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Case Report

Atypical Presentations of Lung Cancer: A Case Series

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Abstract

Primary Lung cancer is one of the most common cancers in United Kingdom with relatively poor prognosis compared to other types of cancers. In early stages of lung cancer there are usually no signs or symptoms. Many of the symptoms are nonspecific and their onset is gradual. Therefore, early detection and timely curative treatment remains a challenge. We present four cases of lung cancer patients with atypical presentations to a medium sized Secondary care Centre in United Kingdom followed by discussion on the importance of awareness of these symptoms among frontline primary and secondary care health professionals and need for high index of suspicion for lung cancer in high-risk groups [1].

Case 1: Knee Pain

A 63-year-old male, a retired CEO and an ex-smoker of 25 pack years, with history of moderate chronic obstructive pulmonary disease and hypertension presented to her general practitioner with bilateral knee pain ongoing for 6 months. He had no respiratory symptoms however had weight loss of about 6 kilos for 2 months. His examination revealed finger clubbing but was otherwise unremarkable. Knee x-ray (Figure 1) revealed bilateral periosteal reactions affecting the distal femur and proximal tibia suggestive of hypertrophic pulmonary osteoarthropathy. Chest x-ray (Figure 2) demonstrated a right apical lung lesion. CT chest (Figure 3) revealed a 3.3cm spiculated right apical mass associated with right hilar and mediastinal lymph nodes and bilateral lung nodules. CT guided lung biopsy confirmed primary lung adenocarcinoma.

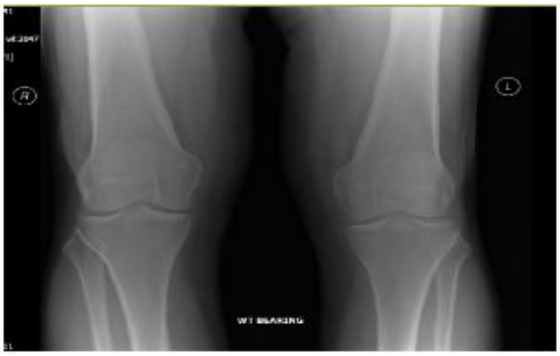


Figure 1: Knee x-ray: bilateral periosteal reactions affecting the distal femur and proximal tibia suggestive of hypertrophic pulmonary osteoarthropathy

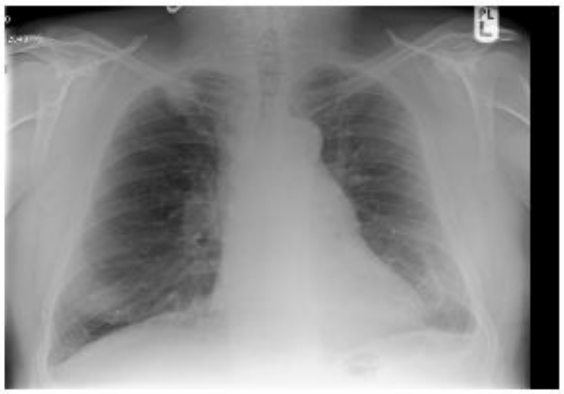


Figure 2: Chest x-ray: a right apical lung lesion.

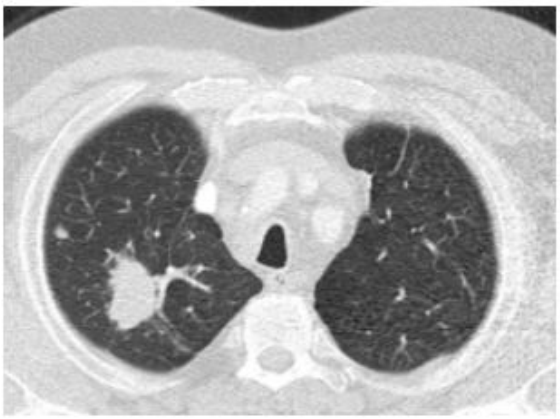


Figure 3: CT chest: a 3.3cm spiculated right apical mass associated with right hilar and mediastinal lymph nodes and bilateral lung nodules.

