

Non-Hodgkin's Lymphoma mimicking Bronchogenic Carcinoma

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Section: Chest imaging

Case Type: Clinical Cases

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Patient: 43 years, male

Clinical History:

A 43 year old, former intravenous drug user, presented with two week history of left sided pleuritic chest pain and dyspnoea.

Imaging Findings:

A 43 year old male, former intravenous drug user (quit 5 years ago), was admitted to the accidents and emergency department with a 2-3 week history of left sided pleuritic chest pain and dyspnoea. There was mild cough with yellow sputum. He denied haemoptysis, weight loss, night sweats, recent foreign travel, surgery or immobility. He was tachypnoic at rest, had early clubbing and oxygen saturations 64% on air which improved to 91% on 15 litre O₂. Chest examination showed dull percussion at left base with reduced breath sounds on auscultation. ABG showed severe type 1 respiratory failure (pO₂ of 5.7 kPa). Chest radiography demonstrated left lower lobe collapse/consolidation. Routine blood tests were unremarkable and HIV test was negative. CT chest suggested advanced left sided bronchogenic malignancy with left atrial, aortic and pulmonary artery infiltration. Flexible bronchoscopy showed large tumour occluding the left main bronchus. Biopsy showed necrotic material only. After case discussion in a multidisciplinary meeting, the patient was started on dexamethasone and was referred to the oncology team. Meanwhile he complained of dysphagia; endoscopy showed candidiasis which was treated with fluconazole. He was seen by the oncology team three days after he was started on dexamethasone and they found marked improvement in his symptoms. The follow up CT of chest and bronchoscopy showed marked reduction in the size of the tumour. He had mediastinoscopy and biopsy confirmed the diagnosis of diffuse Large B Cell, Non-Hodgkin's Lymphoma. He was treated with chemotherapy.

Discussion:

Our case illustrates that lymphoma can mimic lung cancer clinically, radiologically and bronchoscopically. Lymphomas are a heterogenous group of diseases caused by malignant lymphocytes. These are divided into Hodgkin's and non-Hodgkin's lymphomas based on histological presence of Reed-Sternberg (RS) cells in Hodgkin's lymphoma.

Non-Hodgkin's lymphomas are tumours originating from lymphoid tissues and represent progressive clonal expansion of B cells or T cells and/or natural killer (NK) cells, involving genetic lesions. Chromosomal translocations play an important role in the pathogenesis of many lymphomas. Some viruses like Epstein-Barr virus, Human T-cell leukemia virus type 1 and Kaposi sarcoma-associated virus are implicated in pathogenesis. These lymphomas are more common in immunosuppressed patients. A small number of lymphomas originate from chronic antigen stimulation like Helicobacter Pylori infection appears to be possible causative agent for the development of gastric mucosa-associated lymphoid tissue (MALT). Non-Hodgkin's lymphomas are being classified according to various

schemes, but REAL (Revised European-American Lymphoma) classification and WHO (World Health Organisation) classification are commonly used.

The clinical features depend on factors such as the location, the rate of tumor growth, and the function of the organ being compromised or displaced by the malignant process. The most common intrathoracic manifestation of non-Hodgkin's lymphoma is mediastinal lymph node enlargement, seen in nearly 35% of patients. Bronchial obstruction or endobronchial involvement may occur but less frequently than in Hodgkin's lymphoma. Another intrathoracic manifestation of non-Hodgkin's lymphoma is pleural effusions, which can be exudative or chylous.

Chest radiographic findings in Non-Hodgkin's Lymphoma include alveolar opacities (masses, consolidation or nodules) and peribronchial disease. Other findings include chest wall, pleural and pericardial involvement. For the confirmation of diagnosis, histology from biopsy of a lymph node, bone marrow or extra nodal mass is essential.

