# Chronic cough

***"But I've been coughing for weeks, doctor – surely you can do something about it…?"***

This article focuses on chronic cough in adults.

**Most of this article is summarised from a DTB review, but I have added other nuggets of usefulness where relevant (DTB 2019;57:74).**

A few definitions:

- CHRONIC cough is typically one that has been present for 8 weeks or more.
- Chronic REFRACTORY cough: ongoing cough from an identifiable cause despite treatment of the underlying condition (e.g. COPD) (as opposed to an IDIOPATHIC cough, where the cause is unknown).

When a patient presents with a cough:

- Remember to clarify what the patient means by cough. Get the patient to demonstrate their 'cough': check they do mean a cough and not throat clearing or anything else!
- Ask about impact on quality of life, in particular:
  - Sleep disturbance.
  - Urinary incontinence (reported by >50% of women with a chronic cough).

## Common causes of chronic cough

The DTB helpfully summarised common causes of a chronic cough. I've also added some features from three other older reviews (Lancet 2008;371:1364 & 1375 and BMJ 2009;338:b1218).

The 3 commonest causes are:

- Asthma (about 30%).
- Reflux (about 20%).
- ACE inhibitors (about 15%).

The red flags to look out for are:

- Dyspnoea.
- Haemoptysis.
- Hoarse voice.
- Weight loss.
- Fever.
- Dysphagia.
- Chest pain.

Other causes are listed below. The one you are likely to be least familiar with is cough hypersensitivity syndrome.

| **Respiratory causes** | | |
|---|---|---|
| **Causes** | | **Look for...** |
| MALIGNANCIES | Lung cancer | Haemoptysis.<br>Weight loss.<br>Smoking history. |
| | Mesothelioma | Pleuritic chest pain.<br>Shortness of breath.<br>Weight loss.<br>Asbestos exposure. |
| INFECTIONS | Acute infections (pneumonia, pertussis) | For **pneumonia**, the cough can last 3m but is usually significantly better after 6w.<br>For **pertussis**, vaccinated people rarely whoop. About 3% of adults presenting with an acute cough have pertussis. Look for a story of a URTI (4–21d after exposure) followed by a cough: 'cough, cough, cough, |

| | | |
|---|---|---|
| | | cough, vomit'. Treatment in the first 21 days can reduce transmission but does not alter the disease in the infected person. Cough usually lasts 100 days or so. Diagnosis is clinical but can be confirmed with nasopharyngeal culture (throat swab or aspirate) or nasopharyngeal PCR. Serology can be done from week 2–8. Take advice from your lab on what is done locally. See separate online article. |
| | TB | Weight loss.<br>Fever/night sweats.<br>Haemoptysis.<br>Risk factors for immunosuppression. |
| UPPER RESPIRATORY TRACT DISEASE | Upper airway disease (rhinitis, chronic post-nasal drip) | Nasal symptoms, including lack of smell.<br>Symptoms of post-nasal drip.<br>Facial pain/fullness.<br>Atopy.<br>Ear symptoms (3% of people have an auricular branch of the vagus nerve, and irritation of external auditory meatus can cause a cough). |
| | Obstructive sleep apnoea | Snoring with apnoea.<br>Excessive daytime sleepiness.<br>Obesity. |
| | Cough hypersensitivity syndrome | A relatively new concept: in those with idiopathic chronic cough, there may be a neuropathic element: a disorder of sensory nerves that results in hypersensitivity in the larynx and upper airway to minimal stimulus. Central excitability may also play a part. These mechanisms are similar to those seen in chronic pain. |
| LUNG DISEASES | Asthma | Wheeze and breathlessness that has within-day or day-to-day variability.<br>Atopy.<br>Symptoms worse in the week and better at weekends/holidays: think occupational asthma.<br>In those with asthma, cough is often the first sign that asthma is worsening (and is often accompanied by a dip in morning PEFR).<br>In those not known to have asthma, cough without any other features rarely points to a diagnosis of asthma. |
| | COPD | Exertional breathlessness.<br>Regular sputum production.<br>Smoking history. |
| | Eosinophilic bronchitis | Chronic cough with no other features of asthma. |
| | Bronchiectasis | Regular sputum production.<br>Coarse crackles on chest examination. |
| | Pulmonary fibrosis | Fine lung crackles.<br>Connective tissue disease.<br>Asbestos exposure. |
| | Pleural effusion | Shortness of breath on exertion.<br>Pleuritic pain.<br>Stony/dull on percussion. |
| | Foreign body | Abrupt-onset cough. |

| **Non-respiratory causes** | |
|---|---|
| **Causes** | **Look for...** |
| Gastro-oesophageal reflux | Dyspepsia/regurgitation, although this is often silent. Ask about a metallic taste in the mouth.<br>Obesity. |
| Cardiovascular disease (heart failure, aortic aneurysm) | Breathlessness, swelling of ankle, orthopnea.<br>Aortic aneurysm may be silent if expanding slowly. |
| ACE inhibitor | Occurs in about 20% of those using ACE inhibitors.<br>The cough doesn't always start when the ACE inhibitor is started, and can take a year to settle after stopping the ACE inhibitor. |

| | |
|---|---|
| Irritation of external auditory meatus | 3% of people have an auricular branch of the vagus nerve! |

## Investigations

Clearly, this will be prompted by your clinical suspicion based on the history and examination.

