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Case Report

Internal Medicine Section

Synchronous Tumours: A Combination of Carcinoid and Adenocarcinoma

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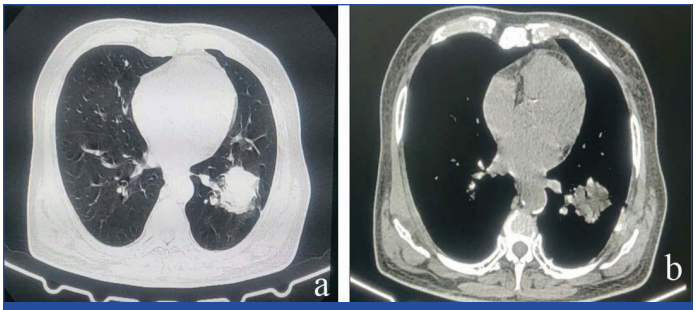
ABSTRACT

Synchronous tumour refers to cases in which the second primary cancer is diagnosed within six months of primary cancer. Carcinoid tumours are innocuous at time of presentation, emphasising the need for multidisciplinary approach for the diagnosis. A 80-year-old male patient came with complaints of cough with expectoration on and off for three years, with occasional minimal haemoptysis, haematemesis on and off for two months, loss of weight and loss of appetite for the past two months and complaints of increased cough for the past one week. Chest X-ray showed ill-defined opacity in the left lower zone. Contrast enhanced computed tomography showed two well defined heterogenous enhancing lesion in the superior and lateral basal segment of left lower lobe. Bronchoscopy guided biopsy revealed typical carcinoid. In view of recurrent diarrhoea, patient underwent endoscopy which revealed poorly differentiated adenocarcinoma. Gastrointestinal symptoms along with lung symptoms can be attributed to disseminated carcinoid or carcinoid syndrome. Carcinoid syndrome occurs in fewer than 5% of cases. It presents with symptoms like diarrhoea, wheezing, palpitations, hypotension. In the present case authors were attributing the gastric symptoms to carcinoid syndrome. Endoscopy was done in view of diarrhoea which revealed a second malignancy. Multiple tumours diagnosed have to be evaluated and staged separately and the treatment should be decided on staging to attain maximum clinical response. Patient condition worsened and patient expired in two weeks. All symptoms in a tumour patient should not be attributed to paraneoplastic syndromes and metastasis, further workup should be done using a multidisciplinary approach.

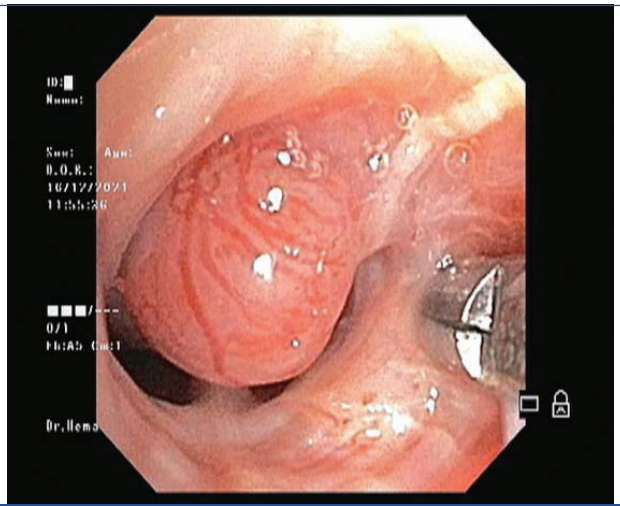
Keywords: Carcinoid syndrome, Endobronchial mass, Gastrointestinal symptoms

