

Epithelial Driven Disease Patient Cases

Gender: Female

Age: **42**

Diagnosis: **Severe asthma**

42-year-old female with progressive worsening of shortness of breath

The patient is a 42-year-old female presenting with progressive dyspnoea

Background and clinical history





over 5 vears

Childhood

The patient is a non-smoker

- She experienced spring/summer respiratory allergies, with no definitive therapy
- · Allergies resolved into early adulthood

Adulthood

- In her late 20's, she developed 'frequent bronchitis' best characterised by a persistent cough and dyspnoea for weeks to months, with mucus hypersecretion
- On a few occasions, she went to an acute care clinic and received ICS/LABA and an antibiotic; no tests were performed and symptoms would eventually resolve

Current situation



About 5 years ago, she notes that one of these 'bronchitic episodes' never improved. Progressively she has had increased:

- Shortness of breath on exertion/dyspnoea
- Cough causing nocturnal awakening and sleep disturbance
- Mucus expectoration this is greater in the morning than in the afternoon

Activity-related shortness of breath and intolerance has also progressed, although she notes minor limitation during exercise

In the past month, she has expectorated mucus plugs

Symptoms are chronic but are more frequent during spring due to increased exposure to allergens, when a concomitant viral infection occurs, or when she is around cigarette smoke

- She has experienced one exacerbation in the previous year requiring hospitalisation where she received a short course of OCS
- Given her shortness of breath, she sought care at the clinic three times in the past year and received OCS twice; symptom reduction was profound but short-lived

Significant use of a quick-acting bronchodilator to control symptoms

No presence of allergic rhinitis, aspirin sensitivity and/or GERD

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Gender: **Female**

Age: 4

42-year-old female with progressive worsening of shortness of breath

Examination and diagnosis



Examination

- Appears well
- BMI = 24.2
- Tests and biomarkers exceed perceived symptoms and limitation

Diagnosis

• T2 inflammation with multiple organ involvement



Tests	
Spirometry (FEV, predicted)	69% + 14% improvement post β2-agonist
FEV,/FVC	63.4%
RV	132% predicted
PC ₂₀	0.2 mg/mL
Biomarkers	
Blood eosinophil count	490 cells/µL
Total IgE	365 IU/mL
Tree pollen (skin prick test)	Positive
Grass (skin prick test)	Positive
FeNO	87 ppb
Imaging	
Chest CT	Thickened airway walls, diffuse airway mucus and impaction, no bronchiectasis
Observations	
Exacerbations in the past year	2

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CT, computed tomography; FeNO, fractional exhaled nitric oxide; FEV,, forced expiratory volume in 1 second; FVC, forced vital capacity; ICS, inhaled corticosteroid; IgE, immunoglobulin E; LABA, long-acting beta agonist; LAMA, long-acting muscarinic antagonist; PC₂₀, provocative concentration causing a 20% fall in FEV₁; ppb, parts per billion; RV, residual volume; T2, type 2.