Accurate staging is essential to tailor appropriate therapy. CT is readily available and widely used for initial staging, but has the inherent limitation that the size of lymph nodes may not reliably indicate presence or absence of malignancy. CT is also used for assessing treatment and conducting follow up care. PET/CT scan is increasingly used to obtain functional and anatomical data that can result in alteration of clinical staging and management decisions. In a study of 103 consecutive newly diagnosed patients, addition PET/CT to CT scan changed the management decisions in approximately a quarter of non-Hodgkin's and a third of Hodgkin's lymphoma patients, mostly in early disease stages.

The treatment options of non-Hodgkin lymphomas depend on tumor stage, phenotype (B-, T- or Natural Killer cells), histology (low-, intermediate-, or high-grade), symptoms, performance status, comorbidities and the patient's age. The treatment options are radiotherapy, chemotherapy (most common is CHOP regime) or combination of both. The role of surgery is limited, useful in selected patients, especially if the disease is localized.

Differential Diagnosis List: Diffuse Large B Cell Non-Hodgkin's Lymphoma

Final Diagnosis: Diffuse Large B Cell Non-Hodgkin's Lymphoma

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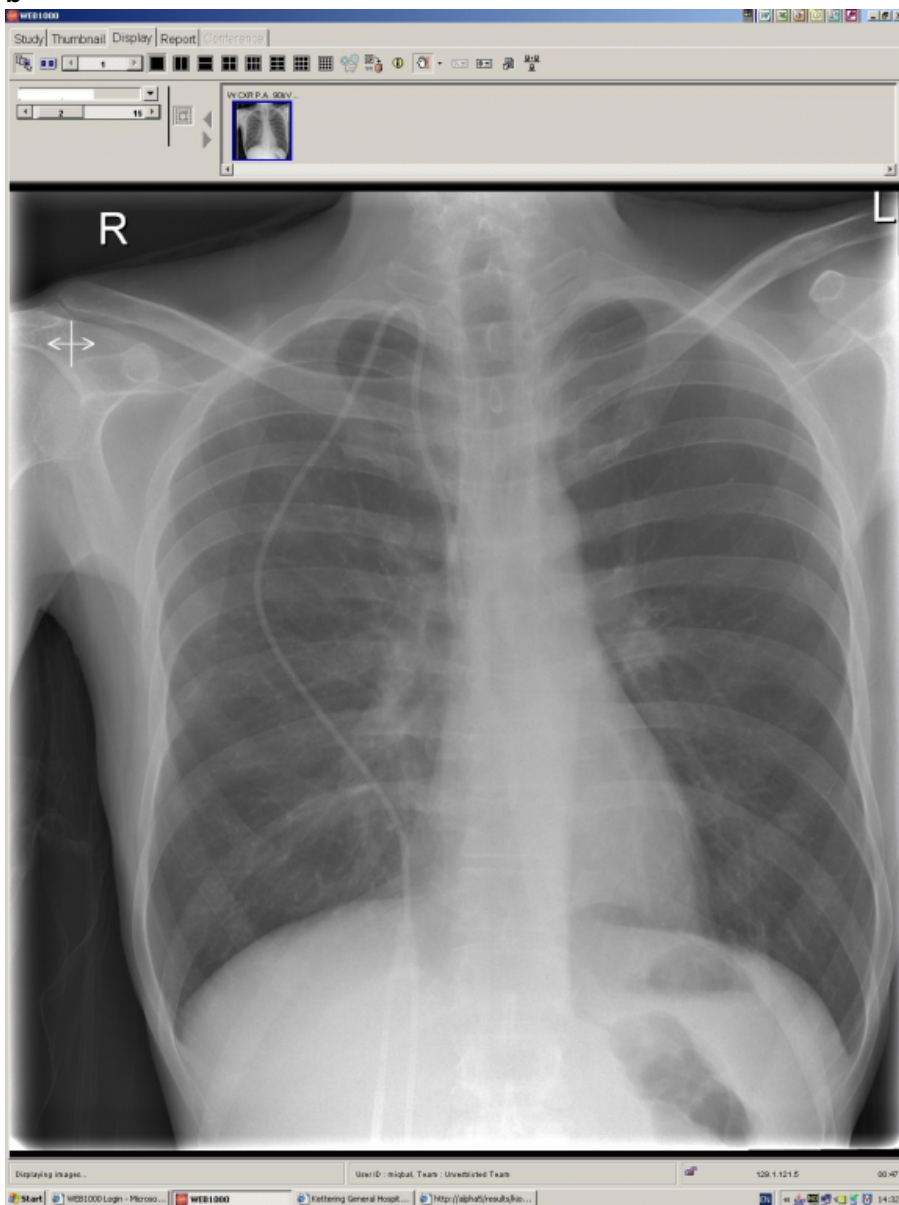
Figure 1