CASE REPORT

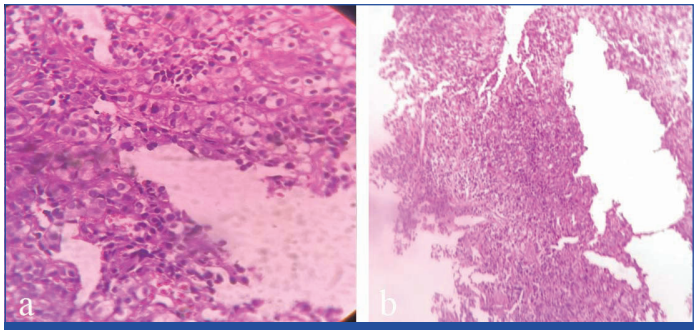
A 80-year-old male patient presented complaints of cough with expectoration on and off for three years, with occasional minimal haemoptysis, haematemesis on and off for two months, loss of weight and loss of appetite for the past two months and complaints of increased cough for the past one week. He was a type 2 diabetic on oral hypoglycaemic agents for 30 years and has systemic hypertension diagnosed three years ago and on regular treatment. On examination, patient vitals were stable and systemic examination was normal. Routine blood investigations were within normal limits. Chest radiography showed homogenous opacity in the left lower zone. A differential diagnosis of tuberculosis/malignancy was made. Sputum examination for Acid Fast Bacilli (AFB) staining was negative. Contrast Enhanced Computed Tomography (CECT) chest showed two well defined lobulated heterogenous enhancing lesion in the superior and lateral basal segment of the left lower lobe with bronchial cut-off sign and mediastinal lymphadenopathy [Table/Fig-1a,b]. After the CECT a provisional diagnosis of malignancy was made and planned for bronchoscopy. Bronchoscopy revealed an endobronchial growth in the superior segment of left lower lobe [Table/Fig-2]. Endobronchial biopsy taken was sent for Histopathological Examination (HPE) showed wall of bronchus lined by columnar epithelium with a subepithelial neoplasm composed of nests, tubules and trabeculae of polygonal cells separated by thin fibrovascular septae suggestive of a neuroendocrine tumour consistent with typical carcinoid. In view of persistent haematemesis Upper Gastrointestinal Endoscopy (UGE) was done which [Table/Fig-3a,b] showed a globular friable mass in the body of the stomach and biopsy was done and sent for HPE which showed multiple fragments of gastric mucosa with areas of intestinal metaplasia, dense mononuclear infiltrates and infiltrating large nests and islands of malignant cells with vague glandular pattern suggestive of poorly differentiated adenocarcinoma [Table/Fig-4a,b]. Patient was advised for Gallium Ga 68-DOTANOC Positron EmissionTomography (PET) scan for further workup but patient condition worsened and patient expired in two weeks.



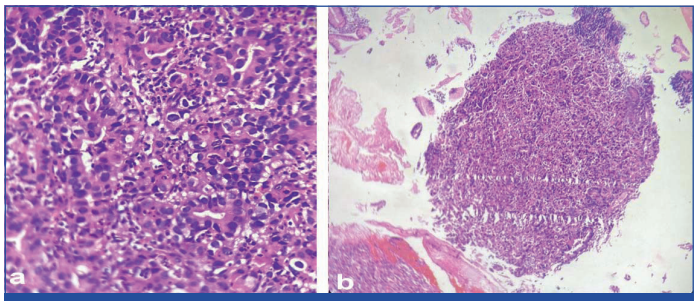
[Table/Fig-1]: a) Computed Tomography (CT) chest lung window shows a well defined lobulated enhancing lesion in the lateral basal segment of the left lower lobe; b) Computed tomography chest mediastinal window shows a well defined (4.3×2×2.7 cm) lobulated mass in the lateral basal segment of the left lower lobe with bronchus cut-off sign.



[Table/Fig-2]: Fibreoptic Bronchoscopy (FOB) showing endobronchial mass in the left lower lobe superior segment.



[Table/Fig-3]: a) Polygonal neoplastic cells with round to oval nuclei having stippled chromatin (H&E,40X); b) Wall of bronchus lined by columnar epithelium with a subepithelial neoplasm (H&E,10X).



[Table/Fig-4]: a) Malignant tumour cells with large round hyperchromatic nuclei (H&E,40X); b) Fragments of gastric mucosa with infiltrating islands of malignant cells with vague glandular pattern (H&E,10X).

DISCUSSION

Bronchial carcinoid tumours comprise 1-2% of lung tumours with equal distribution between males and females [1]. Bronchial carcinoids produce and secrete many hormones like serotonin, Adrenocorticotropic Hormone (ACTH), somatostatin, and bradykinin. Carcinoid tumours are classified as typical and atypical carcinoids based on mitotic index. Carcinoid tumours are mostly solitary, peripheral and well circumscribed and solitary presenting as hilar or perihilar mass and few present as endobronchial lesion with or without lobar or segmental atelectasis. Clinical features of carcinoid are dyspnoea, cough, haemoptysis along with endobronchial obstruction maybe seen in some cases. Fewer than two mitoses per 10 high power fields without necrosis is seen in typical carcinoids and two to ten mitoses per 10 high power fields in atypical carcinoids. Atypical carcinoids tend to be more aggressive and present with regional lymph node invasion [2].

