

# Under the radar: Lung cancer in non-smokers



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***Continuing our series on diagnoses that might have been missed, Dr Anthony Cunliffe discusses a case of lung cancer that was identified in a non-smoking patient with unusual symptoms***

A few weeks ago, I saw a 49-year-old female patient who presented essentially with shortness of breath. She reported that physical activity that she would previously have found easy to carry out was causing her difficulty.

Her symptoms weren't severe but had been going on for a couple of months and she had held off presenting until now. She had never smoked, had no chest pains, no alarming symptoms such as unintended weight loss, and no significant medical history. Her heart and lung examination was completely normal.

Considering the potential causes for her symptoms, I wondered if it could have been anaemia as she did have heavy menstrual bleeding. I did not think cardiac causes were likely as she had no risk factors. I thought about potential respiratory causes, although she had no previous respiratory issues, no history of atopy and no other respiratory symptoms to indicate an underlying cause such as cough or wheeze, and – crucially – had never smoked.

I'd decided to start with some blood tests to rule out anaemia or thyroid disease, and it was at this point we had a 'while I am here' moment.

The patient then told me about some shoulder pain that she had been experiencing. It had been going on for a few weeks and although it was bothering her, it wasn't affecting her joint function at all. She found it hard to describe and acknowledged that she probably wouldn't have contacted the GP about it if she wasn't there anyway. When I examined her there was nothing to indicate a direct problem with the joint with no tenderness and full range of movement.

Not surprisingly she hadn't made any connection between the shoulder pain and the shortness of breath.

I still had low suspicions, but as this patient did have some respiratory symptoms and shoulder pain, with a normal shoulder exam, I decided to include a CXR in my first round of investigations, which showed suspicious changes that subsequently were diagnosed as lung cancer.

## **Learning points**

Despite overall incidence of lung cancer reducing, the rate of non-smoking lung cancer is increasing and currently, around 10 to 15% of diagnoses are in never smokers. Lung cancer in never-smokers is actually the eighth most common cause of cancer death in the UK.

Often, patients may not present with the typical symptoms of lung cancer. As GPs, we need to be alert not only that an absence of a smoking history should not reassure us fully, but also, that people may present with symptoms that might not immediately make us consider a lung cancer diagnosis. Such symptoms include appetite and weight loss, fatigue, and shoulder, neck or back pain. Shoulder pain can be a result of growth of the size of a tumour or a tumour pressing on a nerve. Pancoast tumours which originate in the lung apices aren't common but can often present with this symptom. Bone pain can also be caused by metastases. Unfortunately, non-smokers often experience a delay in diagnosis. Research led by Dr Georgia Black at University College London highlighted this to be because they present late, putting their symptoms down to common, self-limiting illness. In addition, even after presenting, they don't tend to be investigated as quickly and are less likely to follow up promptly if symptoms don't clear.

This means that, as GPs, we need to have a lower threshold for investigating patients who may be seen as low risk, but not no risk – in the first instance with a CXR.

The other thing we can do is have robust safety netting processes in place. These will help to ensure that a patient undergoes a test, and that we are clear in our verbal

communication to encourage people to represent if their symptoms persist, even if our first decision was watch and wait.

Non-smoking lung cancer often entails a non-hereditary genetic element. For example, mutations can occur in the anaplastic lymphoma kinase (ALK) and epidermal growth factor receptor (EGFR) genes, among others. This is particularly important because for these oncogene-driven cancers, newer targeted treatments are now available that have led to improved prognoses.

It was lucky in this case that the patient self-reported the shoulder pain and, through my work in cancer – in particular with the Ruth Strauss Foundation, which drives awareness of and research into non-smoking lung cancers – I was already aware of the increase in younger people, especially females, who have never smoked being diagnosed with lung cancer

It might be worth keeping non-smoker lung cancer in mind and asking about some of these less common symptoms when people present with vague symptoms.

## **Further reading**

See through the symptoms UK: <https://www.seethroughthesymptoms.uk/>

Ruth Strauss Foundation: <https://ruthstraussfoundation.com/professionals/>

ALK Positive UK: <https://www.alkpositive.org.uk/>

EGFR+ UK: <https://www.egfrpositive.org.uk/>