Case 2: Visual Disturbance

A 50-year-old lady nurse and a current smoker of 40 pack years, presented with visual disturbance that she reported as "Bumping into things". She also complained of headache over the previous few weeks. She had no significant past medical history and systemic enquiry was unremarkable. Her examination revealed a left homonymous hemianopia with a normal systemic examination. Blood results were normal.

CT head (Figure 4) showed a right parieto-occipital mass with surrounding white matter oedema and mass effect that was confirmed on MRI Brain (Figure 5). Subsequent investigation with chest x-ray (Figure 6) revealed left upper lobe lung mass and was confirmed on CT chest (Figure 7) and PET-CT (Figure 8). Staging CT demonstrated left apical mass with no mediastinal lymphadenopathy or metastatic disease. She was treated with Dexamethasone, which initially improved her symptoms. Gamma knife therapy was also initiated to treat the brain lesion. Following this, she had lobectomy and chemotherapy. Histology of the resection tissue confirmed primary lung adenocarcinoma.

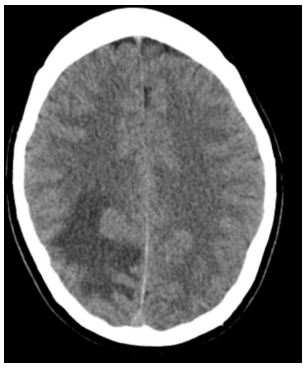


Figure 4: CT head.

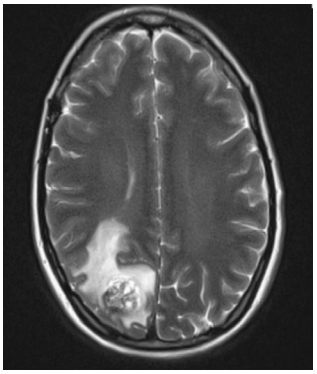


Figure 5: MRI Brain.

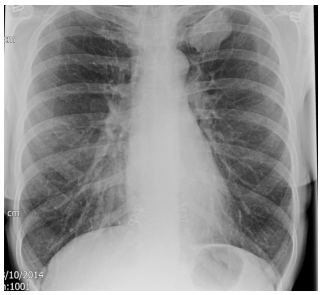


Figure 6: Chest x-ray.

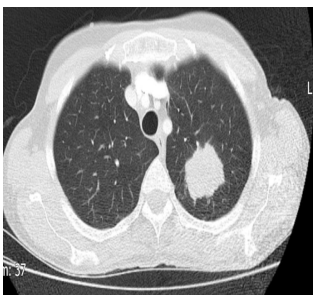


Figure 7: CT chest.

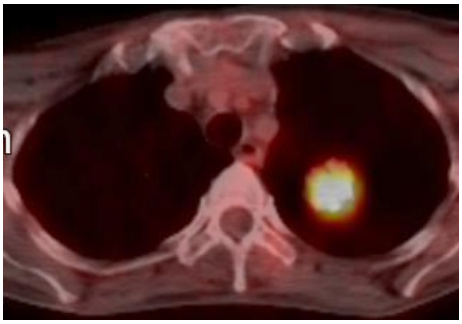


Figure 8: Left upper lobe mass measuring around 4.1cm with SUV max of 9.7.

Case 3: Shoulder Pain

52 years old non-smoking lady with history of hypertension and cholecystectomy presented to our emergency department with complains of severe left shoulder pain progressively worsening over a week, radiating to her left arm and neck. Her vital signs were normal. She had no digital clubbing or palpable cervical lymphadenopathy on examination. Shoulder and systemic examination were normal. Blood tests including cardiac enzymes were unremarkable. ECG was normal. Shoulder x-ray (Figure 9) revealed no fractures or dislocation, however mediastinal mass was noted. A subsequent chest x-ray (Figure 10) demonstrated superior mediastinal mass and elevated left hemi diaphragm.

