

# Bronchial Carcinoid: A Case Report

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## Abstract

Carcinoid tumors are tumors of low-grade malignancy. They constitute about 1-2% all lung tumors. The tumor is considered to be of Kulchitsky origin belonging to diffuse endocrine system. Most cases are seen in adults and present as slow growing polypoidal mass in major bronchus leading to hemoptysis and pulmonary infection due to blockage of distal bronchi. The present case is a 65 years male, smoker who presented with cough, breathlessness and hemoptysis. Radio imaging and cytology revealed neoplastic lesion in the right bronchus. During the hospital stay, the bronchial mass was expectorated with a bout of hemoptysis that on histopathology and immunohistochemistry showed features of typical carcinoid tumor. The case is presented for its rarity and unusual course of events in the form of expectoration of bronchial mass.

**Keywords:** Bronchial carcinoid, Kulchitsky origin, Mass expectoration

## INTRODUCTION

Carcinoid tumors are neuroendocrine tumors derived from entero chromaffin or Kulchitsky cells, which are widely distributed in the body.<sup>1</sup> Carcinoid tumors may develop in many locations in the body, but most often they are found in small intestine (26%), respiratory system (25%) and appendix (19%).<sup>2</sup> They are characterized histologically by positive reaction to silver stains and to markers of neuroendocrine tissue, including neuron specific enolase (NSE), synaptophysin and chromogranin.<sup>3</sup> Bronchial carcinoid tumors termed (incorrectly) as bronchial adenomas in the past are uncommon pulmonary neoplasms.<sup>4</sup> They make up 1-2% of all lung tumors.<sup>5</sup> They often arise in persons who are younger than is usual for lung cancers and male to female ratio is 1:1.

## CASE REPORT

A 65 years male who was chronic smoker presented with

- Breathlessness, cough with expectoration and hemoptysis since 1 year
- Anorexia and weight loss since 1 month.

General examination: Within normal limits

Systemic examination: Decreased air entry at base of right lung.

Bronchoscopy showed: Polypoidal mass at right main bronchus near to carina.

High-resolution computed tomography (CT) thorax showed: Mass lesion at right parahilar region with collapse of lung - Suggestive of carcinoma lung

Pleural fluid and sputum examination were negative for malignancy. However brush cytology and CT guided fine needle aspiration cytology (FNAC) from the bronchial mass revealed clusters of monomorphic tumor cells with round nuclei showing salt and pepper appearance of nuclear chromatin (Figure 1).

During his hospital stay, patient had severe bout of cough and hemoptysis and the bronchial mass was expectorated.

The mass was received in Department of Pathology, MIMER Medical College, Talegaon Dabhade.

On gross: The mass was polypoid, 4 cm × 2 cm × 2 cm, blackish and hard in consistency (Figures 2 and 3).

On histopathology: Diagnosis of typical carcinoid was given which was confirmed by positivity for chromogranin, synaptophysin and NSE on immunohistochemistry (IHC) (Figures 4-6).

atypical carcinoid and Grade III or small cell carcinoma/ large cell carcinoma.<sup>6</sup>

Typical carcinoids occur in both sexes with equal frequency and the age at onset ranges from childhood to 9<sup>th</sup> decade.

## DISCUSSION

In neuroendocrine tumors, three grades based on histologic features and biologic behavior are currently recognized-Grade I or typical carcinoid, Grade II or

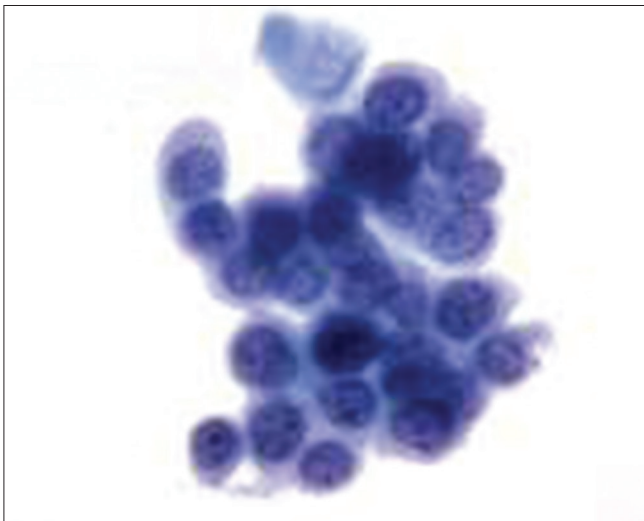


Figure 1: Photomicrograph of fine needle aspiration cytology smear showing monomorphic tumor cells with salt and pepper appearance of nuclear chromatin (H & E, x40)