a



Description: There is collapse of the left lower lobe and patchy consolidation in the remaining left upper lobe. The whole mediastinum is shifted to the left. **Origin:**

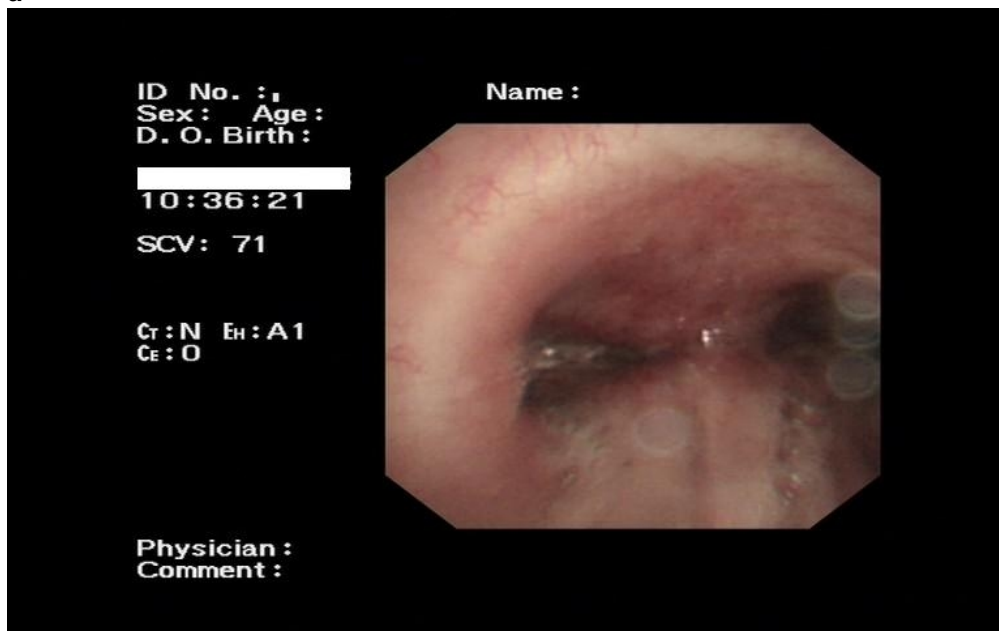
b



Description: This chest Xray which was done after the patient was started on chemotherapy showed clear lung fields. Hickman line in situ. **Origin:**

