Case Report

An autopsy study of bronchial carcinoid

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ABSTRACT

Neuroendocrine tumors encompass a spectrum ranging from well differentiated benign carcinoid tumours (grade 1 neuroendocrine carcinoma) to a highly aggressive small cell carcinoma representing the extreme end of spectrum. We present an autopsy study of nonsyndromic bronchial carcinoid in a middle aged adult.

Key words: Bronchial, carcinoid, carcinoma, neuroendocrine

INTRODUCTION

Carcinoids arise at a number of sites including the thymus, lung, gastrointestinal tract and ovary. The most frequently involved site is gastrointestinal tract, lung being the second most common site.[1-5] Bronchopulmonary carcinoid was previously termed as adenoma. Mueller described the first bronchial adenoma in 1882.[1,2] Globally, the incidence rate of bronchial carcinoid ranges from 0.2 to 2/100,000 population/year, and constitutes about 20–25% of all carcinoid tumours. A higher incidence is noted in women and in whites, as compared to blacks. Bronchial carcinoids were initially thought to derive from peptide and amine-producing neuroendocrine cells that have migrated from the embryologic neural crest.[2] However, they are currently thought to be of endodermal origin.[1-3]

CASE REPORT

A 35 years old beggar, unaccompanied by any attendant, visited outpatient department (OPD) of medicine for gradually increasing breathlessness since 1-year. He was poorly nourished with a thin built. His chest examination revealed crepts and rhonchi on left side. His chest roentgenogram showed a left sided central mass suggesting lung neoplasm [Figure 1]. After his radiologic examination, while his inpatient records were being filled, he suddenly collapsed and was declared death. Clinical autopsy was performed. Both the lungs externally appeared unremarkable. However, on cutting open, left lung showed a large grey white tumor along the bronchus [Figure 2]. There was no hilar lymphadenopathy or evident metastasis. Histopathologic examination showed a well differentiated typical bronchial carcinoid with benign appearing small round cells showing eosinophilic cytoplasm and regular, round nuclei with stippled chromatin arranged in sheets and cords separated by thin fibrovascular septae [Figure 3]. Numerous rosettes were evident [Figure 4]. No mitotic figures were seen. Adjacent lung alveoli appeared unremarkable. All other organs were unremarkable. A diagnosis of bronchial carcinoid was offered.

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DISCUSSION

Typical carcinoids of the lung represent the most well differentiated tumors. Although having an indolent clinical behaviour, they harbour a tendency to metastasize and 1–2% may be fatal.[1,2] Majority of patients are asymptomatic. Central carcinoids developing within large airways grow slowly and are large enough to cause obstruction. Our deceased had a large central carcinoid and that explained the breathlessness. Peripheral pulmonary carcinoid tumors most often are asymptomatic and are usually discovered incidentally. They have a more aggressive nature and have a greater tendency to metastasize.[2] Carcinoids are capable of producing a variety of substances, including biologically active peptides and hormones. Carcinoid syndrome has been reported in association with very large carcinoids or in the presence of metastatic disease.[1-4] Radiologically,

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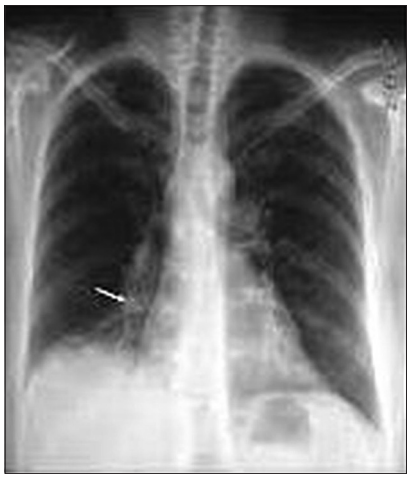

Figure 1: Chest radiograph demonstrates a mass lesion located within the lateral aspect of the right main bronchus

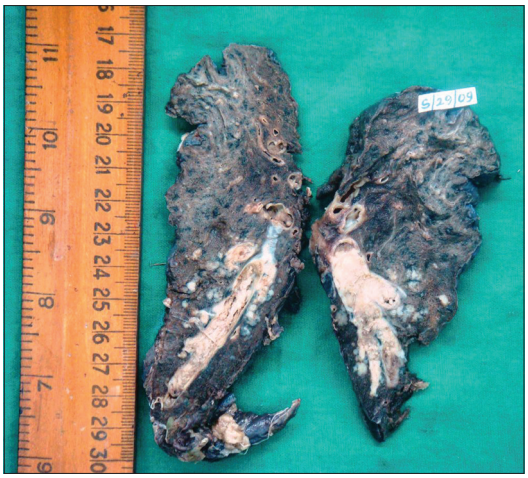

Figure 2: Right lung parenchyma revealed a large grey white tumor along the bronchus