Figure 2: Polypoid tumor mass 4 cm × 2 cm × 2 cm



Figure 3: Cut section of tumor mass showing blackish areas

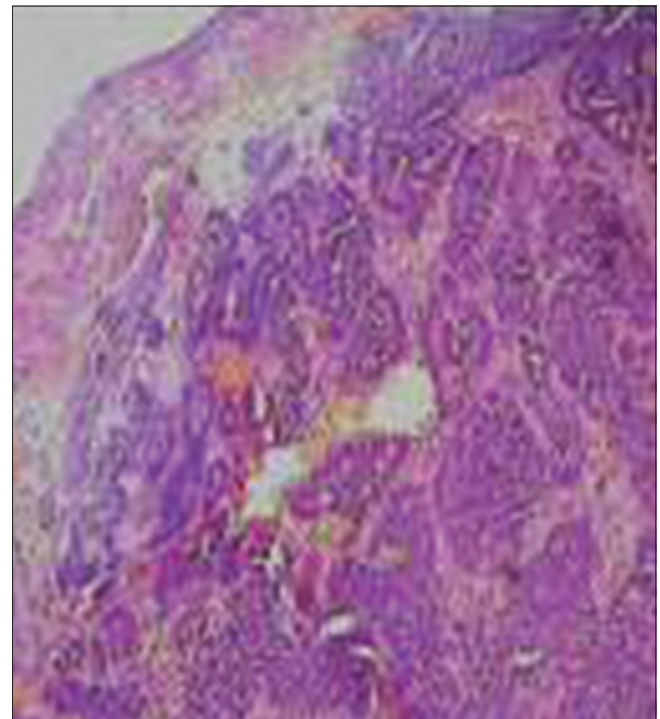
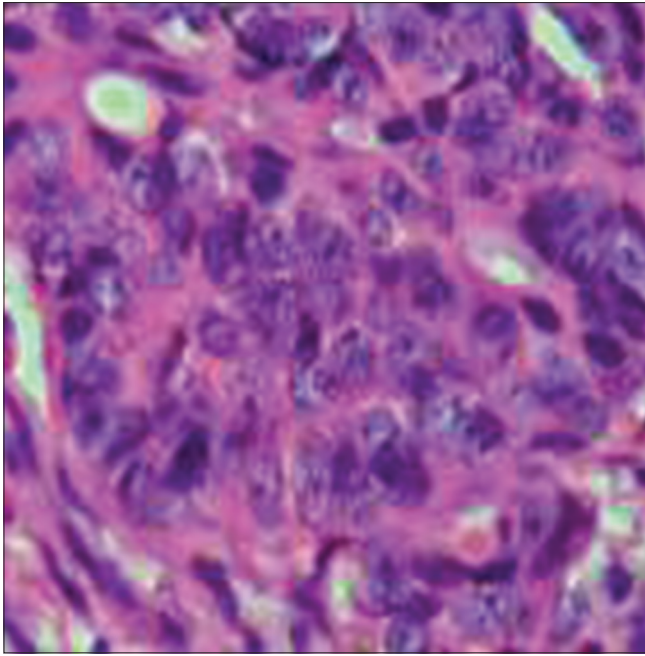


Figure 4: Photomicrograph showing tumor mass covered with intact bronchial mucosa. Tumor cells are arranged in organoid pattern (H & E, x40)





**Figure 5: Photomicrograph showing tumor cells with characteristic salt and pepper appearance of nuclear chromatin (H & E, ×40)**

They show no association with smoking. However, atypical carcinoids occur in older patients with smoking as a risk factor. Many patients with typical carcinoid are asymptomatic, but dyspnea, cough and hemoptysis may occur particularly in central lesions.<sup>6,7</sup>

Usually, clinical features include local symptoms due to angulation or obstruction and hepatomegaly due to liver metastasis.<sup>8</sup>

