Endobronchial carcinoid tumor in a 15 years old patient

Magdi Ibrahim, MD a,*, Abdulla Allam, FRCS a, Ayman Eskandrany, MD b and Esraa Al-Habbobi, MB a

a Department of Thoracic Surgery, King Fahd Hospital, Almadinah Almunawwarah, Kingdom of Saudi Arabia
b Department of Chest Medicine, King Fahd Hospital, Almadinah Almunawwarah, Kingdom of Saudi Arabia

Received 19 May 2012; revised 25 September 2012; accepted 4 December 2012

KEYWORDS
Carcinoid; Endobronchial

Abstract
Endobronchial carcinoid tumor is an extremely rare neoplasm in children and adolescence. Herein, a case of endobronchial carcinoid tumor in a 15 year old female presented with recurrent chest infection for a long time and after a careful examination and investigation, the case was diagnosed.

Case report
A female patient aged 15 years old with no significant past medical history came complaining of fever with productive cough and a mild chest pain on right side for a month. She was treated for recurrent chest infection for 7 months which was persistent. On presentation, chest examination showed decreased air entry in the right lower side of her chest. Chest X-ray and Computerised tomography scan of the chest (CT-scan) were carried out. Chest X-ray (Figure 1) showed total collapse of the right lower lobe and consolidation of the middle lobe with multiple cavities. CT-scan chest (Figure 2) showed right bronchial mass extending from the right lower lobe bronchus obstructing it. Bronchoscopy (Figure 3) revealed vascular mass arising from the right lower lobe bronchus extending to obstruct the right middle lobe bronchus. A biopsy was taken to confirm the diagnosis of the suspected carcinoid tumor. The patient underwent right posterolateral thoracotomy where a total collapse of the middle and lower lobes was found. So, bilobectomy (middle and lower lobes) was done and a lymph node was taken for a biopsy. Histopathology of the specimens (tumor, middle and lower lobes, lymph node) showed a typical endobronchial carcinoid tumor with no lymph node metastasis and a free resection margin. Post operative course of the patient was unremarkable (Figure 4).
Discussion

Bronchial carcinoid is a neuroendocrine neoplasm deriving from neuroendocrine cells of the bronchial and bronchiolar epithelium.\textsuperscript{3} Carcinoid tumors occur most frequently in the gastrointestinal tract (90\% of cases). The second most common site of occurrence is the respiratory tract. Carcinoid tumors are relatively uncommon pulmonary neoplasm comprising only approximately 1–2\% of cases.\textsuperscript{3}

Histologically, carcinoid tumors can be characterized as low-grade or typical carcinoid, intermediate grade or atypical carcinoid, and high-grade large-cell and small-cell neuroendocrine tumors. All bronchial carcinoids are considered malignant and have the potential to metastasize.\textsuperscript{4} The mean age of presentation of carcinoid tumors of the bronchial tree is 45 years.\textsuperscript{3} Atypical carcinoids tend to present approximately one decade later than low-grade/typical carcinoids. Endobronchial neoplasms are extremely rare in children. The most common endobronchial neoplasm in children is the carcinoid tumor, but the majority of these cases are present during adolescence because of the delay in diagnosis.\textsuperscript{5} The majority of pulmonary carcinoids in the pediatric population are present with symptoms. The most common presenting manifestations are wheezing, atelectasis, or pneumonia.\textsuperscript{5} Other presenting symptoms include cough, chest pain, and hemoptysis. As in our patient, endobronchial carcinoid is commonly not considered until the patient’s symptoms and radiographic abnormalities persist or recur after appropriate therapy. According to the study of Wang et al.\textsuperscript{5}, the average duration of symptoms in affected children prior to diagnosis is 8.5 months.

Bronchoscopy plays a big role in the diagnosis of carcinoids in the majority of cases because the tumor is centrally located and visible at endoscopic evaluation.\textsuperscript{6} Some authors found bleeding to occur in two thirds of their patients and some advise against a biopsy when carcinoid is suspected; other authors disagreed, maintaining that a bronchoscopic biopsy significantly increases the diagnostic yield without adding morbidity.\textsuperscript{6} In this case, no troublesome bleeding was reported after endoscopic biopsy.

The imaging features of the carcinoid tumors are dependent upon the location of the lesion. Approximately 80\% of pulmonary carcinoids occur centrally in the main, lobar, or segmental bronchi; the single most common radiographic presentation of a carcinoid tumor is that of a hilar or perihilar mass with associated atelectasis and/or infiltrate.\textsuperscript{7} On radiography, the central lesion can sometimes be obscured and the findings are limited to the lesion’s post-obstructive sequelae. On both, radiography and conventional CT, the mass is usually well-defined, round, and sometimes slightly lobulated. Approximately, 30\% of the carcinoid tumors exhibit histological evidence of calcification that can be seen in a CT and help in narrowing the differential diagnosis.\textsuperscript{8} Some endobronchial carcinoids have extensive intrapulmonary components, a finding that is readily identified by a CT. Some lesions are noted to
have a ball-valve effect that contributes to lobar or semilobar hyperinflation.

Because all carcinoid tumors have the potential to metastasize, the definitive treatment is surgical resection. Depending on the tumor size, histological grade, and endobronchial vs. intrapulmonary extent, surgical approaches can range from total pneumonectomy to more conservative techniques such as sleeve bronchectomy. The prognosis for typical carcinoid is good with an overall survival rate of 5 and 10 years is 92% and 88% respectively. Atypical carcinoids have a poor prognosis.

References