsin

degrade protein

(-) proteins

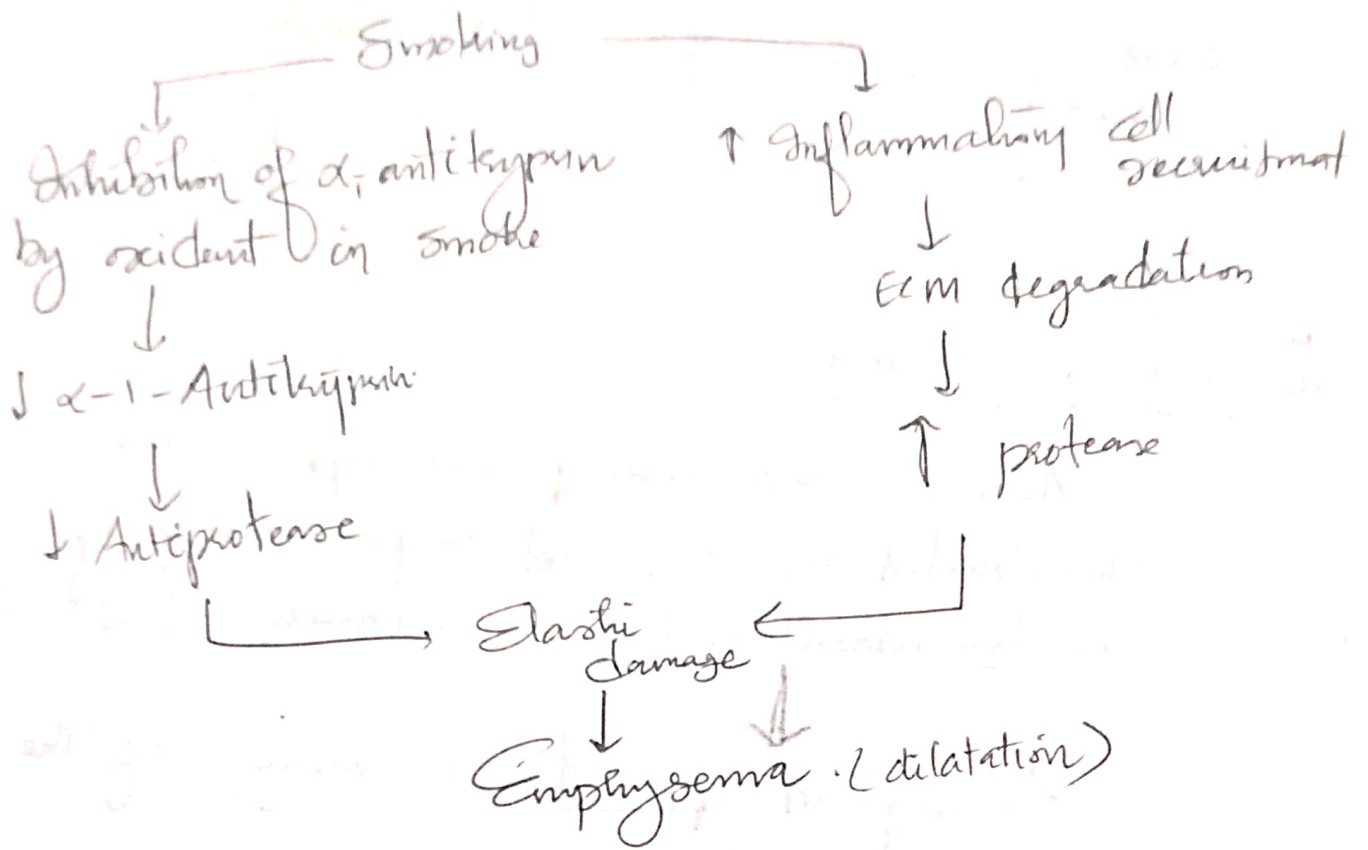


due to smoking.

