

Case report

Malignant Lung Carcinoid Tumour with Liver and Bone Metastasis: A Case Report

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Abstract:

Atypical lung carcinoid tumour, which is highly malignant has not been described widely in the literature. We report a middle-age woman who initially referred for possible lung malignancy. She presented with chronic diarrhoea to surgical team initially, who incidentally found to have a minimally enhancing irregular hypodense lesion at medial segment right lower lobe based on CT thorax finding. This patient later was diagnosed to have malignant lung carcinoid tumour based on histopathological examination with liver and bone metastasis. This case highlights the rare presentation of carcinoid tumour. A thorough history, supplemented by imaging and bronchoscopic examinations may lead to the diagnosis.

Keywords: Lung carcinoid tumour, synaptophysin, chromogranin, neuroendocrine, somatostatin analogue.

*International Journal of Human and Health Sciences Vol. 05 No. 01 January'21 Page : 108-111
DOI: <http://dx.doi.org/10.31344/ijhhs.v5i1.243>*

Introduction

Lung carcinoid tumour comprises 1-2% of all lung cancer however atypical lung carcinoid carries high risk of malignant transformation. Carcinoids are highly positive for neuroendocrine markers and commonly used markers include synaptophysin, chromogranin A, and CD56/NCAM.

Case Report

A 43-year-old female with background history of hypertension presented initially to surgical team with history of chronic diarrhoea for more than 20 times for a year associated with right upper abdominal discomfort. She had significant loss of appetite and loss of weight nearly 18 kg. Further history suggests that she had redness and feeling of warmth in face (skin flushing).

OGDS done with normal finding and colonoscopy revealed multiple non bleeding cecal diverticulum. Clinically patient had hepatomegaly thus decided

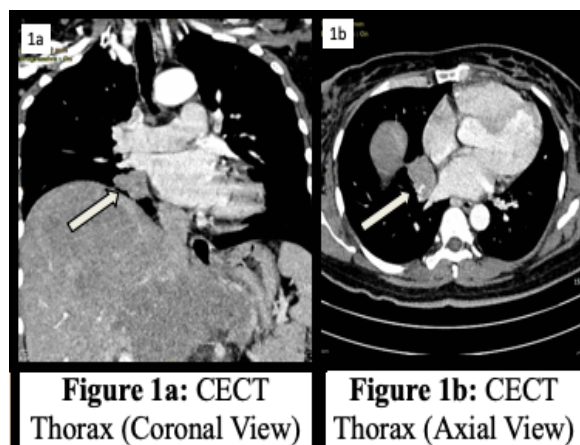


Figure 1a-1b: Coronal and axial sections of contrast-enhanced CT thorax in mediastinal window show irregular minimally enhancing mass at the medial segment of right lower lobe (white arrow). Also, multiple irregular liver masses noted in coronal section.

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by the surgical team for CT liver which revealed multiple liver masses with focal dilatation of left intrahepatic duct and incidental finding right lung lesion. CECT thorax was ordered subsequently and captured a minimally enhancing irregular hypodense lesion at medial segment right lower lobe measuring 4.1 cm x 3.2 cm x 2.2 cm. There is also lytic lesion at left pedicle and transverse process of T1 vertebra.

The patient was referred to respiratory team for further management. Bronchoscopy was done and noted normal medial segment of right lower lobe, unable to pass scope further but can see mass at tertiary carina. There is no endobronchial lesion and transbronchial lung biopsy (TBLB) under fluoroscopy done.

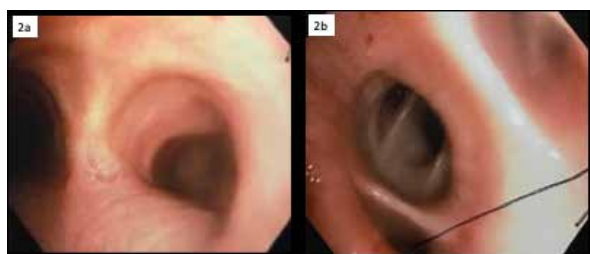


Figure 2a-2b: There is no endobronchial lesion, thus transbronchial lung biopsy (TBLB) under fluoroscopy done (2a). The narrowed opening of right lower lobe middle segment and unable to pass scope further (2b).

