

ENDOBRONCHIAL TUBERCULOSIS MIMICKING PULMONARY NEOPLASM

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ABSTRACT.

A 64-year-old Chinese lady presented to us with three months history of chronic dry cough and weight loss without haemoptysis. There was no fever. She had never smoked. Initial chest x-ray (CXR) and thoracic CT showed left upper lobe collapse for which she underwent bronchoscopy. The appearance was suggestive of submucosal tumour. She needed a second bronchoscopy that showed caseating granuloma and smear positive for tuberculosis. She made good clinical recovery with anti tuberculosis treatment but review CXR at four months showed a mass lesion in the left apex for which she underwent fine needle aspiration cytology. This showed healing granuloma compatible with tuberculosis. This case was unusual to us because it had led us to believe that we were dealing with malignancy twice.

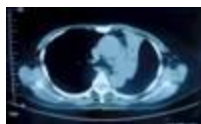
INTRODUCTION.

Endobronchial tuberculosis (ETB) is an infection caused by mycobacterium tuberculosis (MTB) in the bronchial wall. The diagnosis is usually established by culture of MTB from bronchoscopic biopsy materials. The clinical, radiological and bronchoscopic presentations of ETB is non-specific and can be easily confused with common pulmonary disorders such as malignancy or foreign body aspiration. ETB afflict all ages but there is predilection for patients with HIV infection^[1]. This report is about a case of ETB that had mimicked lung cancer in the way it had presented and progressed with treatment.

CASE PRESENTATION.

A 64-year-old Chinese lady was referred to our chest clinic with a history of chronic cough lasting for 3 months. Occasionally the cough was productive of yellowish phlegm. She denied any episode of haemoptysis, chest pain, fever or dyspnoea. No other symptoms were offered on further questioning except for 4 kg weight loss over the same time period. She had hysterectomy many years ago for menorrhagia and recently underwent total thyroidectomy for an overactive thyroid. She had never smoked and neither had her husband who was a retired teacher. She herself was never employed outside the house. There was no history of diabetes or hypertension and her only regular medication was oral oestrogen for hormone replacement therapy. Clinical examination was unremarkable except a visible thyroidectomy scar and a palpable smooth, non-tender enlargement of the right thyroid gland (1cm x 2 cm x 1cm). Palpation of her breasts and lymph nodes areas were unremarkable.

Her initial chest radiograph (CXR) showed typical collapse of the left (L) upper lobe (figure 1) which was illustrated further on thoracic CT scan (figure 2).



(Please click on the images to get the large image and legend)

Fig. 1

Fig 2

All other blood investigations (including full blood count, urea and electrolytes, serum calcium, serum carcinoembryonic antigen level, serum CA 125 level, serum T4 and TSH) were normal

except an elevated erythrocyte sedimentation rate at 44mm/hour. Her Mantoux test was negative at 7 mm (more than 10mm was considered positive). Based on the history and initial radiological investigations she was investigated for suspected malignancy. She underwent bronchoscopy that showed narrowing of the L upper lobe bronchus with submucosal mass. There was also prominent contact bleeding. The results of transbronchial biopsy (TBB), bronchial washings (BW), and bronchial aspirate (BA) did not yield any positive results for malignancy. In addition we were also concerned with the possibility of metastatic endobronchial neoplasm. This led us to perform screening tests for other possible primary sites with mammography, CT scan of her pelvis and abdomen. The results of all these investigations were normal.

She underwent a repeat bronchoscopy and on this occasion TBB showed caseating granuloma (figure 3) and the smear for acid-fast bacilli from bronchial biopsy (figure 4) was also positive for MTB. Surmounted by these results, our initial suspicion of malignancy subdued and she was commenced on anti-TB treatment.

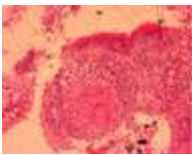


Fig.3

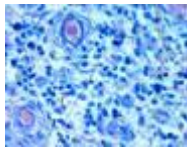


Fig.4

She made good clinical and radiological improvement during the intensive phase of the treatment (2HRZE) and was subsequently switched to a biweekly regime of 4H2R2. Clinic review at 4 months treatment however showed a new lesion appearing in the L apex on her CXR. Again the suspicion of coexisting malignancy resurfaced and a CT Thorax (figure 4) showed a mass in the apico-posterior segment of the L upper lobe for which she underwent CT-guided fine needle aspiration cytology (FNAC).