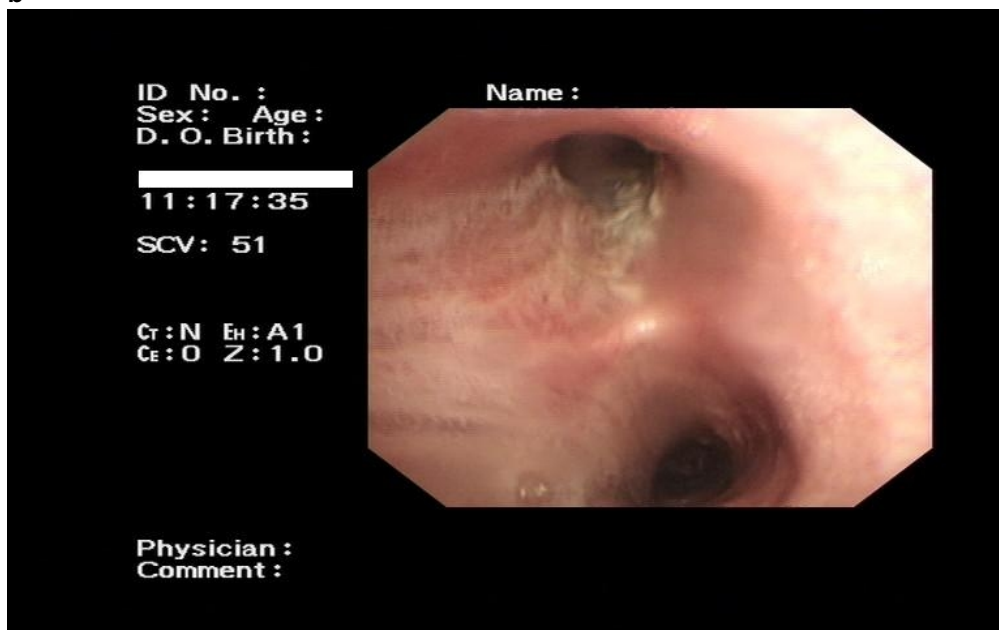
Figure 2

a



Description: The first bronchoscopy showed large tumour obstructing left main bronchus. **Origin:**