Bronchial brushing revealed neoplastic cells with neuroendocrine differentiation. Microscopy finding of transbronchial lung biopsy shows a few fragments of tumour tissue composed of neoplastic cells arranged in a trabecular pattern. These cells exhibit round nuclei with salt and pepper chromatin, inconspicuous nucleoli and scanty cytoplasm. Nuclear moulding and crush artefact are prominent. Mitotic figures are seen (3/10 hpf) with Ki67 of 10%. There is no necrosis seen in studied section. On immunohistochemistry, the neoplastic cells are strong and diffusely positive for Chromogranin A, Synaptophysin, CD56 and focally positive for CK7.

The finding is consistent with atypical carcinoid. A full diagnosis of malignant lung carcinoid with liver and bone metastasis was made and the patient was referred to Hospital Kuala Lumpur oncology team for further management. PET scan was done and showed evidence of somatostatin receptor metastasis in the enlarged lobulated liver. The patient was started on SC Sandostatin LAR 30mg OD. PET scan done six months later showed partial response. Unfortunately, patient

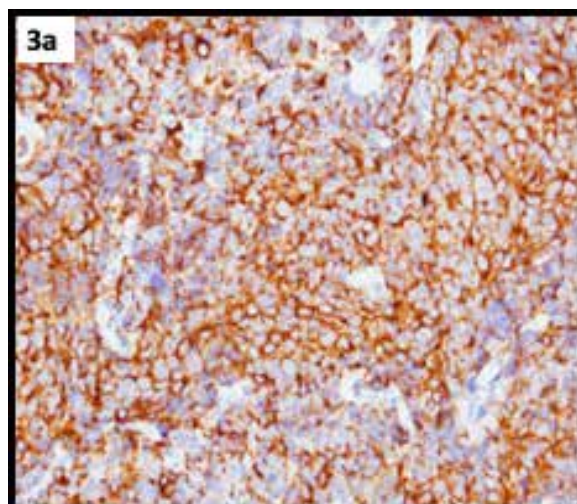


Figure 3a: The neoplastic cells are strong and diffusely positive for Chromogranin A.

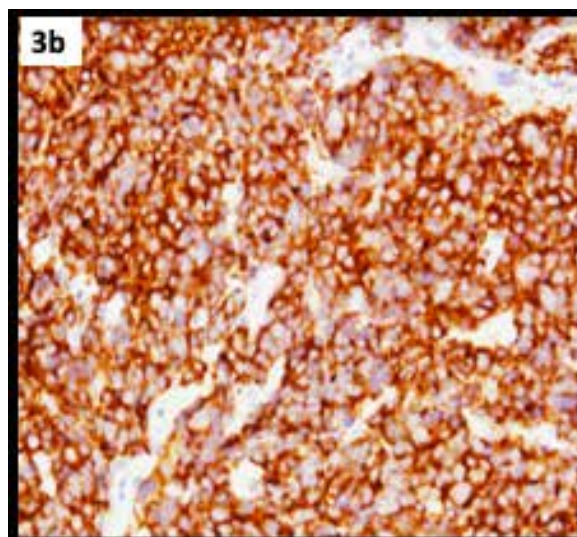


Figure 3b: The neoplastic cells are strong and diffusely positive for Synaptophysin.

