Early detection of cancer: lessons from lung cancer CT screening

Black et al.1 reviewed 12 studies of CT screening for lung cancer published up to 2004 and concluded that there is insufficient evidence that CT screening might be clinically effective in reducing mortality from lung cancer.

This study was published immediately after two discordant studies by Henschke et al.2 and Bach et al.3 The first study, in spite of the lack of total or disease-specific mortality rates for the screened population, concluded that low-dose CT screening could lead to a screening strategy that resulted in a 10-year survival of 88% for patients with stage I disease.2 The second, in line with Black et al.,1 concluded that there is no evidence that CT screening reduces deaths from lung cancer.4 In this study, despite annual screening, most of the individuals who died from lung cancer did not have their cancer detected at an early stage when cure was possible. However, the survival of patients with stage I disease was equivalent to the survival in the study by Henschke et al.,2 but the proportion of patients with stage I disease fell dramatically after the second year and the cumulative mortality from lung cancer at 5 years was very close to that expected without screening.

A reasonable explanation is that radiological screening can detect early stage, slow growing or indolent disease, but is unable to prevent more aggressive and early metastatic lung cancer. Indeed, autopsy studies recognise inconsequential lung cancers.5 As a possible consequence, some individuals—even those enrolled in screening trials—will live and die with their lung cancer.

The major finding of these studies is that the natural history of lung cancers detected by CT scanning is unknown. According to the current view on the carcinogenesis of non-small cell lung cancer, it cannot be assumed that the biological behaviour of cancer parallels the anatomical size of the tumour or that small lesions are equivalent to early stage disease. No data are available to confirm that a primary lung tumour of 5 mm has a significantly better prognosis than tumours of 10 mm or even 30 mm.6 In different studies, approximately 60% of patients with clinical (radiographically detected) stage I disease (<3 cm) died from lung cancer within 5 years despite appropriate treatment.6 This suggests that a high percentage of patients have disseminated occult disease at the time of presentation.

With newer and more sensitive methods of detection, sites of isolated tumour cells and micrometastases may now become apparent. Indeed, clinical studies have confirmed that patients with small tumours can harbour malignant cells in lymph nodes of normal appearance detectable only by PCR assay.7 Other investigations have found tumour cells or circulating endothelial progenitor cells in the peripheral blood and bone marrow of patients with lung cancers of all sizes and stages.8

As the debate on lung cancer screening continues, it appears that we must learn more about the biology of this disease and integrate this knowledge with early diagnostic strategies including genomics and/or proteomics.

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Gene expression of IL17 and IL23 in the lungs of patients with active tuberculosis

Immunity to tuberculosis is dependent on type 1 responses (interferon (IFN)-γ, interleukin (IL)12, tumour necrosis factor (TNF-α)) but these do not provide a complete
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P A Jenkins, I A Campbell, J Banks, et al. Clarithromycin vs ciprofloxacin as adjuncts to rifampicin and ethambutol in treating opportunistic mycobacterial lung diseases and an assessment of Mycobacterium vaccae immunotherapy. Thorax 2008;63:627–34. There is an error in the abstract of this article. It should read as follows. A trial was undertaken to compare clarithromycin (Clari) and ciprofloxacin (Ciprol) as third drugs added to 2 years of treatment with R and E for pulmonary disease caused by M avium-intracellulare (MAC), M malmoense and M xenopi (REClari and REciprol).

Pulmonary puzzle

ANSWER

From the question on page 802.

Two small opacities are seen in the nasopharynx.

Using fluoroscopy, an ENT surgeon was able to identify the presence of a nasal clip (fig 1) which was removed without difficulty, hence allowing NIV to continue. The patient had been using the device at night to keep his nasal flares patent to help alleviate snoring; he had nasally inhaled the clip with the added positive pressure of his ventilator. The presence of a foreign body either in the upper or lower respiratory tract must always be eliminated when signs of respiratory distress are observed. Assessment is particularly difficult in patients with limited communication such as those with bulbar disease of whatever cause.

Snoring is a extremely common condition that can cause significant difficulties in relationships and home life. Despite very limited evidence, there are numerous commercially available mechanical aids that attempt to keep the nasal air passages clear. When initiating non-invasive ventilation or continuous positive airways pressures therapy, one should check with the patient that these aids are not being used at night due to the risk of aspiration with added positive pressure.

Figure 1 Nasal clip device after its removal.