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Delay in Diagnosis of Lung Cancer: A Case Report

Ching, S. M.[1]*, Chia, Y. C.[2] and Cheong, A. T.[1]

[1]*Department of Family Medicine, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia*

[2]*Department of Primary Care Medicine, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia*

ABSTRACT

This case report highlights delay in the diagnosis of adenoma carcinoma of the lung in a female patient who has never smoked. It took three months to reach the diagnosis of stage IV lung carcinoma despite the presence of symptoms and an abnormal chest radiograph finding from the beginning. The clinical characteristics and predictors of missed opportunities for an early diagnosis of lung cancer are discussed. In this case, patient and doctor factors contributed to the delay in diagnosis. Thus, early suspicions of lung cancer in a woman with the presence of respiratory symptoms despite being a non-smoker are important in primary care setting.

Keywords: Adenocarcinoma, lung cancer, female, delay diagnosis, non-smoker

INTRODUCTION

Carcinoma of the lung is the second commonest cancer among men and the sixth most common cancer among women in Peninsular Malaysia (Ministry of Health, 2008). Lung cancer is notoriously known to be at an advanced stage by the time it is diagnosed and this unfortunately means a poorer prognosis (Peake, 2008). Cough and dyspnoea are the common symptoms of lung cancer, which also are common complaints in the primary care setting (Hamilton, Peters, Round, & Sharp, 2005). However, when these symptoms are accompanied by haemoptysis, alarm bells should have been sounded. Haemoptysis may not be present in the early stages, and this may cause delay in diagnosis of lung cancer. Thus, this raises the concern, i.e. whether this could increase the risk of missing or delaying the diagnosis of lung cancer in patients who have cough and dyspnoea in the primary care setting (Ellis & Vandermeer, 2011; Bjerager, Palshof, Dahl, & Olesen, 2006).

The study by Myrdal *et al.* which reported that shorter delay in diagnosis might not confer to the better prognosis on a survival rate, which could be due to the fact that the majority of the patients in that study were already in the advanced stage (Myrdal G *et al*., 2004). For a patient with a large but potentially operable tumour, however, delay may be detrimental (O'Rourke & Edwards, 2000). The following case study provides an example that a greater sense of awareness is needed by physicians when dealing with a female patient who is a non-smoker but who could potentially be harbouring a lung cancer.

CASE STUDY

A 64-year-old para 4, post-menopausal housewife with underlying hypertension on diet control, complained of cough, shortness of breath, haemoptysis and occasional chest pain for the past 10 weeks. Otherwise, she was active in terms of her activities of daily living. She went for a chest radiograph (CXR) at a general practitioner's clinic and was treated as community-acquired pneumonia. She was reassured that there was no need to be worried as a course of antibiotic would be prescribed for her condition. She was neither given a follow-up or a referral. Her symptoms did not improve even completing the course of antibiotic. The family members started to worry about her after three months of unresolved symptoms and decided to come to the hospital for a second opinion instead of going back to the previous doctor.

She was not a primary or secondary smoker. She denied having any symptoms of fevers, night sweat and did not have any other known risk factors for developing lung cancer. There was no family history of malignancy as well.

Upon examination, she appeared thin but there was no jaundice. Dilated vein was noted on the anterior chest wall and finger clubbing was also present. However, there was no cervical lymphadenopathy or facial swelling noted. Her respiratory rate was 18 breaths per minute, blood pressure of 156/ 80 mmHg, pulse rate of 80 beats per minute with a BMI of 20.1 kg/m^2.

The chest expansion and air entry were reduced together with stony dullness noted on the lower zone of the right lung. There was no crepitation or rhonchi heard. On top of that, there was a palpable liver, which is firm in texture and measuring about 2cm below the right costal margin. Breast and spine examinations were also normal.