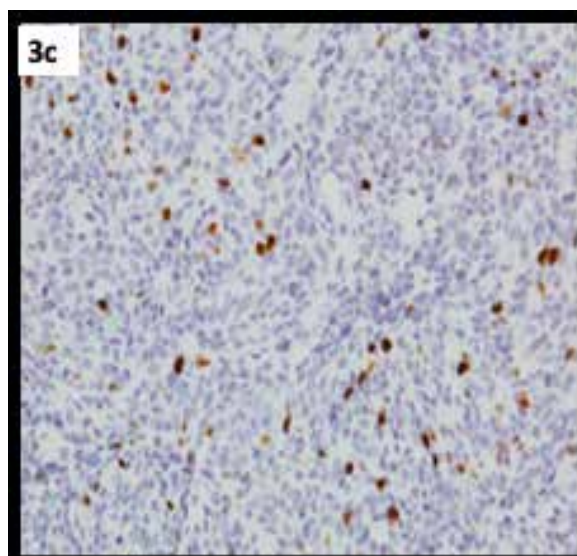


Figure 3c: Mitotic figures are seen (3/10 hpf) with Ki67 of 10%.

passed away nine months later at home with likely underlying advanced disease.

Discussion

Malignant lung carcinoid tumour is least to be suspected in a most patient with bronchial lesion. In our case a diagnosis was missed for nearly one year. This unfortunate lady illustrates to us the importance of taking a thorough history and examination and to have high suspicious of carcinoid syndrome in a patient presented with chronic diarrhoea and flushing.

The development of diarrhoea, cutaneous flushing, wheezing/asthma symptoms and skin pellagra lesions with hyperkeratosis and pigmentation describe the carcinoid- syndrome at some time during the disease.¹ Carcinoid syndrome is rare and is not produced by bronchial carcinoids unless liver metastases are present as illustrated in this case.²

Bronchial carcinoid tumours contain neuroendocrine cell neoplasms that are further histologically categorized as typical or atypical. The majority (80-90 per cent) are typical and occur most frequently in the 5th and 6th century, with survival rates between 87-100 and 82-94 per cent for the 5 and 10 years, respectively. Patients with atypical carcinoids are typically a decade older and have worse 5 and 10-year survival rates (44-88% and 18-64%, respectively).³

Typical carcinoid is typically well-differentiated, histologically organised tumours, larger than 5 cm, and shows < 2 mitoses/10 HPF. Necrosis is not always present. Although atypical carcinoid shows an atypical look with 2–10 mitoses/10 HPFs. There's necrosis, and they appear to be more aggressive. They have a higher risk of metastasizing, recurrence and a poorer result and prognosis.⁴

Typical and atypical bronchial carcinoids have identical imaging characteristics in radiological studies. Since most bronchial carcinoids are in central airways, radiological findings typically

contribute to bronchial obstruction. Central bronchial carcinoids appear as an endobronchial nodule or hilar or perihilar mass with a near anatomical bronchial connection, whereas peripheral bronchial carcinoids appear as solitary nodules.²

The only effective cure for a bronchial carcinoid is full primary tumour excision, which is unlikely in our case due to distant metastasis. Surgical procedures vary from radical resection (eg, pneumonectomy, bilobectomy, lobectomy) to conservative excision (eg, segmentectomy, wedge resection, sleeve lobectomy, sleeve bronchectomy).⁵ For patients with an unresectable lung NET and carcinoid syndrome, a somatostatin analogue (SSA), such as octreotide or lanreotide is recommended.

Conclusion

This case illustrates the importance of having a high suspicious and includes differential diagnosis of carcinoid syndrome in a patient with chronic diarrhoea and flushing despite its rarity. In conclusion, carcinoid tumour can manifest in many forms and a thorough history, and physical examination is essential.

Acknowledgements

We thank all clinicians, the late patient and her family that provided clinical information. Verbal informed consent for patient information was obtained from an authorised representative.

Conflict of interest

The authors have disclosed no conflict of interest.

Funding statement

This case report did not receive any special funding.

Ethical Approval Issue

Not applicable

Authors contribution:

Conception and design: UAZ

Collection and assembly of data: MRAZ, NHH, NH, FAH

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