Common and Uncommon Presentations

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THIS IS MODERN MEDICINE

Case 1

- A 75-year-old lady
- Worsening asthma
    - twelve months
    - four exacerbations in last six months.
- Diagnosis 10 years previous
- Stable on Symbicort
- BMI of 24
- Far East travel - six months ago
- History:
    - Coronary artery stenting – 8 years prior
    - Pacemaker – 5 years prior
- Smoking:
    - Ex 20 years
    - 18 pack-year history
- Tests:
    - CXR: Apical pleural thickening
    - Bloods: eosinophils 0.3

Considerations

- Is this asthma, COPD, or both
- Could this be CAD progression or new LVF contributing to symptoms?
- Travel-related infection (TB, atypical, fungal) — needs exclusion
- Inhaler adherence/technique: is Symbicort being used effectively?
- Are the exacerbations
    - Infections
    - Resistant organisms
    - Not exacerbations at all ?

Assessment

- Good inhaler technique, but only using 1 puff BD - Undertreatment
- Sputum: mucoid/green in exacerbation, persists between episodes - Bronchiectasis
- Breathlessness improves with short-term inhalers - Asthma
- Allergic rhinitis, cat/dog sensitivity – Allergic Asthma
- Family history: bronchiectasis;
- Hospital CXR: Interstitial changes - ? Oedema, ? Fibrosis
- Exam: RUL Crackles, SaO2 = 96% - ? Bronchiectasis, ? Fibrosis
- Lung function: FEV_1 80%, FEV_1/FVC 60%, RV/TLC 140%
    - COPD pattern;
- Methacholine challenge negative
    - No bronchial reactivity

Investigations

- Serum ACE 88 (↑) → ? Sarcoidosis
- IgE 140 (↑)
- Aspergillus precipitins 60 (↑) → ? ABPA
- CT chest:
    - Tree-in-bud opacities, most marked in the right upper lobe
    - Scattered ground-glass opacities
    - Multiple small nodules (especially in the right upper lobe).
    - Consider endobronchial spread of tuberculosis or non-tuberculous mycobacterial infection
- Bronchoscopy:
    - Pseudomonas
    - Mycobacterium avium

Management

- Added LAMA → improved hyperinflation
- Cleared Pseudomonas - Ciprofloxacin plus nebulised Colomycin
    - Quinolones only oral anti-Pseudomonal agents
    - Resistance can appear in 2 weeks
    - Ineffective dosing encourages resistance
- Symbicort Doubled, plus prn → better asthma control
- Nasal steroid → rhinitis triggered exacerbations
- Respiratory Physiotherapy
    - Airway clearance - *Aerobika*
    - Exercise for deconditioning/steroid myopathy
- Outcome:
    - Much improved. Less sputum. Stable BMI. Monitoring MAC & ABPA

Clinical Review:
Comprehensive Management Algorithm for Mycobacterium avium Complex Pulmonary Disease in the Real-World Setting. PMC12051929.
Advice for Patients:
https://www.acprc.org.uk/media/521payl5/gl-05acbt-1.pdf

Common / Uncommon

- Common:
  - Poorly controlled asthma
  - Underdosing / self-adjustment of inhalers
  - COPD overlap (smoking history, obstruction on PFTs)
  - Bronchiectasis (family history, daily sputum)
- Uncommon:
  - Resistant organisms (Pseudomonas)
  - Fungal sensitisation (Aspergillus, ABPA)
  - NTM infection (Mycobacterium avium complex)

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Case 2

- 42-year-old lady
- Social worker, Never smoker, 10 km runner
- History:
    - Hayfever
    - Hypothyroidism
    - Teenager anorexia – Prozac
    - 8 miscarriages
- Breathlessness + retrosternal chest pain: worse with exercise
- CT chest:
    - 8 mm pulmonary nodule, apical segment right lower lobe
    - Nodular thyroid nodules 2.3 cms +
    - Anterior mediastinal mass ? thymic hyperplasia
- Family History
    - Grandfather Lung Cancer

Considerations

- Breathlessness & chest pain
    - Asthma - atopic
    - Iron-deficiency anaemia (nutritional or menorrhagia)
    - Functional: hyperventilation, deconditioning, anxiety
    - Chronic PE from coagulopathy (e.g. SLE)
    - Myasthenia gravis (linked with thymic disease)
    - Metastases

- Pulmonary nodule
    - Malignant: primary lung; secondary – thymoma, thyroid, breast, melanoma
    - Benign: AVM - shunting, hamartoma, granuloma (infection/inflammatory), sarcoid

- Recurrent miscarriage
    - Antiphospholipid syndrome (Recurrent PE)
    - Connective tissue disease (e.g. SLE) (pleural pain, nodules, eosinophilia)
    - Endocrine: thyroid dysfunction (nodules + hypothyroidism)
    - Nutritional/haematologic: iron deficiency, low BMI, eating disorder history
    - Infective: TB or other chronic infections

Investigations

- Bloods:
    - AChR antibody negative
    - eosinophils mildly ↑
    - iron deficiency → likely nutritional/menstrual
- PFTs: normal spirometry, but low Pi max → inspiratory muscle weakness
- Progressive exercise test:
    - abnormal VE/VCO_2 slope
    - low VO_2max
    - O_2 pulse excludes ischaemia
- PET scan: positive at pulmonary nodule
- Bronchoscopy - NAD
- CT Biopsy - failed

Management

- Right Lower Lobectomy
    - Granulomatous inflammation with central caseous necrosis
    - Culture *Mycobacterium tuberculosis*
- Treated
    - isoniazid, rifampicin, pyrazinamide, ethambutol for 2 months
    - isoniazid and rifampicin for 4 months
- Adjuncts:
    - HIV Negative → strong guideline recommendation
    - Respiratory physiotherapy (breathing control)
    - Iron replacement
    - Nasal steroid therapy for rhinitis
    - FNA thyroid
        - Thy3 indeterminate → surveillance
    - Mediastinal mass → thymic hyperplasia

National TB Guidelines. 2025
https://www.hpsc.ie/a-z/vaccinepreventable/tuberculosistb/guidance/

The Solitary Pulmonary Nodule

- Common
    - 15% chest scans
    - Often incidental e.g. CTPA, CT Angiogram
- Significant anxiety
- Risk of iatrogenic harm
- Medicolegal hazard
    - biopsy injuries
    - Radiation exposure
- Guidelines:
    - Fleischner Society
    - Repeat CT 3/6/12 Months
    - Solid nodules followed for 2 years
    - Sub-Solid Nodules followed for 5-7+ years

The Solitary Pulmonary Nodule - 2

- Risk stratification tools:
    - Simple on line calculators or app
    - Brock model: CT findings, smoking, family history (3.3%)
    - Herder score: Adds PET result (49.9%)
    - https://www.brit-thoracic.org.uk/quality-improvement/guidelines/pulmonary-nodules/

- Lung Cancer Screening
    - Reduce mortality x 20%
    - NLST, NELSON trials
    - High risk smokers
    - Quit < 15 years
    - PLCOm2012 Screening Calculator
    - https://www.evidencio.com/models/show/992

Common / Uncommon

- Incidental solitary pulmonary nodule (SPN)
    - <1% malignant for small solid nodules in low-risk patients
    - Family history: 1st Degree Relatives only
- Lung cancer: the most common fatal cancer in both men & women in Ireland
- Functional dyspnoea:
    - History
    - Examination
    - Treatment Resistance
    - Often complicates organic disease
- Thyroid nodules: very common, 5% on imaging, 6% palpable in women
- Iron-deficiency anaemia
    - SLÁN 2007: 4.6% in men and 1.0% in women
    - 31 fold Increase risk of gastrointestinal malignancy

Common / **Uncommon**

- TB in Ireland 200–350 TB cases/yr, incidence 5–7/100,000
- Tuberculoma rarer still - PET-positive
- Thymic hyperplasia:
    - Unusual beyond age 30 (<1%)
    - Female predominance
    - Differential thymoma, prompts myasthenia testing
    - Other autoimmune disease – Graves Disease
- Multiorgan nodules (pulmonary, thyroid, mediastinal)

For Coffee

- Pulmonary Fibrosis
- Biologics in Asthma & COPD
- Sublingual Immunotherapy
- Industrial Lung Disease
- Inhalational Injury
- Drug Induced Lung Reactions
- Obesity and the Lung
- Pulmonary Hypertension
- Pulmonary Embolism
- Oxygen Therapy
- Cystic Lung Disease
- Pulmonary Manifestations of Systemic Disease
- Pulmonary Vasculitis
- Surgical Management of Benign Lung Disease
- Pleural Disease
- Alpha-1 antitrypsin deficiency

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New and Developing Services

- Sublingual Immunotherapy
- Antifibrotic Therapy
- Oxygen Assessment
- Inhaler Technique
- Pulmonary Rehabilitation
- Severe Asthma Assessment
- Asthma Biologics Infusion
- Airway Clearance Training

- FeNO Measurement
- Sports Laboratory – VO_{2max}
- Pulmonary Function Laboratory
- Sleep Laboratory
- Research and Development
  - Exercise Physiology
  - AI & ML
  - PhD Candidate

Adult Respiratory Medicine

Paediatric Respiratory Medicine

Oncology

Thoracic Surgery

Respiratory Nursing

Respiratory Physiotherapy

Pulmonary Physiology

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Thank you

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