The collapsed L anterior segment of the L upper lobe seen in previous CT scan has disappeared. The FNAC result on this occasion was compatible with healing tuberculosis (figure 5). She finished the scheduled 6 months anti-TB treatment and has remained well one year after the treatment was stopped. Her most recent CXR was stable. We concluded that she had endobronchial tuberculosis with left upper lobe collapse mimicking pulmonary neoplasm in terms of the clinical and radiological presentations. Her radiological progression during treatment was also a cause for alarm for us in managing her.

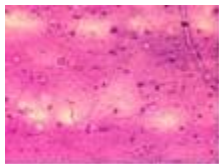


Fig. 5

DISCUSSION.

ETB is uncommon and the presentation can be misleading and lead clinicians to believe that they are dealing with malignancy. It has been known to occur more commonly in females but some studies have pointed to a greater incidence in men^[2]. The rate of ETB resulting from parenchymal involvement varies from 10% to 40 % and 40% to 80% depending on the way the rates were reported^[3]. ETB may also occur from previous infection of bronchoganglionic lesions

and this usually explains the occurrence in patients without parenchymal involvement^[4]. In this case, ETB occurs through reactivation of these dormant lesions. This may be the case in our patient.

The pathogenesis of ETB in children is from progressive primary tuberculosis from intrathoracic lymph node involvement^[5]. In adults ETB can occur from direct extension of caseous material from parenchymal involvement to cause endobronchial lesions. The clinical features of ETB are numerous. They include cough, dyspnoea, weight loss, fever, haemoptysis or wheezes from localised stenosing lesions^[6]. If ETB were the result of parenchymal involvement, all the systemic symptoms usually related to pulmonary TB would be evident.

The radiologic evidence of ETB includes consolidation/atelectasis, parenchymal involvement, lymphadenopathy or obstructive emphysema. Occasionally the CXR could be entirely normal. The bronchoscopic findings may include actively caseating lesions, hyperaemic mucosa, fibrostenotic or tumorous lesions and non-specific bronchitis^[7]. ETB can be confused for lymphoma, sarcoidosis^[8], asthma^[9], foreign body aspiration^[10] or cancer^[11]; the latter is especially true in the elderly population. Coexistence of malignancy with pulmonary TB is well recognized.

ETB should be treated in the same way as pulmonary tuberculosis with the combination of multiple drugs. Sputum conversion rate at 2 months treatment occurs in the majority of cases^[3] but the occurrence of bronchostenosis is not altered with treatment. The use of prednisolone has also not been useful in terms of avoiding this complication^[12]. ETB is not commonly encountered and can be confused with malignancy. It should always be borne in mind especially in places where TB is endemic. Diagnosis often involves a combination of radiological investigations and bronchoscopy to obtain tissue samples with which to confirm ETB with direct smear and culture for MTB.

The case we reported led us to believe that we were dealing with malignancy in terms of the way it had presented both clinically and radiologically. Our investigation results however showed that we were dealing with ETB. We were contented with the diagnosis until a review CXR showed a new lesion appearing at the left apex. Our suspicion of coexistent malignancy resurfaced and was proved unjustified by the result of the FNAC. We were unaware of paradoxical worsening of TB in immunocompetent subjects (our patient is HIV negative) although this is well known to occur in HIV infected patients^[13],^[14]. We reported this case because it had led us to believe that we were dealing with malignancy twice, at presentation and during the course of treatment.

FIGURE LEGENDS:

Figure 1. Chest radiograph in the PA projection showing the typical features of left upper lobe collapse sparing the lingula.

Figure 2. Axial CT with the patient in the prone position during CT-guided fine needle aspiration. This shows the needle tip within the new lesion discovered in the apico-posterior segment of the left upper lobe.

Figure 3. Transbronchial biopsy shows epithelioid cell granuloma with lymphocytic infiltrate. (H&E x 100)

Figure 4. Acid-fast bacilli are seen in the bronchial biopsy. (Ziehl Nielsen x 1000)

Figure 5. CT guided fine needle aspiration cytology of the lung lesion shows necrosis with spotty calcification with scattering of lymphocytes. (MAG x 100)

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