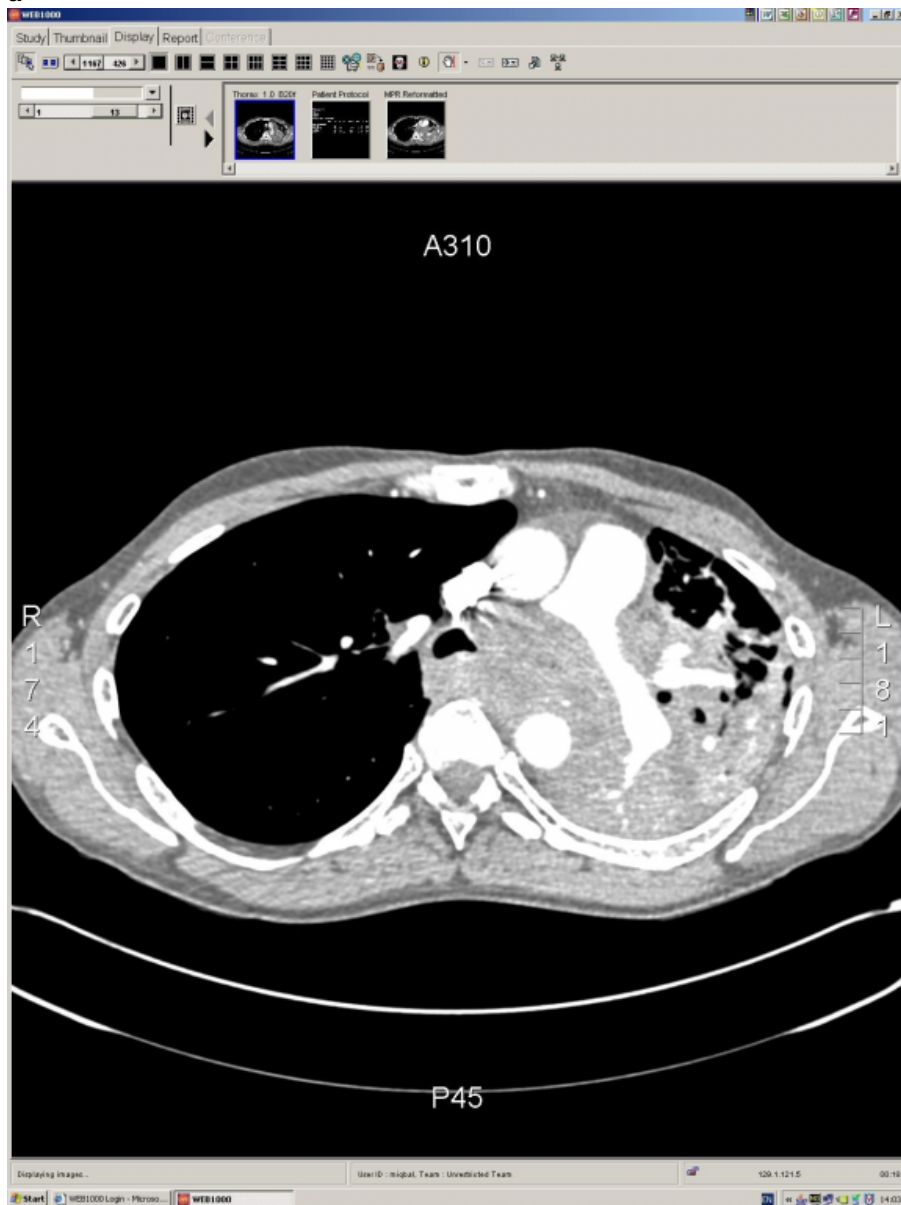
b



Description: Repeat bronchoscopy, done seven days after the first one, showed resolution of previous noted tumour. **Origin:**