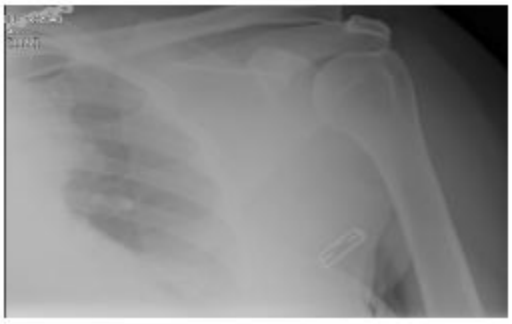


Figure 9: Shoulder x-ray.

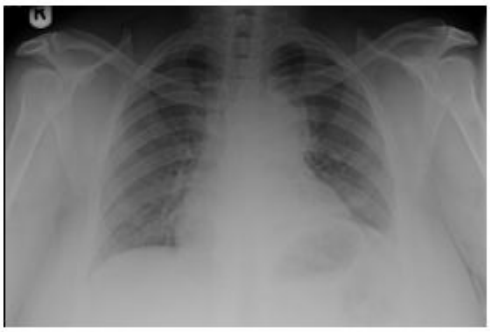


Figure 10: Chest x-ray.

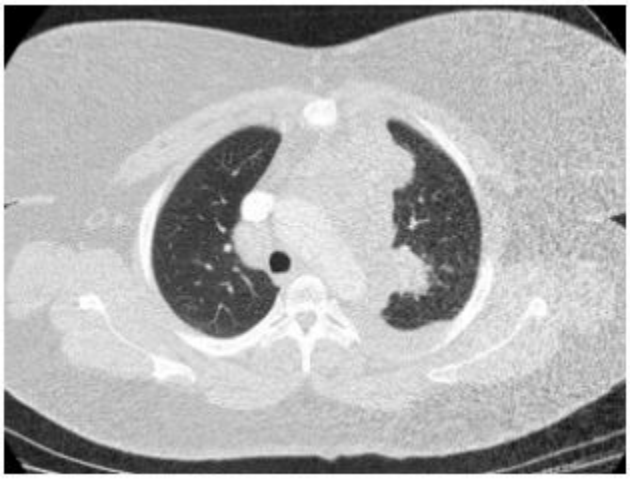


Figure 11: CT scan of solid mass in superior mediastinum with mediastinal and hilar lymphadenopathy.

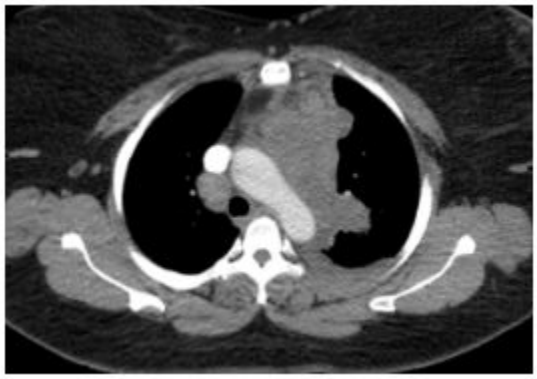


Figure 12: CT of Large irregular solid mass in superior mediastinum with mediastinal and hilar lymphadenopathy.

CT scan (Figures 11 and 12) demonstrated a large irregular solid mass in superior mediastinum with mediastinal and hilar lymphadenopathy. There was also a left lower lobe collapse with associated left pleural effusion. She had a CT guided biopsy that was initially reported as primary high-grade B cell lymphoma with a plasmablastic differentiation and upon second review confirmed undifferentiated carcinoma, most likely of neuro-endocrine origin.

Case 4: Abdominal Pain

A 63-year-old lady, retired catering worker and an ex-smoker of 40 pack years, presented to our emergency department with epigastric pain radiating to back and was associated with nausea and vomiting. She reported no other symptoms. Her medical history included well-controlled type 2 diabetes mellitus and hypercholesterolemia. Her vital signs were normal. She had tenderness on palpation in the epigastric region and her systemic examination was otherwise normal. Her blood results were unremarkable.