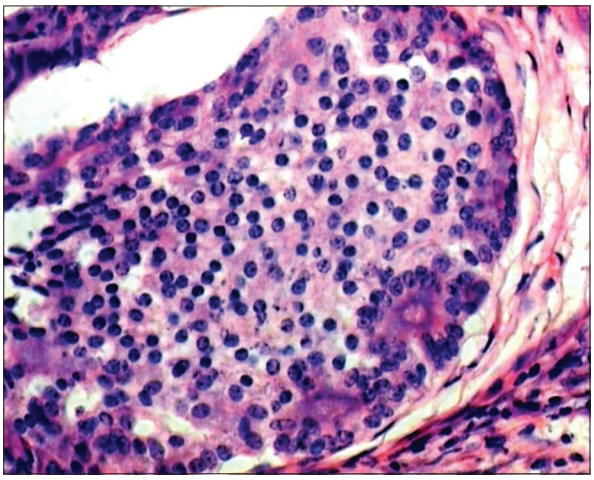

Figure 3: Microphotograph showing a well differentiated typical bronchial carcinoid with benign appearing, small, round cells showing eosinophilic cytoplasm and regular, round nuclei with stippled chromatin arranged in nests and cords separated by thin fibrovascular septae (H and E, ×200)

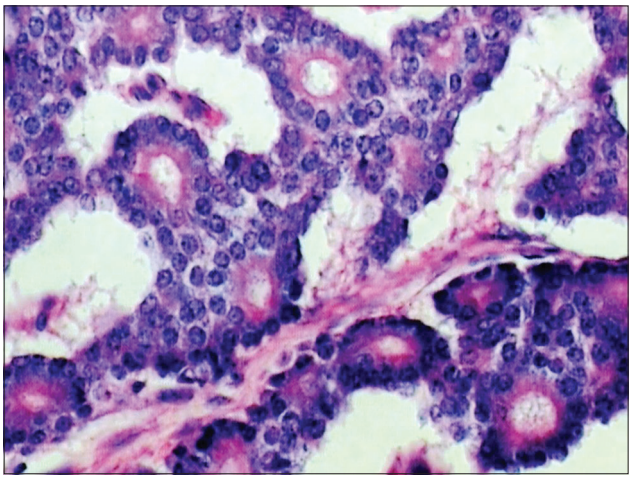

Figure 4: Microphotograph showing carcinoid arranged in pseudo-rosette formation (H and E, ×400)

typical and atypical bronchial carcinoids show similar imaging features. Central bronchial carcinoids manifest as an endobronchial nodule or perihilar lesions with anatomic relation to bronchus. While peripheral carcinoids lack the origin to bronchus. Computed tomography (CT) of central carcinoids show a well-defined, round or ovoid slightly lobulated lesion. Peripheral bronchial carcinoids appear as solitary nodules. Calcification is common. Bronchial carcinoids demonstrate high signal intensity on T2-weighted and short-inversion-time inversion recovery magnetic resonance images.[4] Our case collapsed within hours in OPD before being hospitalised. Grossly all carcinoids are vascular, cherry red and bleed on irritation. Our case showed a large intrabronchial grey white tumor. Microscopically, the tumour shows lining by bronchial epithelium and are comprised of uniform small, round to polygonal cells arranged in well-defined nests and cords separated by thin fibrovascular septae-zellballen pattern. The nuclei usually display a scattered, coarse "salt-and-pepper" stippling of chromatin.[1-5] Mitotic figures are absent. Our case showed similar morphologic picture. Histochemically, they are argentaffin-negative and argyrophil-positive. Immunohistochemical stains show positive reactivity for low molecular weight cytokeratin, chromogranin, synaptophysin, neuro-specific enolase, serotonin, bombesin etc.[6,7]

As all pulmonary carcinoid tumors harbour a tendency to metastasize, they should be treated as malignancies. The aim of treatment is to control hormone induced symptoms and to achieve tumour reduction. Total resection should be the primary goal of surgical therapy accompanied by lymph node dissection. While the most commonly used procedures are formal lobectomy, segmentectomy or pneumonectomy, a variety of parenchymal-sparing bronchoplastic procedures, including sleeve resections, have been utilized with good long-term results.[7,8] Patients with marginal pulmonary reserve may be good candidates

for complete resection and cure. Palliative treatment is recommended in patients with metastatic disease and in those who cannot tolerate the pulmonary resection.[5,6,8] Unfortunately, our case being an unattended beggar, came at late stage and could have survived if sought earlier medical and surgical care.

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