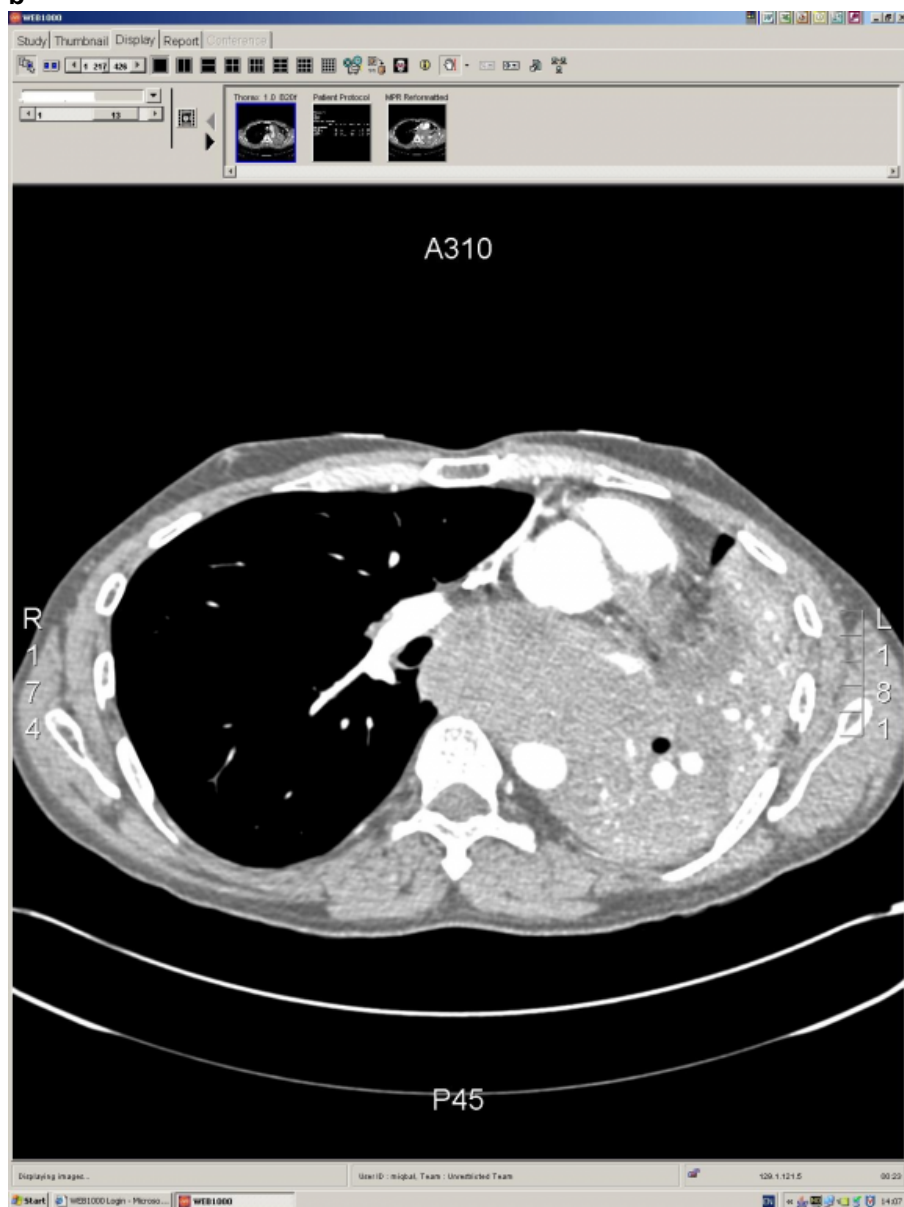
Figure 3

a



Description: There is a very large central left sided mediastinal mass measuring more than 10 cm in maximum diameter. This has occluded the left main bronchus and caused complete collapse of the left lower lobe. **Origin:**

