Learning from errors

Undue delay in the diagnosis of lung cancer due to the clinician's preoccupation with pre-existing tuberculosis

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Summary

The authors report the case of a seminomadic older patient who had already received a course of antitubercular treatment and within a few weeks of completion suffered resurgence of symptoms. His treating physician assumed it to be relapse of tuberculosis and hence re-started the patient on antitubercular treatment. Though the mass lesion on CT scan procured by the primary care physician suggested the possibility of a neoplasm, areas of necrosis within the mass led to a 'cavitary appearance', which unfortunately happens to be a feature of tuberculosis. Once the patient presented to the authors, they performed cytological investigations which established that the patient had lung cancer co-existing with tuberculosis, which indeed was the reason for his progressive symptoms in spite of antitubercular treatment.

BACKGROUND

We endeavour to publish this report so that we share the lessons we learnt in the course of managing this patient. Our patient was a known sufferer from tuberculosis and the 'confirmed status of tuberculosis' led to the delay in the detection of co-existing lung cancer.

Tuberculosis is a very common disease in the developing world. There is also a rising incidence of lung cancer in the developing countries. So, of late, one must be prepared to expect the coincidence and coexistence of these two diseases, which often have overlapping symptomatology.

CASE PRESENTATION

Prior to his presentation to us, our patient, a gentleman aged 62 years was diagnosed with 'sputum-positive' tuberculosis at a local health centre. He was started on the appropriate multi-drug protocol of antituberculosis treatment (ATT) which lasted for a span of 6 months during which the patient had a subjective feeling of gradual improvement.

But 3 months after completion of ATT, he had reported back to his primary care physician owing to resurgence of cough and fever. He was declared as a 'treatment failure-relapse' since his sputum smear was positive for acid-fast bacilli. Soon after he was re-started on ATT, he had an episode of haemoptysis. His primary care physician procured a CT scan of the thorax and yet, was not referred to a specialty centre. He was continued for another 3 months of ATT. However, since there was no improvement with continued ATT, he was referred to us.

The patient presented to us with a Karnofsky Performance Status score of 70. We requested a detailed history of his previous symptoms and treatment. He reported that no chest radiograph was procured during or after the course of his ATT. His history for the period after resumption of ATT was the most informative. There was a rapid increase

in symptoms such as dyspnoea, cough and blood tinged expectoration- all within a span of 4–6 weeks.

INVESTIGATIONS

We first reviewed the CT scan films which his primary care physician had earlier ordered. We noted a mass lesion in the right lung (figure 1). The mass was peripherally located with areas of cavitations presumably owing to necrosis. We obtained bronchoscopic washings and CT-guided fine needle aspiration cytology (FNAC).

The bronchial washings were positive for both malignant cells as well as for acid-fast bacilli. Cytology demonstrated a moderately-differentiated squamous cell carcinoma. So, our patient was positive for carcinoma as well as tuberculosis.

DISCUSSION

The presence of lung cancer co-existing with tuberculosis could have been masked due to the fact that both diseases have overlapping symptomatology, and also probably to the lack of suspicion on part of the patient's primary care physician.

The profile of the typical patient with tuberculosis and that of a patient with lung cancer have many things in common. Both of these diseases are known to be silent in the early stages, with innocuous symptoms such as a chronic nagging cough. Many of these patients may have pre-existing lung disorders such as chronic bronchitis which in themselves could cause symptoms which may blur the onset of symptoms of either lung cancer or tuberculosis. Even in the advanced stages, both tuberculosis and lung cancer have much in common. Haemoptysis, dyspnoea, chest pain, weight loss and a febrile state may be seen in either of these diseases.

Radiological appearances may not always be differential- especially when the lung cancer in the apex may coexist with a 'primary complex' in the same area. The

Figure 1 CT scan of the patient showing a large mass with cavitations.

presence of cavitation in tubercular lesions is a well-known finding. But, cavities occur in lung cancer too- a big tumour with a central area of necrosis may cause the radiological appearance of cavity. Hilar and mediastinal lymphadenopathy may well be seen in both of these diseases.

It is a known fact that tuberculosis can be a predisposing factor for lung cancer. The increased incidence of lung cancer in tuberculosis patients warrants more oncological vigilance in patients of tuberculosis. Any treated patient with tuberculosis who presents with resurgence of his symptoms should undergo an evaluation to rule out relapse of pulmonary tuberculosis and lung cancer.^{1 2}

But in the case of our patient in whom there was no significant time lapse between tuberculosis and cancer it is possible that cancer developed independently of tuberculosis. Unfortunately, in our patient, no radiological imaging was performed throughout the 6 months of the initial antituberculosis treatment. But, at the same moment, it would be wrong on the part of the authors to place any blame on the primary care physician- given the fact that the patient was a seminomadic resident of a remote village in a mountainous terrain, and that regular follow-up, though desirable, would be extremely difficult for the patient to comply with. In fact, it may even applause can be justified, given that the patient at least did present himself for

treatment of tuberculosis. However, we do have lessons to take from this unfortunate situation.

First, even a single chest radiograph, if obtained during the course of the ATT could have resulted in an early diagnosis of lung cancer. That would have been a potential curative situation, given that radical surgery is the treatment of choice for lung cancer coexistent with tuberculosis.²

Second, a very high clinical bias for tuberculosis exists among primary care physicians practising in areas with high burden of tuberculosis. This bias could be so high that many physicians rarely think about the other causes of radiological lesions within the lungs.

Third, it would be impossible to radiologically distinguish tuberculosis from lung cancer. After all, in the words of Beyers (1979), 'Radiography is merely a two-dimensional demonstration of a lesion in different shades of white, grey and black'.³ Three decades later, even with many newer radiological modalities, we can safely state that radiology is not advanced enough to serve as a fool proof alternative to tissue diagnosis.

Patients with tuberculosis have a three to fifteen fold increase in the risk of developing lung cancer.^{1 4} Hence, the evaluation of suspicious lung lesions with cytological or histological methods may reduce the chances of overlooking the presence of lung cancer in patients with tuberculosis.

Learning points

- ▶ In countries with high burden of tuberculosis, it is important to know that any symptomatology in a known patient with tuberculosis need not be always because of tuberculosis alone.
- ▶ Patients with tuberculosis are at a higher risk of developing lung cancer and hence a cautious vigilance against lung cancer is warranted.
- ▶ Radiological means such as conventional radiography and CT scans cannot conclusively differentiate between lung cancer and tubercular lesions.
- ▶ Bronchoscopic biopsies or CT-guided FNAC can help rule out lung cancer in this population with a higher risk of lung cancer.

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