Recurrent pneumonia in a 10-year-old child: what is the diagnosis?

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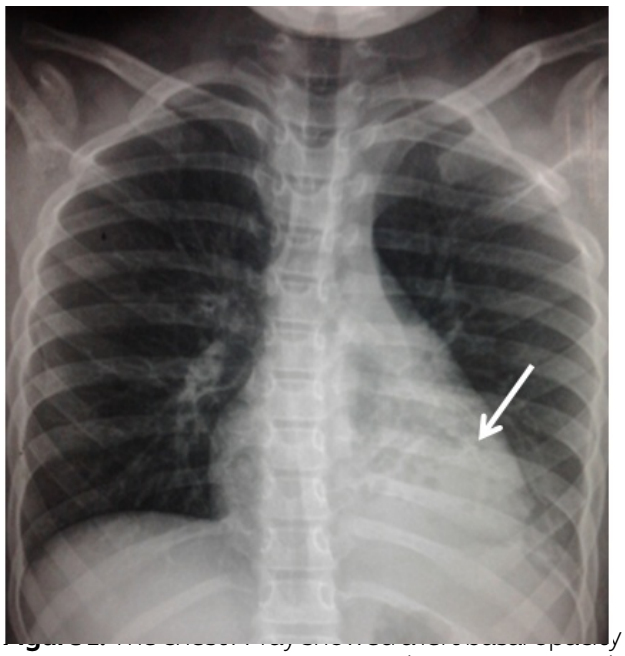
Case report

A healthy 10-year-old boy was admitted to investigate a recurrent pneumonia. Durant the last year, he had 4 episode of acute fever with cough spaced 2 to 4 months apart with symptom-free interval. Chest X-ray was performed in the last 2 episodes showing a recurrent pneumonia located in the left lower lung lobe. The patient was treated with oral amoxicillin during 10 to 15 days three times and with intravenous cefotaxime during the 4th episode in a local hospital. Then, he was referred to our department for investigation. On arrival, physical examination was normal except decreased breath sounds on the left side. Chest X-ray (Figure 1)



heterogeneous and poorly limited (white arrowhead).

and computed tomography (CT) scan (Figure 2) were performed.

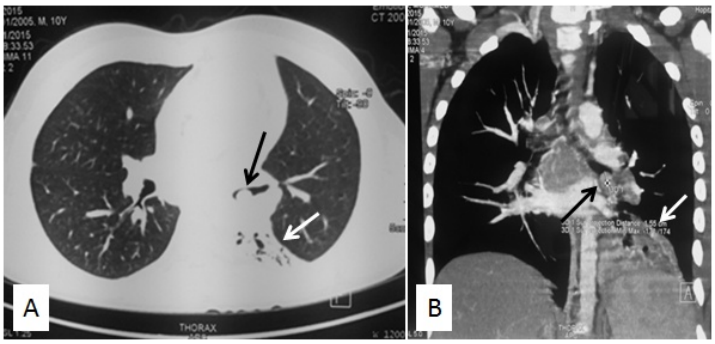


Figure 2: A), B) The chest CT scan revealed a polypoid round intraluminal mass arising from the left lower lobar bronchus (black arrowheads) with subsequent airy collapse of the basal segments (white arrowheads).

Additional investigation through flexible bronchoscopy was carried out (Figure 3).

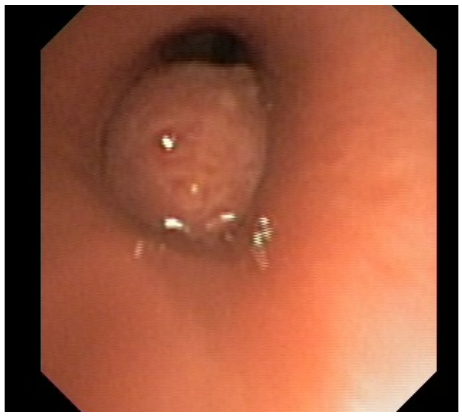


Figure 3: Flexible bronchoscopy showed a polypoid homogeneous mass with a smooth surface and totally obstructing the left lower lobar bronchus.

What is the diagnosis?

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Case report

Flexible bronchoscopy findings were suggestive of endobronchial carcinoid tumor. Bronchoscopic biopsy was unsuccessful due to the smooth surface of the mass. Lobectomy of the left lower lobe was performed. Histological examination of the operative specimen confirmed the diagnosis of typical carcinoid tumor. The tumor was single and nodular with endobronchial growth and a size of 1.5 cm. It was characterized by monomorphic cell proliferation in a neuroendocrine architecture. Mitotic index was 0/10 high-power field (HPF), without necrosis. The stroma was highly vascularised. The postoperative course was uneventful. A full recovery was obtained with a follow-up of 18 months.

In children, foreign body, granulation tissue and tuberculosis are the most common cause of endobronchial obstacle. Malignant lesions are rare and dominated by carcinoid tumors [1]. Carcinoid tumor, being most often in the appendix, accounts for about 50% of primary lung cancer in patients aged less than 19. The disease consists of a neuroendocrine tumor with a low-grade malignant when typical and an intermediate grade when atypical [1, 2]. Clinical manifestations of carcinoid tumor are unspecific and depend on its intraluminal growth. Major symptoms are cough followed by fever. Persistent localized hyperinflation or atelectasis, dyspnea, and refractory wheezing can reveal the disease. Hemoptysis is less common as compared to adults [1, 2]. As it is a neuroendocrine tumor, the release of vasoactive substances leads to vasomotor flushing, episodic hypotension, bronchoconstriction, and diarrhea. However, children rarely present this carcinoid syndrome [3].

Bronchoscopy is an effective tool allowing the diagnosis through the direct view of the tumor and the collection of biopsy specimens. It also helps exclude differential diagnosis of endobronchial obstruction. In children, bronchoscopy shows a bronchial tumor usually arising in the main lobar or segmental bronchi, especially near to the bronchial bifurcations. Biopsy should be performed by an experienced operator given the risk of hemorrhage as the tumor is highly vascularised [3, 4]. Chest CT scan allows further assessment of the disease especially regarding its extrabronchial spread and local complications. The definitive diagnosis is provided by histology [1, 4].

In children, the recommended treatment is surgical resection. It usually consists of a sleeve lobectomy. Pneumonectomy is limited to extended cases for complete removal. Bronchoscopic removal and laser ablation are restricted to small, peduncolated, and intraluminal tumor. Although these procedures are less invasive, they often prove to be incomplete especially when bronchial wall infiltration and disease extension to lymph nodes are underestimated. Moreover, specimens are likely to be insufficient to distinguish a typical carcinoid from the atypical variant [3]. The indications for such approaches should be discussed with a multidisciplinary team, including pulmonologists, oncologists, surgeons, radiologists, and pathologists [4]. In our patient, lobectomy was decided given high probability of bronchial wall infiltration (Figure 2B).

With prompt diagnosis and surgical removal, endobronchial carcinoid tumors generally have an excellent prognosis in children. Nevertheless, long-term follow-up is recommended due to the risk of later recurrence and metastasis, even if negligible [5]. Given these evidences, investigating recurrent pneumonia is mandatory in children. Flexible bronchoscopy should be performed without delay when it occurs in the same location to detect on time any malignant lesion although the latter remains uncommon.

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Patient consent: Obtained.

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