b



Description: The mass also infiltrates the left atrium, the distal main pulmonary artery. **Origin:**

C

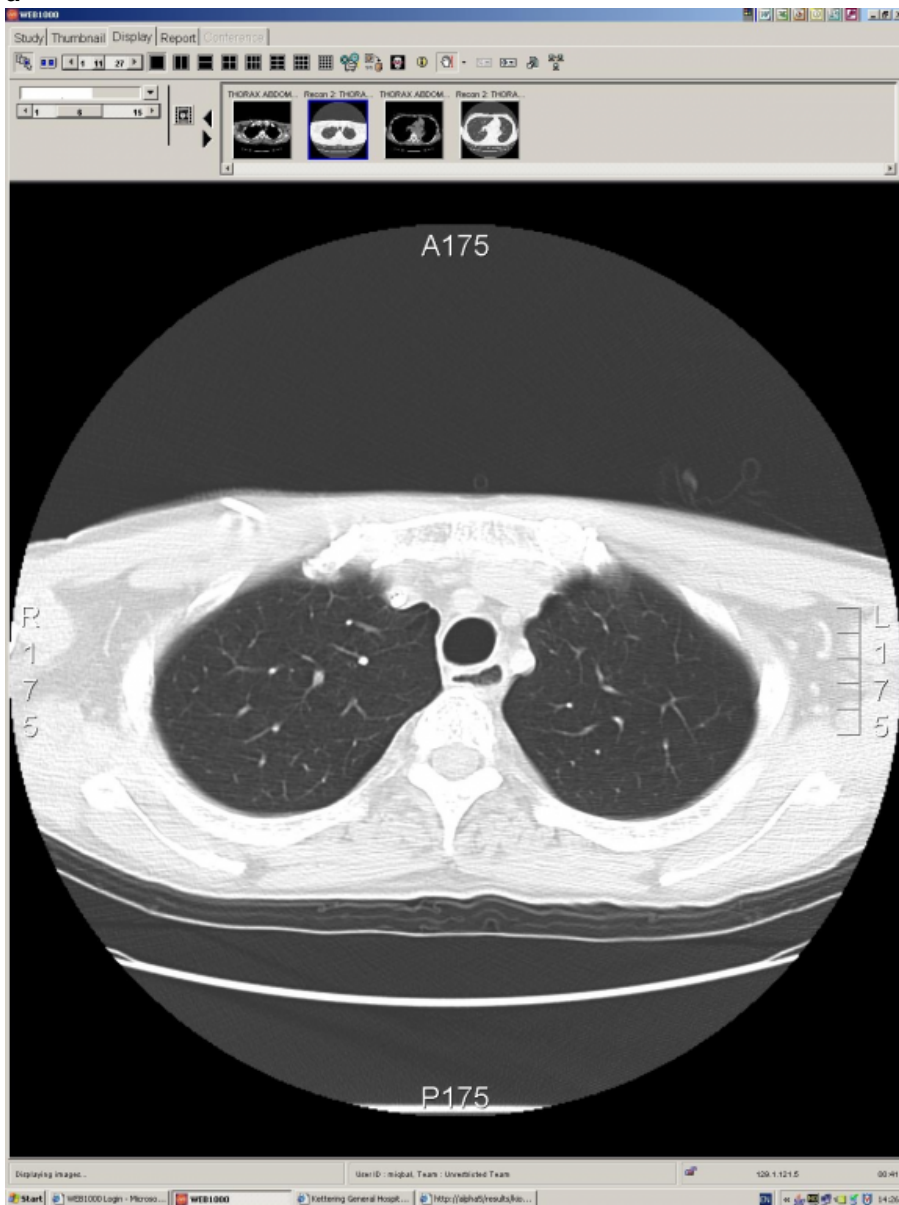


Description: CT appearances were very suggestive of advanced left sided bronchogenic carcinoma.

