Endobronchial Lipomas

Rare Benign Lung Tumors, Two Case Reports

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Abstract: Endobronchial lipoma is a rare benign lung tumor. Here we present two cases. One case is the first report of the association of and endobronchial lipoma with a hilar lipoma. We discuss the epidemiology, difficulties in establishing the diagnosis, and the management of this rare condition.

Key Words: Lipoma, Endobronchial lipoma, Hilar lipoma.

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Benign lung tumors are a diverse group of tumors. They represent 2 to 5% of all lung tumors. Ninety percent of them are adenomas and hamartomas. Although lipomas are the most frequent tumors of the body, 'pulmonary' lipomas are very rare. Endobronchial lipomas have an incidence of 0.1 to 0.5% of all lung tumors.

Here we present two case-reports. One of them is to our knowledge, the first case-report from a patient with an endobronchial lipoma associated with a hilar lipoma.

Case 1

A 41-year-old man presented to our department with vague thoracic pain. He had no other respiratory symptoms (i.e., no dyspnea, cough, wheezing, or hemoptysis).

During his childhood he received treatment for tuberculosis in Morocco. The patient also underwent a videoscopic assisted thoracoscopy with talc poudrage 8 years earlier because of a right-sided pneumothorax. After this pneumothorax he stopped smoking.

Clinical examination upon presentation was unremarkable. A chest radiograph revealed an enlargement of the right hilus. Hematological and biochemistry blood values were normal. Pulmonary function tests were also normal.

Computed tomography (CT) of the thorax showed a hilar mass on the right side, with the density of fat (–100 HU), identified as a hilar lipoma (Figure 1*A*). There was also a large cystic structure in the right upper lobe, adjacent to the right hilus. Positron Emission Tomography scan showed no uptake of the hilar mass. A bronchoscopy revealed a yellow mass in the right lower lobe bronchus (Figure 2*A*). An identical, but smaller lesion was seen in the right upper lobe bronchus. The endobronchial tumor in the right lower lobe bronchus was resected during rigid bronchoscopy.

The histologic specimen showed a fragment of respiratory epithelium without cytonuclear atypia. There was fat tissue located centrally. The fat tissue consisted of univacuolar mature fat cells. They were uniform in form and size, so the diagnosis of an endobronchial lipoma was made (Figure 3*A*).

His thoracic discomfort was not deemed related to the endobronchial or hilar lipoma, and resolved spontaneously.

Case 2

A 73-year-old woman was initially hospitalized in the Department of Urology for a transurethral resection of a bladder epithelioma. Postoperatively she developed cough, fever, and became dyspnoeic. Her clinical history was significant for smoking (50 pack years of cigarettes), an appendectomy, and a hysterectomy.

On clinical examination there were some crackles over the lower lobe of the right lung; her pulse was 74/min, had a blood pressure of 173/85 mm Hg, and a temperature of 38.6°C.

The patient was referred to the Department of Pneumology for further investigation. A chest radiograph showed atelectasis of the right lower lobe and pleural effusion. A CT-scan was performed and showed an obstruction of the right intermediate bronchus with retro-obstructive atelectasis of the right lower lobe and some pleural effusion (Figure 1*B*). Furthermore, there were enlarged mediastinal and hilar lymph nodes.

Videobronchoscopy revealed a polypoid endobronchial tumor obstructing the intermediate bronchus (Figure 2*B*). Forceps biopsy of this lesion during flexible bronchoscopy was difficult due to the movement of the polyp and the firmness of the tissue. Pathologic examination of these bronchial biopsies was normal.

Because of the clinical suspicion of an underlying malignancy and the presence of enlarged lymph nodes on CT-scan, a cervical mediastinoscopy was performed. Patho-