Investigations

The patient went for investigations which consisted of full blood count test, sputum for acid fast bacilli, sputum for culture and sensitivity test, chest radiograph and a Mantoux test. The full blood count test showed that the patient had mild anaemia with normal white cell count and ESR (Table 1). The mild anaemia could be due to the underlying chronic disease or malignancy in this case. The tuberculosis workout was negative in view of the negative findings for the acid fast bacilli and Mantoux test (Table 2).

However, her CXR which was done in the clinic showed an ill-defined opacity and consolidation at the right middle lobe, with an ill-defined mass obscuring right heart border. There was a large right pleural effusion with an elevated right horizontal fissure seen (Figure 1). Subsequently Computed tomography (CT) scans (Figure 2) and bronchoscopic guided biopsy

of the chest were done two weeks later. There was an irregular heterogeneously enhancing mass with necrotic component at the lower lobe of the right lung medial segment, measuring about 4.5 x 4.3x 7cm. It showed a metastatic nodular lesion in the apical segment of the right lung's lower lobe. The left lung was clear and right hilar lymph node was enlarged by 2.1 cm. The right moderate pleural effusion was also present and two hypodense lesions were noted in the liver as well. Histopathology examination revealed a moderately differentiated adenocarcinoma (stage 4 N2 M1b) of the lung.

Patient's Progress

Despite being treated with targeted therapy (Gefitinib), the patient developed brain metastasis. Her condition deteriorated and she succumbed to the disease 18 months after the diagnosis.

DISCUSSION

A delay in any diagnosis of cancer is associated with substantial disability to patients (Phillips Jr., Bartholomew, & Dovey, 2004) and more recently, malpractice claims from physicians or hospitals (Singh, Sethi, & Raber, 2007).

Basically, delays could be due to three factors. Firstly, the delay could be due to patient's factors whereby the patient delays her/his decision in consulting a doctor when the symptoms first present. Then, the patient may have poor adherence to the advice or appointment, or she/he may ask for a second opinion from different health care centres, which can subsequently contribute to late diagnosis (Corner, Hopkinson, & Roffe, 2006). Secondly, physician's factors such as misinterpreting symptoms and treating the disease as some other diseases which share similar presentations cause a delay in referral. Thirdly, "system" factors where there is a long waiting period for appointments, imaging or diagnostic tests (Devbhandari, Bittar, & Quennell, 2007) often cause further delay. Besides all the above factors, there is more delay for treatment to be initiated upon diagnosis by the specialist. In other words, it may take around 3 to 7 months from the time of presentation before the treatment is started (Eija-Riitta, Sällinen, Hiekkanen, & Liippo, 2005).

The delay in the interval between the first symptom and patient's presentation to the clinic is complex (Muers, Holmes, & Littlewood, 1999). In this patient, she took 10 weeks before she first consulted a doctor. This is longer compared to another study, which reported that the mean interval between the first symptom and patient's visit to the family doctor was 21 days (Koyi, Hillerdal, & Brandén, 2002). The most common reason for the delay in the first consultation was the patient's perception that the present complaint was not serious (Ellis & Vandermeer, 2011).

Meanwhile, the delay between the first consultation to the primary-care doctor and a confirmed diagnosis in the secondary care are important issue highlighted in this patient. The primary-care doctor is often very busy and can easily miss the early signs and symptoms of lung cancer, especially if the suspicion is not kept at the back of the mind (Bjerager *et al*., 2006). This may cause the patient to go for doctor shopping, although this is not the case here. On top of that in the Malaysia present, neither has any established cancer control programme,

nor any policy for early detection of any cancer.

This may be quite challenging for the doctor who first saw her to reach the correct diagnosis. This is because her presenting symptoms could be due to the underlying infections like pneumonia or pulmonary tuberculosis, which is relatively more prevalent in Asian countries like Malaysia. To further complicate matters, lung cancer also commonly presents initially with chest infection (Singh *et al*., 2010), 2010). However, test for sputum acid-fast bacilli (AFB) should be performed by the doctor who initially saw her in view of the high prevalence of pulmonary tuberculosis in the local setting. In a case where the sputum AFB is negative in the presence of an abnormal CXR finding, the patient should be referred for an early CT scan or seen early by the chest physician for further evaluation. Despite haemoptysis being one of the cardinal and pertinent features of lung cancer (Hamilton, 2005), this symptom did not manage to alarm the doctor attending to this patient as she was neither given a follow-up or a referral following the first consultation.