Origin:

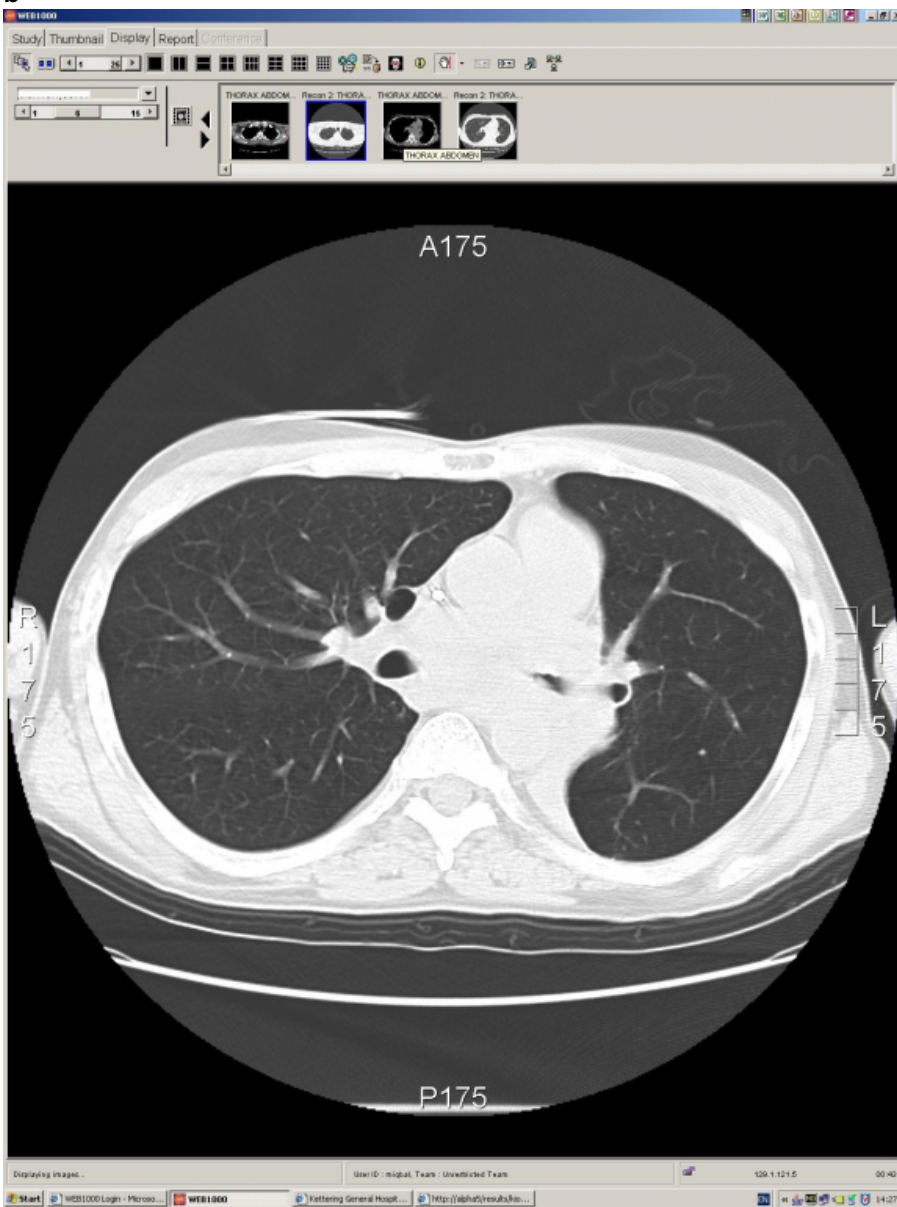
Figure 4

a



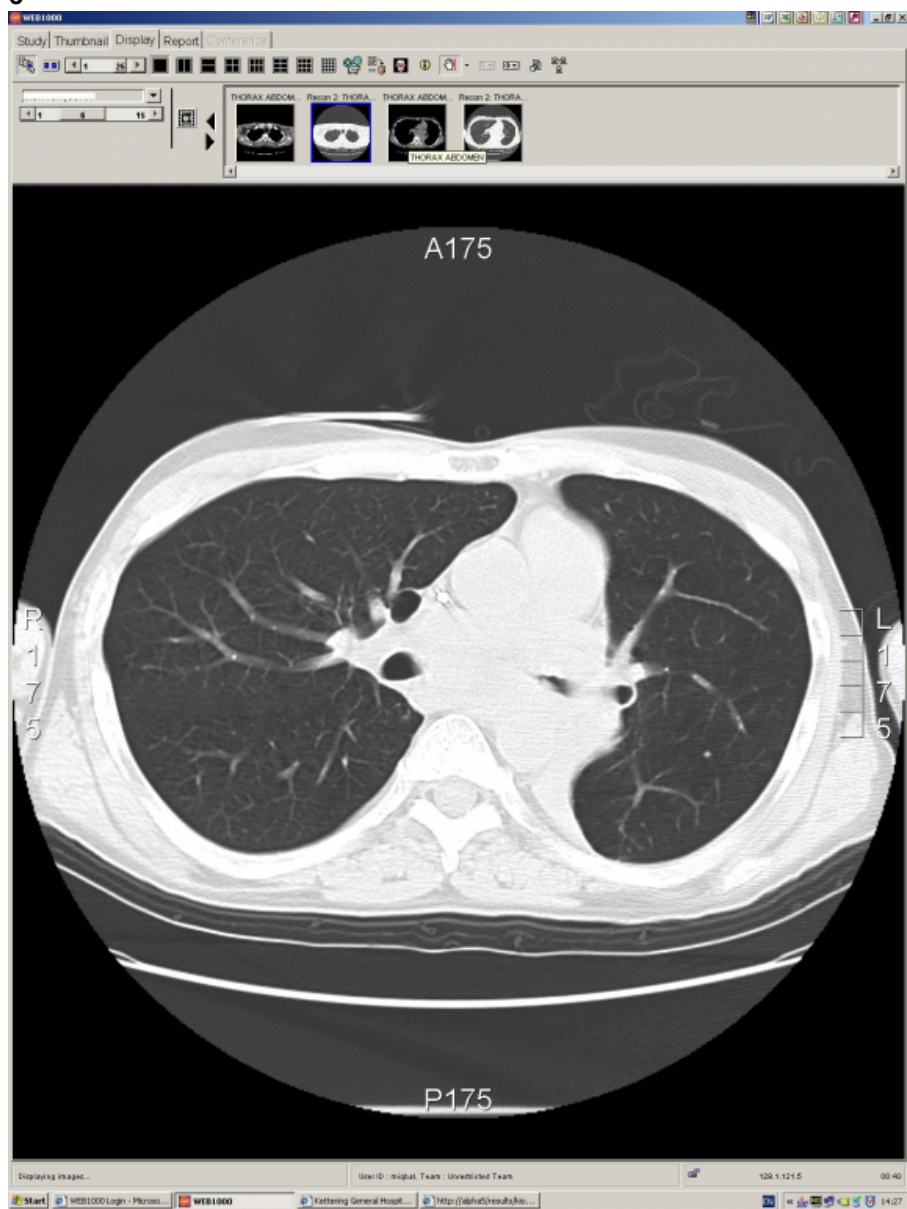
Description: Dramatic improvement of central left lung and mediastinal mass. **Origin:**

b



Description: The huge mass now confined to the subcarinal fossa. **Origin:**

C



Description: Origin: