

BRONCHIAL ASTHMA :-

DEF :-

Chronic airway inflammation
+
Expiratory airflow obstruction
+
Symptoms — wheezing
— shortness of breath
— cough
— chest tightness



TYPES :-

Mainly 2 types

Atopic

- ➔ Allergen sensitisation ⊕
- ➔ IgE (Type I) HS Reaction
- ➔ Triggered by env. allergens (dust, pollen)
- ➔ Usually begins in childhood
- ➔ Positive family history - common
- ➔ Skin test ⇒ wheal & flare reactⁿ

Non-Atopic

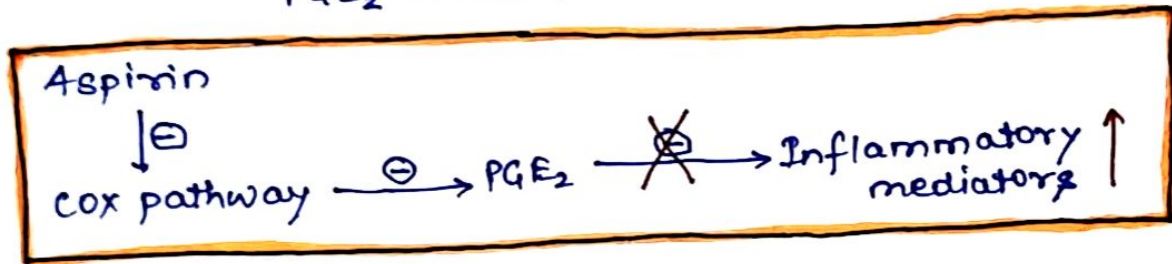
- ➔ Allergen sensitisation ⊖
- ➔ Triggered mainly by viral resp. infections
- ➔ Begins at any age
- ➔ Less common
- ➔ skin test ⇒ Negative