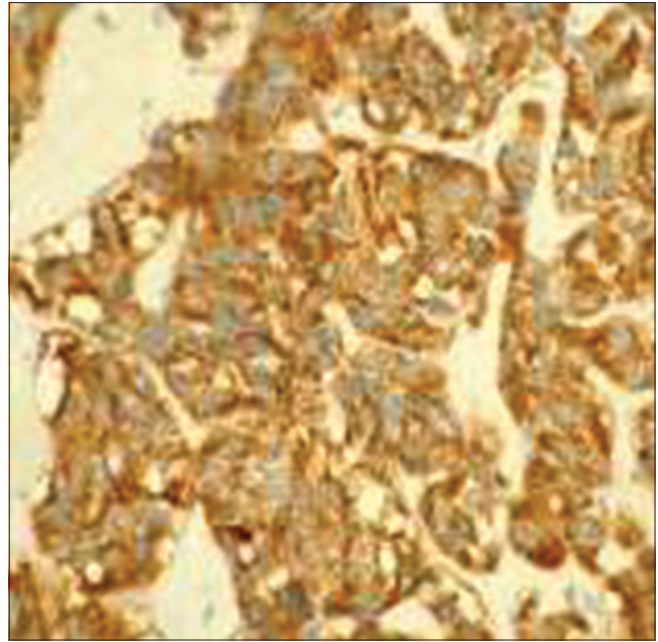
Our patient was a 65-years-old male, chronic smoker who presented with breathlessness, cough with expectoration and hemoptysis.

The bronchial mucosa overlying carcinoid tumors is frequently intact or may show squamous metaplasia. Therefore, cytological examination of sputum is frequently negative and only brushings or FNA of the lesion may succeed in harvesting large number of malignant cells.<sup>6</sup>

In present case brush cytology and CT guided FNAC showed clusters of monomorphic neoplastic cells with round to oval nuclei showing salt and pepper appearance of nuclear chromatin.

Mostly, these tumors arise in main to the segmental bronchus, but tumors of peripheral origin are occasionally seen.<sup>9</sup>

Grossly, the tumors are polypoid, tan to yellow, 0.5-8 cm in diameter and covered with intact bronchial mucosa.<sup>9,7</sup>



**Figure 6: Photomicrograph showing tumor cells with positivity for chromogranin (immunohistochemistry, ×40)**

Histologically typical carcinoid exhibit an organoid pattern and the nuclear chromatin of the tumor cells showing “salt and pepper” appearance. According to recent WHO classification, atypical carcinoid differs from typical carcinoid by the presence of punctuate coagulative necrosis and or mitotic indices ranging from 2 to 10 mitosis/10 high-power fields. In both typical and atypical carcinoid the stroma is vascular.<sup>3</sup> Carcinoid tumors whether typical or atypical stain positively for chromogranin, synaptophysin, and NSE.<sup>6</sup>

In the present case, the tumor was located in right main bronchus and was polypoid, measuring 4 cm × 2 cm × 2 cm. Histologically features of carcinoid tumor with occasional mitotic figure were seen. Areas of necrosis were not seen. IHC was positive for chromogranin, synaptophysin and NSE. Hence, the diagnosis of typical carcinoid was given.

Treatment of typical carcinoid is surgical and usually involves lobectomy or pneumonectomy with lymphadenectomy.<sup>6,7</sup> Metastases are usually to regional lymph nodes however distant metastases to bone can also occur and liver involvement may be associated with carcinoid syndrome.<sup>6</sup>

At the time of diagnosis 10-15% of typical carcinoid and 40-50% of atypical carcinoid present with lymph node metastasis. Typical carcinoids have an excellent prognosis, and overall 5 and 10-year survival rate are 90-98% and 82-95% in typical carcinoid and only 61-72% and 35-39% in atypical carcinoid.

With metastatic disease chemotherapy can be given with cisplatin based or streptozocin based regimen with moderate effectiveness.<sup>7</sup>

In the present case, carcinoid syndrome or metastases were not seen.

Unfortunately, our patient went home against medical advice. Hence, further follow-up was not possible.

## CONCLUSION

Differential diagnosis of carcinoid tumors includes separation from other neuroendocrine tumors and a wide variety of other tumors. Tumors like sclerosing hemangioma, paraganglioma, glomus tumor and adenocarcinoma may resemble carcinoid. IHC is helpful in making the final diagnosis. After separation of typical carcinoid from atypical carcinoid, stage is the most important prognostic factor. However, even with lymph node metastasis typical carcinoid carries an excellent prognosis. Therefore, it is very important to distinguish between typical and atypical carcinoid.

In the present case, the diagnosis of typical carcinoid was given. The case is presented for its rarity and unusual course of events in the form of expectoration of the bronchial mass.

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