The DTB said everyone with a chronic cough should have a **CXR and spirometry** (astonishingly, less than 25% of people referred to respiratory specialists with a chronic cough had had spirometry!).

If asthma suspected, look for an eosinophilia on FBC.

A raised **platelet count** may suggest lung cancer.

## Management

- If there are any red flags, investigate or refer as appropriate. The 2ww criteria for respiratory conditions are:

| **Respiratory cancers** | |
|---|---|
| **Lung cancer and mesothelioma** | |
| **Refer via cancer pathway** | • CXR findings are suggestive of lung cancer.<br>• Aged >40y with unexplained haemoptysis. |
| **Offer an urgent CXR** | • Aged >40y with the following symptoms that are unexplained (if smoker/ex-smoker/asbestos exposure: 1 symptom is needed, if never smoked: 2 symptoms needed):<br>o Cough.<br>o Fatigue.<br>o Shortness of breath.<br>o Chest pain.<br>o Weight loss.<br>o Appetite loss. |
| **Consider urgent CXR (within 2w)** | • Aged >40y with:<br>o Persistent or recurrent chest infection.<br>o Finger clubbing.<br>o Supraclavicular or persistent cervical lymphadenopathy.<br>o Chest signs consistent with lung cancer or pleural disease.<br>o Thrombocytosis. |

- This may be a time when patients are more receptive to **stop smoking advice**, but remember that stopping smoking can cause a temporary worsening of any cough.
- **Treat the most likely diagnosis** (see section on causes, above). It is probably best to treat one condition at a time so you know the underlying cause.
- If you can't find an obvious cause, the DTB suggested treating each of the following in turn: asthma (and other steroid-responsive lung diseases), gastroesophageal reflux disease, upper airway cough syndrome (throat clearing, post-nasal drip and blocked/runny nose – give a trial of nasal steroids and/or antihistamines).
- **Behavioural treatments:** physiotherapists and speech and language therapists can teach techniques such as cough suppression and vocal hygiene.
- **Centrally-acting drugs** such as amitriptyline and the pentinoids may supress some of the centrally-acting neuromodulators in those with chronic idiopathic cough, although their side-effects may outweigh any benefits, and use of both gapabentin and pregabalin can lead to dependence.
- Anti-tussives are little better than placebo in RCTs. The DTB advised against the use of codeine, and pointed out that recent US guidance on chronic cough removed opioids from its final options.
- **Oral $P2X_3$ receptor antagonists**: novel drugs which suppress excess C-fibre activation in the vagus nerve.
  - A pharma-funded double-blind placebo-controlled RCT assessed efficacy of this new drug at managing chronic cough (Lancet 2022; 399:909).
  - It reported a statistically significant reduction in 24h cough frequency and improved quality-of-life scores.
  - The main side-effect was unpleasant taste sensations.

- The overall reduction in cough was not dramatically different between those treated with placebo vs. those treated with the novel drug: an average 8.3 coughs per hour for the placebo group compared with an average 6.3 coughs per hour on the drug after 24 weeks of treatment.

<table>
<tr><td>  </td><td>Chronic cough<br>• Chronic cough is common and there are many causes. The 3 commonest causes are: asthma, reflux and ACE inhibitors.<br>• Working through the possible causes logically, with careful history and targeted examination/investigations, is important. The DTB suggested everyone should have a CXR and spirometry.<br>• Always look for red flags, and refer as appropriate.<br>• Treat the most likely diagnoses in turn.<br>• Always consider TB and whooping cough. Immunised people get pertussis – they just don't whoop. Look for paroxysms of cough ending in vomiting in someone who is well in between.</td></tr>
<tr><td>  </td><td>Have a listen to the recordings on the site below. Do you consider whooping cough as a diagnosis?</td></tr>
<tr><td>  </td><td>For professionals and patients:<br>Examples of full-blown whooping cough and attenuated forms in immunised individuals are available at: www.whoopingcough.net/symptoms.htm (sound files are in bottom right-hand corner of the page). There is plenty of information for patients on this site about why treatment is ineffective, etc.<br>This site is by Doug Jenkinson, a GP in Keyworth, Nottinghamshire.</td></tr>
<tr><td>  </td><td></td></tr>
</table>