

PERSPECTIVES**A 54 year-old man with a chronic cough****Clinical scenario**

A 54 year-old man consults about a long-standing cough: his wife encouraged him to attend as she was tired of hearing him cough all the time. He is a bit vague about when it started, but it must be 'nearly a year'. He has consulted his usual general practitioner about the cough three times. Eight months ago he presented with a 'chesty' cough associated with a feverish illness and an upper respiratory tract infection; he was prescribed a course of antibiotics which he thinks might have slightly improved the cough, though it did not fully resolve. Two subsequent consultations resulted in a further course of antibiotics and a trial of a salbutamol inhaler, neither of which appear to have made any difference. The clinical notes record that his chest was 'clear' at each of these consultations. He describes himself as 'generally well', though he has been tired recently which he attributes to the long hours he is working. He smoked for about 15 years but quit in his mid-thirties.

PERSPECTIVE**A primary care perspective from Canada*****Alan Kaplan^a**

^a Family Physician Airways Group of Canada, Richmond Hill, Ontario, Canada

This 54 year-old man has presented for the fourth time with his cough. I would go through a diagnostic algorithm for chronic cough starting with the important history and physical examination, and consideration of potential investigations. Empirical trials of therapy are frequently needed for patients in an office setting while investigations are pending,¹ as chronic cough can severely affect quality of life.²

History

I would identify what risks of respiratory disease he may have, such as total cigarette pack-years, cannabis use,³ occupational exposure, infection exposure (does he have children or grandchildren in day care?), cardiac risk factors and family history. Specific symptoms which might suggest consideration of different diseases would include symptoms of dyspnoea, chest pain, fever, night sweats, weight loss, haemoptysis, reflux symptoms, throat clearing, nasal symptoms, snoring, secretions in the back of his throat, nasal congestion or rhinorrhoea, loss of smell, or choking spells. A medication history is of critical importance [see Medford's perspective below].

One theory of cough is that it is mostly due to hypersensitivity, which can be provoked by many factors. Using the Hull Cough Hypersensitivity questionnaire (available from <http://www.issc.info/HullCoughHypersensitivityQuestionnaire.html>) may be helpful in this setting.

Physical examination

Again, I would be looking for clues that might indicate a differential diagnosis: vital signs, chest and nasal examination, cardiovascular examination, presence of clubbing or pallor, signs of pharyngitis, and oxygen saturation.

Gastro-oesophageal reflux disease,⁴ including gaseous, non acid reflux,⁵ upper airway/post nasal drip syndrome,⁶ and asthma,⁷ are by far the most common causes of chronic cough. However, consideration of other lung diseases would include chronic obstructive pulmonary disease (COPD), lung cancer,¹¹ chronic bronchitis,⁸ bronchiectasis,⁹ eosinophilic bronchitis, chronic infections like TB or aspergillosis, inhaled foreign bodies, interstitial lung diseases,¹⁰ or sarcoidosis. Cardiac causes such as congestive heart failure, valvular abnormalities, or arrhythmias need to be considered.¹² Most of these diagnoses are attainable with a few modest investigations that can be done in the primary care physician's office.

Investigations

Depending on the information from the history and examination, I would arrange investigations to confirm or refute the relevant differential diagnosis. Assuming that he is not on an angiotensin-converting enzyme (ACE) inhibitor, a CXR and spirometry would be reasonable first steps.¹³ If I suspected bronchiectasis or interstitial lung disease I would consider arranging a computed tomography

* **Corresponding author:** Dr Alan Kaplan, Family Physician Airways Group of Canada, Richmond Hill, Ontario, Canada.

Tel: +1 905 883 1100 Fax: +1 905 884 1195 E-mail: for4kids@gmail.com

(CT) scan of the chest. Sinus x-rays or preferably a CT scan of the sinuses might help to diagnose chronic sinusitis. Echocardiography can be done if heart failure or valvular disease is suspected. Tuberculosis (TB) is more common in low and middle income countries, [see Stacul-Fiori's perspective below], but is important not to miss when it occasionally presents in developed countries. In Canada there were 1,577 new active and re-treatment TB cases reported in 2010, an incidence rate of 4.6 per 100,000 population, the lowest number since 1924.¹⁴

Further management and empirical treatment

A normal CXR rules out many respiratory causes, and normal spirometry rules out COPD,¹⁵ but does not rule out chronic bronchitis. Asthma seems less likely in this patient due to the negative trial of salbutamol but this could be confirmed with pre- and post-bronchodilator spirometry. If doubt remains, referral for a methacholine challenge might help clarify an asthma diagnosis.

If the symptoms point to gastro-oesophageal reflux, an empirical trial of a twice daily proton pump inhibitor for acid reflux, or a prokinetic (metoclopramide or domperidone) for gaseous reflux, is a practical approach in primary care. Patients need to be advised that treatment may require several months of therapy to achieve an effect – and unfortunately, failure of therapy does not rule out reflux [see McGarvey's perspective below]. If the diagnosis is still in doubt, referral for a barium swallow, endoscopy or further investigation will be a possibility.

Referral to a respiratory specialist for further investigations such as bronchoscopy should be considered if the diagnosis continues to be unclear or if 'red flags' such as haemoptysis, weight loss, clubbing, unilateral wheeze, night sweats, or chest pain appear. With no firm diagnosis or response to therapy one would consider a psychogenic or habitual cough, and reluctantly even make the diagnosis of 'unexplained cough'.¹⁶

In the meantime, patients will often request empirical treatment to relieve their symptoms. Cough suppressants are rarely useful on their own.¹⁷ With no other hints, the most common empirical treatments would be saline lavage and nasal steroids for post nasal drip syndrome.¹⁸

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