She was reviewed by the surgical team initially who had performed a CT abdomen that demonstrated significant lymphadenopathy in the mesenteric, retroperitoneal and para-aortic areas. The nodal disease around the pancreas caused pancreatitis, which may explain her initial presentation. She also had a Haemotological review and a bone marrow biopsy, which showed no evidence of lymphoma. Subsequent review by Respiratory physicians noted incidental left upper lobe mass on chest x-ray (Figure 13). A CT guided biopsy of the lung mass confirmed a metastatic adenocarcinoma consistent with primary lung adenocarcinoma. However, biopsy of the retroperitoneal lymph nodes showed histological features of a small cell lung carcinoma.

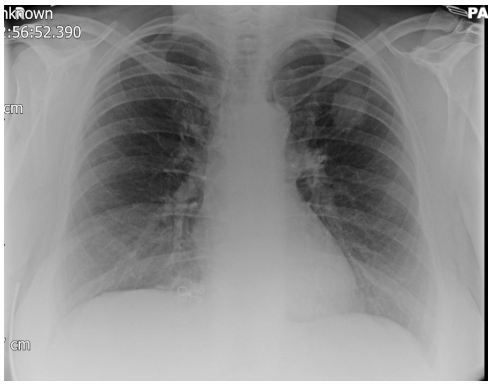


Figure 13: Incidental left upper lobe mass on chest x-ray.

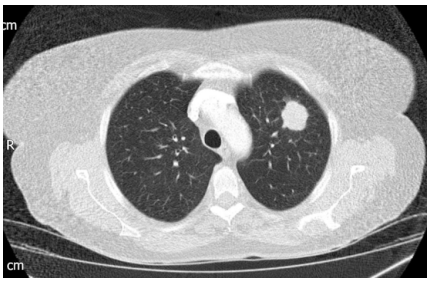
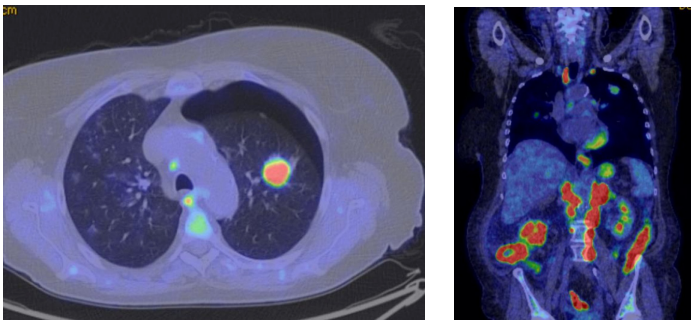


Figure 14: Left upper lobe mass.



Figures 15 and 16: showing PET-CT: widespread markedly avid (SUV max >10.0) nodal disease above and beneath the diaphragm with bilateral adrenal involvement. Left lung mass showed moderate FDG avidity (SUV max 8.4). Also note left side pneumothorax following lung biopsy.

Discussion

Lung cancer is the second most common cancer diagnosed in the UK [2] In 2011, around 43,500 individuals in the UK were diagnosed with lung cancer [2] and nearly 1.83 million new cases of lung cancer were diagnosed worldwide in 2012, with incidence rates varying across the world. Almost 9 in 10 lung cancers occurred in people aged 60 and over [2]. The male: female ratio is around 12:10 and previously this was around 39:10 in 1975, this variation reflects past trends in cigarette smoking prevalence [3].

A risk of developing lung cancer depends on many factors, including age, genetics, and exposure to tobacco smoke, ionising radiation, asbestos and other chemicals like arsenic, nickel and chromium. Tobacco smoking is the most important avoidable risk factor, which is linked to an estimate of 86% lung cancers cases in UK [2].