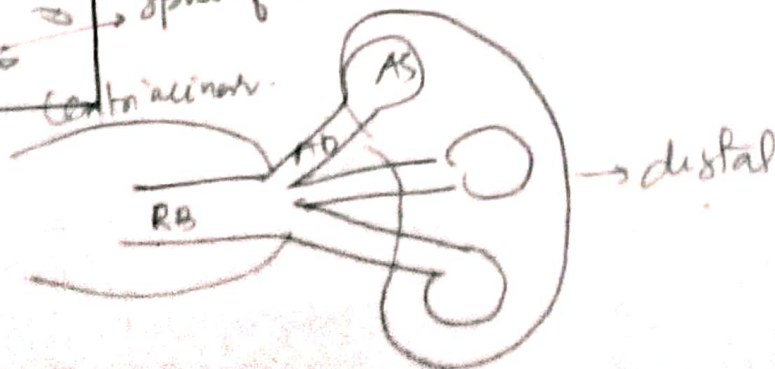
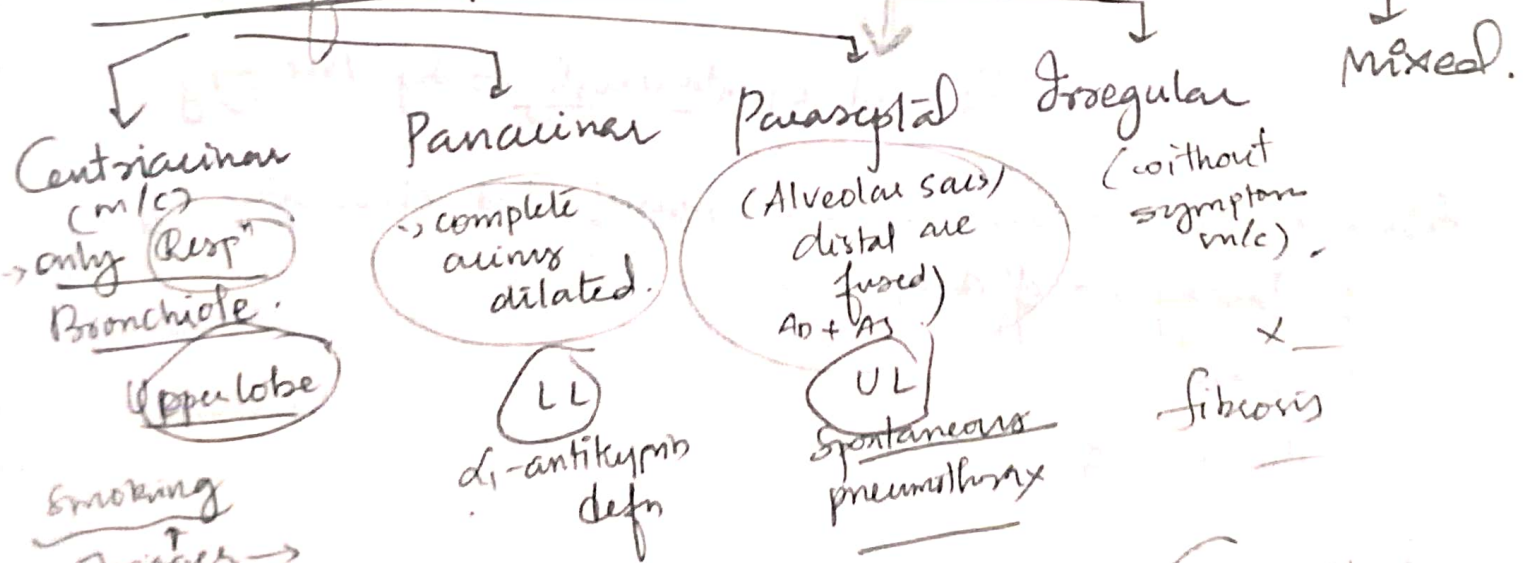
1) Protease-antiprotease theory/hypothesis → The alveolar wall destruction results from an imbalance between proteases (mainly elastase) and antiproteases in the lung.

↳ Proteases (elastases) cause destruction of alveolar wall

↳ Antiprotease (antielastase) prevent this damage
 (α -antitrypsin is the major antiprotease secreted by neutrophils during inflammation)



Classification



Gross:
 → blebs & bullae
 → due to fusion

Clinical features — Dyspnoea followed by Cough.
— Patients are called pink puffers.

Bronchial Asthma

Asthma is a disease of airways that is characterized by increased responsiveness of the tracheobronchial tree to a variety of stimuli.

↓
Widespread spasmodic narrowing of the air passages. Bronchospasm.

↓
Relieved spontaneously or by therapy.

Asthma is an episodic disease manifested clinically by

1. Paronyms of dyspnoea
2. Cough
3. Wheezing.

→ at all ages.

Pathogenesis — Type 1 Hypersensitivity.