Pulmonary carcinoids are associated with paraneoplastic syndromes such as carcinoid syndrome and cushing's syndrome (2%). Gastrointestinal symptoms along with lung symptoms can be attributed to disseminated carcinoid or carcinoid syndrome. Carcinoid syndrome occurs in fewer than 5% of cases [3]. It presents with symptoms like flushing (80%) diarrhoea (80%), wheezing (10-20%), palpitations and hypotension (60-70%) [4]. In this case authors were attributing the gastric symptoms to carcinoid syndrome. Endoscopy was done in view of haematemesis which revealed a second malignancy. The patient was lost in view of dual primary within a month.

Multiple primary malignancies are classified into two categories synchronous tumour in which cancers occur at the same time and metachronous tumour in which the cancers are diagnosed 6 months apart. The diagnosis of synchronous tumours should be done based on the Warren and Gates criteria of i) each tumour should be histologically distinct; ii) each tumour should have a definite picture of malignancy; iii) possibility of one tumour being metastasis should be ruled out [5]. The frequency of second tumour was reported to be around 3-5 % in a meta-analysis [6]. The pathophysiology of multiple primary malignancies still remains unknown. Few factors that can cause multiple malignancies are ionising radiation, increased number of organ transplants and increased newer treatment modalities like hormonal manipulation, targeted therapies, genetic manipulation and advent of immunomodulators. Multiple tumours diagnosed have to be evaluated and staged separately and the treatment should be decided on staging to attain maximum clinical response. Operable synchronous malignancies can be operated in a single setting with minimal morbidity and mortality which is less taxing on the patients psychologically and financially. Data regarding multiple primary malignancies in developing countries is very sparse hence, studies are required for incidence and other characters [7].

The treatment of choice in carcinoid tumours is surgical resection in view of localised tumour. The most common approach is segmentectomy followed by ablation pneumonectomy or bronchoplasty. Video-Assisted Thoracoscopic Surgery (VATS) guided sleeve resection is done in some cases.The European Society of Thoracic Surgeons of Neuroendocrine Tumours showed that patients who underwent resection of typical carcinoids had a five year survival rate of 94% [8]. In recent trials RADIANT- 2 and RADIANT -4 everolimus mTOR inhibitor drug has been given to patients with progressive, well-differentiated, non functional neuroendocrine tumours of gastrointestinal or lung origin that are unresectable or metastatic used as targeted therapy. It is tolerated in patients who take it along with octreotide long-acting release [9].

Hajjaj N et al., reported a case of adenocarcinoma and endobronchial carcinoid of lung in 57-year-old female who was an ex-smoker. She presented with a chief complaint of fatigue and weight loss. No respiratory symptoms like cough, haemoptysis and shortness of breath were present. Her computed tomography showed right hilar mass and the second minimally invasive adenocarcinoma was diagnosed postoperatively lobectomy of right middle lobe [10]. The present case had predominant respiratory symptoms and second tumour in stomach which was diagnosed by an endoscopic biopsy.

Alghanmi HA, reported a case of double primary lung cancers, and synchronous colon cancer patient presented with complaints of severe abdominal pain, vomiting and constipation. Computed tomography chest showed a well-defined soft tissue nodule at the lower base of the left lower lobe measuring 2.5 cm. Dual lung cancers were diagnosed postlobectomy. Postoperatively, lung showed both adenocarcinoma and carcinoid, colon had adenocarcinoma. Patient underwent surgery followed by chemotherapy and is on regular follow-up. The patient was diagnosed in an early stage of disease [11]. The present case was diagnosed in a late stage of disease and the patient expired within two weeks of discharge from hospital.

CONCLUSION(S)

A high level of suspicion is required to diagnose synchronous tumours and a multidisciplinary approach is of merit due to rare nature of this entity so that they are not overlooked and excluded from differential diagnosis in favour of more common aetiologies.

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