The common presenting symptoms of lung cancer include persistent cough, haemoptysis, dyspnoea, chest pain, and weight loss. Haemoptysis is the most important symptom associated with lung cancer, but this is reported as the first symptom in less than 5% of cases [4]. Other symptoms include fatigue, anorexia and hoarseness of voice. There is an overlap between these symptoms and those of chronic respiratory conditions that can delay diagnosis and early treatment, which may contribute to the poor prognosis [5]. Also, there is considerable delay in investigating patients with atypical symptoms like joint pain or fatigue than with typical symptoms like cough, haemoptysis and dyspnoea [6,7] Table 1.

Common symptoms and signs	Persistent cough
	Haemoptysis
	Dyspnoea
	Chest pain
	Weight loss and loss of appetite
	Hoarseness
	Tiredness or fatigue
	Recurrent chest infections
	Digital clubbing
Symptoms due to invasion or compression of intrathoracic structures	Dysphagia
	Superior vena cava obstruction: oedema and engorgement of the superficial veins of face, neck, arms and upper chest, headache, dizziness
	Pancoast tumours: shoulder pain and Horners syndrome (ptosis, anhydrosis, meiosis)

Symptoms related to distant metastases	Neurological defect or personality change from brain metastases
	Pain from bone metastases.
Paraneoplastic syndromes associated with lung cancer	Hypertrophic osteoarthropathy with digital clubbing
	Hypercalcemia from parathyroid hormone-related protein
	Hyponatraemia from antidiuretic hormone secretion
	Cushing syndrome from secretion of adrenocorticotropic hormone
	Paraneoplastic cerebellar degeneration
	Lambert-Eaton myasthenic syndrome.
Other manifestations	Venous thromboembolism
	Pleural effusion

Table 1: signs and symptoms of lung cancer.

In case 1, the patient had presented with knee pain with hypertrophic pulmonary osteoarthropathy changes. Hypertrophic pulmonary osteoarthropathy (HPO) is a rare paraneoplastic syndrome that is frequently associated with lung cancer; however, the incidence of clinically apparent HPO is not well known. The recent few studies have shown that the incidence is around 1.8% - 4.5% [7-9].

In case 2, the patient had hemianopia due of brain metastases secondary to lung cancer. The exact incidence of brain metastasis at initial presentation of lung cancer is not clearly known. In a Chinese population study, patients with brain metastases as the initial manifestation of their systemic cancer revealed that around 70% of the primary were lung cancer [10]. This highlights the importance of requesting chest imaging, particularly a CT chest as an initial screen when investigating the primary lesion of a patient presenting with brain metastases.

In case 3, patient had presented with severe shoulder pain. Shoulder pain is one of the common symptom presentations to general practice and therefore can be overlooked with patients with underlying malignancy. The exact incidence of shoulder pain in lung cancer is not known, however in a recent study around 16% patients of lung cancer presented with chest/shoulder pain as the first symptom [11]. Pancoast tumors can present with shoulder pain with other associated features as mentioned in Table 1.

In case 4, the patient had presented with abdominal pain and had significant abdominal lymphadenopathy raising the possibility of lymphoma as the primary diagnoses. Following further investigations, she was found to have lung cancer. Abdominal metastases of lung cancer are rare and are commonly clinically silent. The largest reported series have evaluated gastrointestinal (GI) metastases from lung cancer by autopsies: only 12% of patients with lung cancer present with GI metastases [12,13].

In conclusion, diagnosing lung cancer in a timely manner to allow curative treatment remains to be a challenge. Nearly two thirds of patients with lung cancer are diagnosed at later stages and therefore have poor prognosis [14]. Symptom presentation of lung cancer is known to be diverse and complex as illustrated in Table 1. Knowledge of specific symptomatic pattern and risk factors may help to improve the rate of early diagnosis [15].

The above-discussed cases emphasize the need to have a low threshold for suspicion of lung cancer for patients presenting with non-specific symptoms, particularly if the patient has had tobacco smoke exposure. There is also a need for greater compliance with diagnostic guidelines and greater vigilance for patients presenting with atypical symptoms, as well as for patients whose initial chest x-rays are normal.

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