The delay in diagnosis of this patient could be avoided if the initial doctor had monitored the patient's progress by giving a follow-up or a safety netting where she needed to come back for re-evaluation if the condition did not improve. Studies have shown that the duration of delay in diagnosing lung cancer could be shortened to 19 days if the predictors of missed opportunities for early diagnosis of lung cancer can be recognised (Singh *et al*., 2010). The predictors identified from this study are: recurrent bronchitis (odds ratio [OR], 3.31; 95%CI, 1.20 to 9.10), failure in following up an abnormal chest X-ray (OR, 2.07; 95% CI, 1.04 to 4.13) and completion of first needle biopsy (OR, 3.02; 95% CI, 1.76 to 5.18).

As for the screening of asymptomatic lung cancer, studies have shown that using a low dose-computed tomography demonstrated 20% reduction of lung cancer compared with screening with a chest radiograph (Jett, 2012). However, with limited resources and possibility of high false positive (24.2%), the authors are still uncertain of its role as a tool for screening for lung cancer in an asymptomatic patient.

CONCLUSION

In conclusion, a higher index of suspicion of lung cancer is needed in a symptomatic non smoker, female patients. The clinical features may mimic other lung conditions. Thus, close follow-up for the response of a patient to treatment is of utmost importance, and if there is no response then referral is warranted.

TABLE 1
Full blood count of the patient

Full blood count	Result	Reference Range
Haemoglobin	11.8	(12.0-15.0)g/L
White blood count	4.1	(4-10) × 10^9/L
Platelet	336	(150-400) × 10^9/L
ESR	34	mm/hr

TABLE 2
Tuberculosis workout

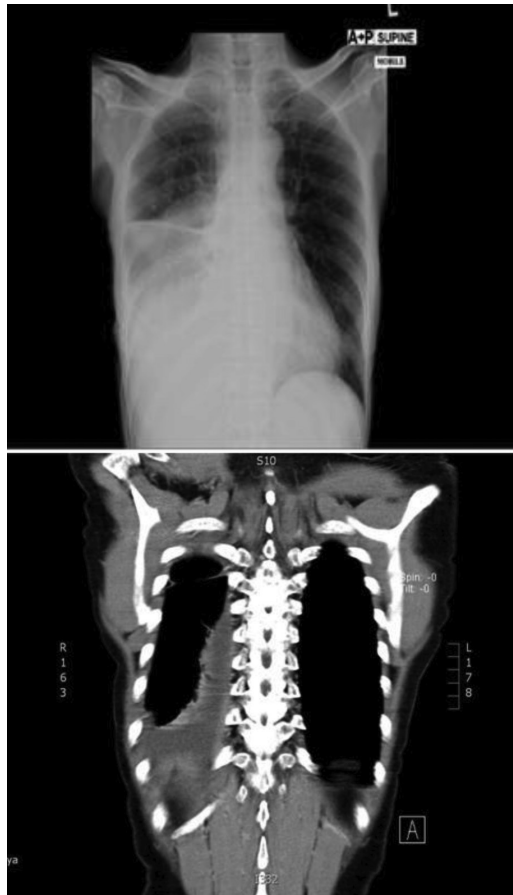| Tuberculosis workout	Result	Reference Range
Sputum culture and sensitivity	Normal upper respiratory tract flora	
Sputum acid fast bacilli × 3	Negative	
Mantoux test	No induration	(<10 mm)

Fig.1 and Fig.2: Chest radiography (left) and CT scan
of the patient shows a right pleural effusion (right)

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