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Low Yield of Urgent Haemoptysis Referrals for Lung Cancer Clinics

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Abstract

Aims

Haemoptysis serves as a crucial indicator for urgent referrals to lung cancer clinics due to its perceived association with malignancy. Despite this, uncertainty prevails regarding the actual rate of lung cancer diagnoses with these referrals which we aimed to evaluate as our primary endpoint.

Methods

A retrospective analysis was conducted on 104 patients urgently referred to a Saint James rapid access lung cancer clinic over a 12-month period. Accounting for 15% of new referrals, the evaluation spanned July 2022 to July 2023. Critical data including patient demographics and nature of haemoptysis was included. All subsequent investigations and diagnosis were established for each patient.

Results

Lung cancer diagnoses were relatively low, identified in only 9 individuals (8.3%). Among these cases, 8 of 9 (88.8%) had abnormal CXR, reported recurrent haemoptysis, and were smokers. Of significance, 8 patients are set for ongoing nodule surveillance mandating further imaging.

Discussion

The study raises concerns regarding the need for alternative diagnostic considerations, particularly for non-smokers. A singular non-smoker, with once-off haemoptysis and a normal CXR, demonstrated a CT-revealed peripheral adenocarcinoma, potentially indicating an incidental finding. The efficacy of CXR as an investigation low-risk patients, especially non-smokers, is emphasized. The study recognizes limitations including a low sample size and a larger cohort would be needed to confirm these findings.

Introduction

Lung cancer is one of the most common cancers affecting both men and women in Ireland. Despite advances in therapeutic management, mortality remains high. This, in part, is attributed to poor symptom recognition and resultant advanced cancer stage at diagnosis.

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Haemoptysis (along with abnormal radiological imaging) is one of two indications for urgent referral to national lung cancer rapid access clinics due to its perceived high association with malignancy. Haemoptysis has shown to be the isolated symptom with the highest predictive value[1]. There still remains considerable ambiguity regarding the actual rate of lung cancer diagnoses in haemoptysis referrals and the potential for over-investigation in such cases. Some published data indicate this to be as greater than 20% in some cohorts[2,3]. This uncertainty underscores the need for a comprehensive evaluation of the diagnostic trends in this patient population. Clinical history is critical, as outlined in guidelines[4]. Chest x-ray (CXR) and subsequent CT scanning and bronchoscopy should be determined on a case-by-case basis.

Methods

We report a retrospective analysis of 104 patients who were urgently referred to St. James' Rapid Access Lung Cancer (RALC) Clinic due to haemoptysis. This accounted for 15% of all new referrals over a 12-month period, July 2022 to July 2023. Data collection encompassed a range of critical variables, including patient demographics: age, sex, smoking history, single episode or recurrent haemoptysis in history. Volume of haemoptysis couldn't be included due to subjective reporting bias. Chest X-ray findings, results of CT scans, bronchoscopies, and final diagnoses were established for each patient. The primary endpoint of this analysis was to ascertain the number of lung cancer cases diagnosed within this cohort.

Results

The rate of lung cancer diagnosis in those referred with haemoptysis was low, with only 9 individuals (8.3%) receiving such a diagnosis. The same 8 of these (88.8%) had an abnormal CXR, recurrent history of haemoptysis and were smokers. 6 were diagnosed on bronchoscopy (including fluoro-guided Transbronchial biopsy) and 3 by CT-guided biopsy. 8 patients have planned ongoing nodule surveillance. This will require continuous monitoring to rule out any potential malignancies. The majority of patients in this cohort were smokers (62.5%). A high proportion of patients (73%) had normal chest X-rays, with only one case progressing to an abnormal CT and lung cancer diagnosis. 77.8% of all those referred went onto have a CT scan. Reasons for this included: the history wasn't indicative of haemoptysis/cause was otherwise known, Non- attendance/opting out of CT and if once off remote event where clinically patient was low risk. 46% had bronchoscopies including those with suspicious CT scans, recurrent symptoms or heavy smokers with other concerning symptoms. No patients with a normal CT had abnormal neoplastic findings on bronchoscopy. High numbers (55.8%) presented with respiratory infectious symptoms or sinusitis, and 22% had unknown causes of haemoptysis. Other causes are listed in (Table 1)

Discussion

The study highlights a low lung cancer diagnosis yield (8.3%) in haemoptysis referrals, suggesting the need for alternative etiological considerations, especially in non-smokers. The one non-smoker with once-off haemoptysis and a normal CXR had a peripheral nodule of 1.8 cm seen on CT. This was PET avid and was determined to be malignant on CT biopsy. There was no direct airway to this lesion on CT, which raises the possibility of an incidental finding, especially in the context of other data. Our data reinforces the benefit of chest radiographs as a screening tool, especially in low-risk patients with no smoking history.

Limitations include low numbers included in this study. Larger numbers are needed for a well-powered data analysis. Other limitations include the unknown nature and volume of the haemoptysis. We only included patient in whom the GP referral listed "haemoptysis". We did not include patients who were referred with "abnormal imaging" who may also have been suffering from haemoptysis. Follow-up of nodules may indicate further low-growing malignancies. The association with haemoptysis appears spurious, potentially reflecting incidental CT findings similar to population based screening. We have not listed these as an aetiology in table 1.

Haemoptysis remains a challenging symptom. Workup should be exhaustive in the correct clinical context, such as recognisable risk factors for malignancy. However, there is a lack of evidence-based guidelines regarding the diagnostic evaluation of haemoptysis. With this, patients can undergo unnecessary invasive tests and avoidable radiation exposure. Our findings would advocate for chest radiographs as being an appropriate initial investigation in primary care for non-smokers with a sinusitis/infectious history and once-off haemoptysis. No patients had complications from bronchoscopy in our cohort but are recognised. Bronchoscopy should be reserved with those with definitive pathology on CT as published previously[5]. This, however, would necessitate using clinical judgment and risk stratification to assess such a risk, which may prove difficult in a medicolegal climate.

Table 1

Confirmed/Provisional diagnosis	**Number of cases**
Pulmonary infection/sinusitis	58
Unknown cause	23
Lung cancer	**9**
Anticoagulation	**2**
bronchiectasis	4

Dental issue	3
TB	2
Vasculitis	1
Pulmonary embolus	1
Hematemesis likely	1

Declarations of Conflicts of Interest:
None declared.

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