Other types :-

Drug Induced Asthma :-

Aspirin-sensitive Asthma

$\text{PGE}_2 \xrightarrow{\ominus} \text{Inflammatory mediators}$

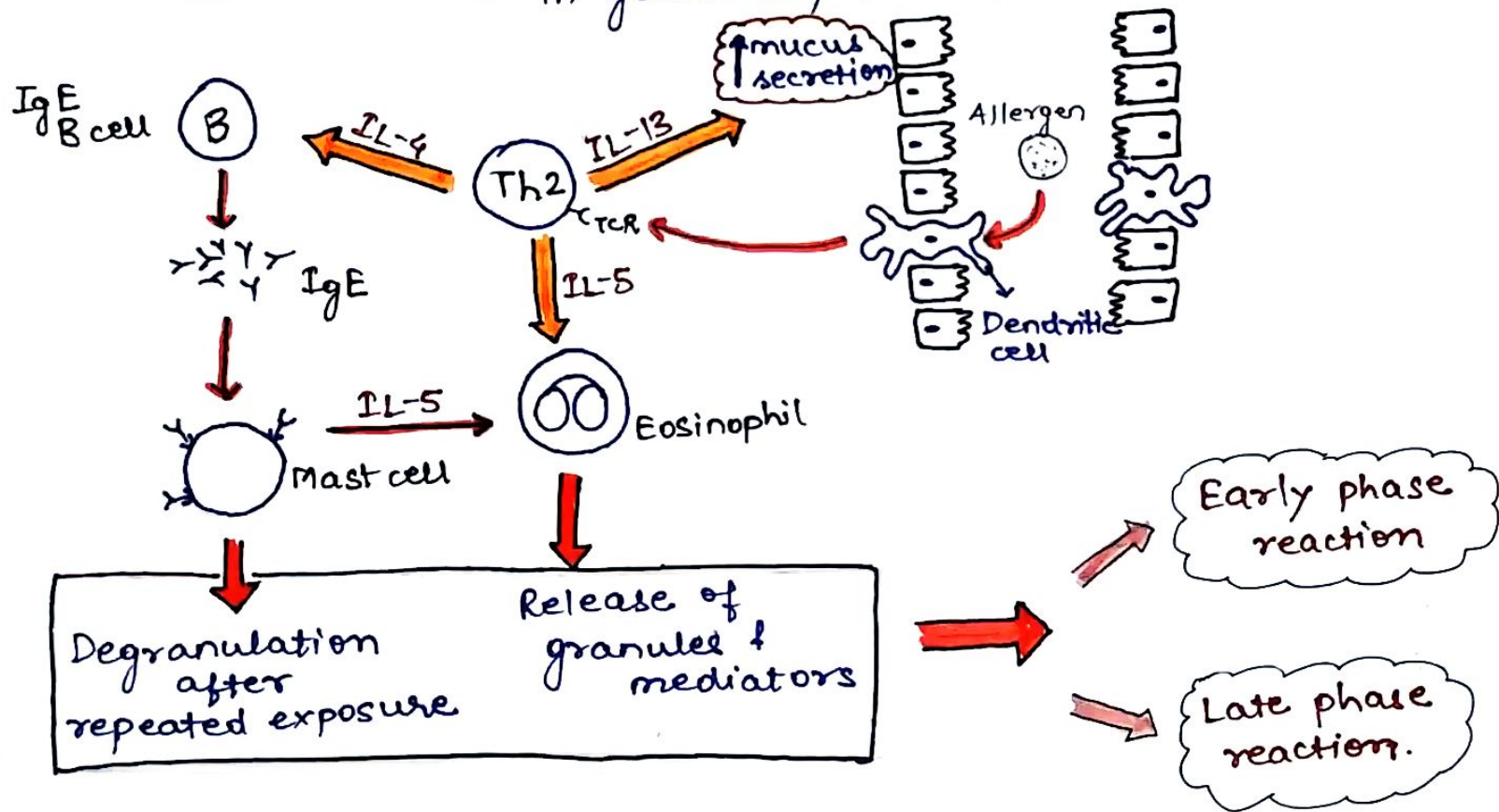


Occupational Asthma :-

- D/t
- Fumes
 - Dust & chemicals
 - Gases

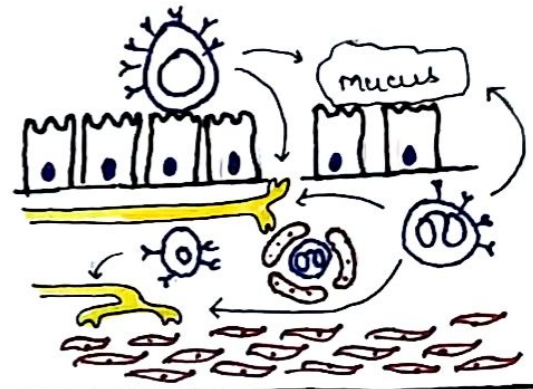
PATHOGENESIS :- ATOPIC ASTHMA

Th2 mediated IgE response to environmental allergens in genetically predisposed individual.



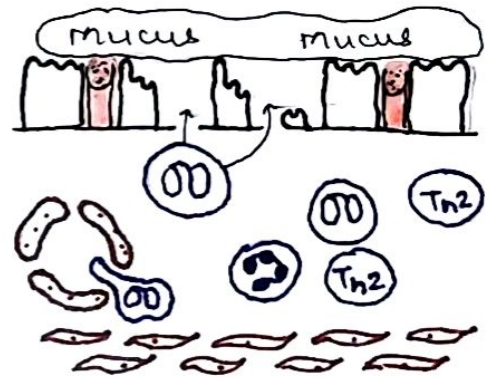
Early phase
reaction
(mins)

- Subepithelial vagal stimulation \Rightarrow Bronchoconstriction
- \uparrow mucus production
- Vasodilation
- \uparrow vascular permeability

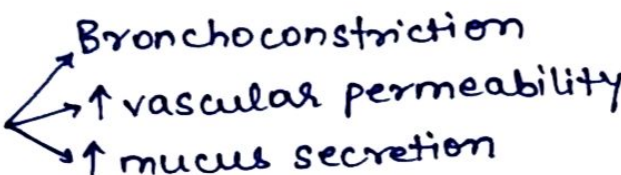


Late phase
reaction
(hrs)

- Recruitment of leucocytes
 - Eosinophils
 - Neutrophils
 - T-cells



Mediators :-

① LT C₄, D₄, E₄ 
→ Bronchoconstriction
→ ↑ vascular permeability
→ ↑ mucus secretion

② Ach from P.S. nervous system ⇒ Smooth muscle contraction

③ Galectin-10 (GAL-10) forms → Charcot-laden crystals in sputum 
from Eosinophils

Minor mediators at scene of crime :-

④ Histamine → Bronchoconstriction

⑤ PG₂D₂ → Bronchoconstriction & VD

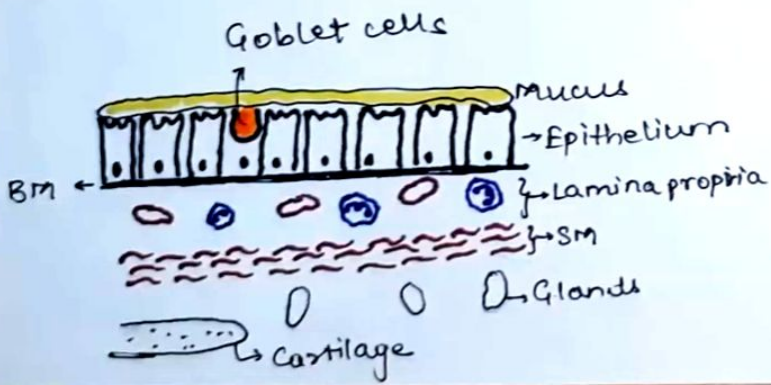
⑥ PAF → platelet aggregation

MORPHOLOGY :-

① Occlusion of { Bronchi
· Bronchioles } by thick, tenacious mucus plug.

② Histological finding ⇒ Airway Remodeling

- Thickening of airway wall
- ↑ Goblet cells
- ↑ mucus production
- Sub-basement memb. fibrosis
- Eosinophilia
- Hypertrophy & Hyperplasia of smooth muscle
- ↑ No. & size of submucosal gland
- ↑ vascularity



SUBSCRIBED



③ Sputum



- Curschmann spirals (spiral shaped mucus plug)
- Numerous eosinophils
- Charcot laden crystals

CLINICAL FEATURES :-

- Wheezing
- Shortness of breath
- Chest tightness
- Cough

Most likely @ night / early morning

Status asthmaticus :- most severe form of asthma that may cause severe airflow obstruction leading of severe cyanosis & even death.