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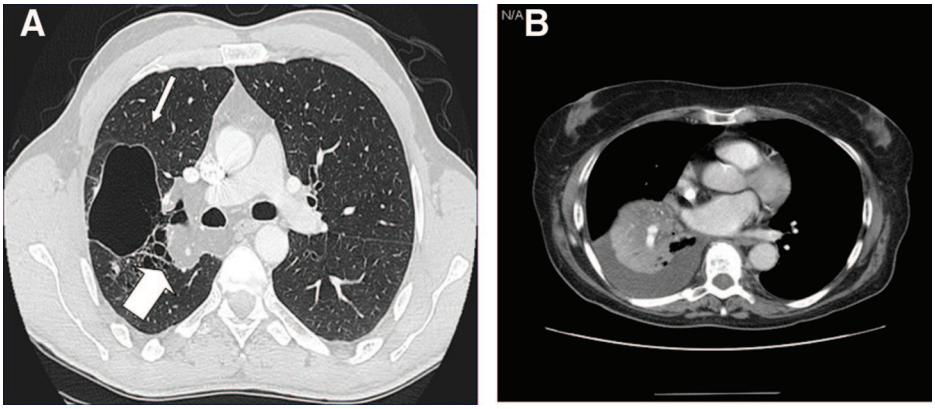

FIGURE 1. CT thorax. *A.* Case 1. There is a hilar mass on the right side, with the density compatible with fat. (large arrow) The other mass is of a cystic structure and is located next to the previous one. (Small arrow). *B.* Case 2. There is an obstruction of the right bronchus intermedius with an atelectasis and a pleural effusion.

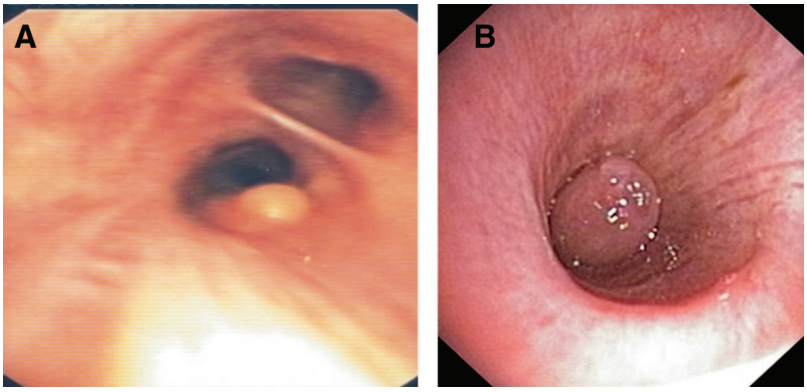

FIGURE 2. *A* and *B.* Two examples of an endobronchial lipoma. *A.* A yellow mass in the right lower lobe bronchus. *B.* A "polyplike" endobronchial tumor obstructing the bronchus Intermedius.

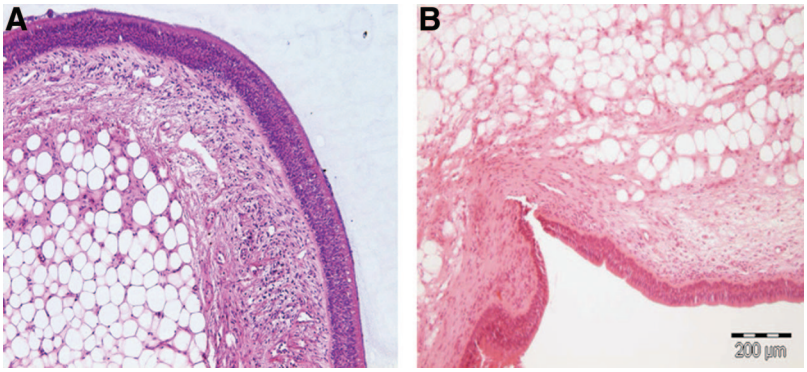

FIGURE 3. Endobronchial biopsy specimens. *A.* A fragment of respiratory epithelium without cytonuclear atypia with fat tissue located centrally. There are univacuolar mature fat cells, uniform in form and size, so the diagnosis of an endobronchial lipoma is made. *B.* A fragment of respiratory epithelium. There is normally differentiated adipose tissue, consisting of adult adipocytes. There is a varying degree of fibrosis. The specimen is identified as an endobronchial lipoma.

logic examination of the paratracheal nodes showed reactive lymphoid tissue without evidence for malignancy.

To obtain a definite histologic diagnosis of the endobronchial lesion the polyp was finally resected endoscopically with a rigid bronchoscope.

The histologic specimen (Figure 3*B*) showed multiple fragments bordered with pseudostratified ciliated columnar epithelium to one side. The stroma was focally infiltrated by lymphocytes and plasma cells. Deeper, there was normally differentiated adipose tissue, consisting of adult adipocytes. There was a varying degree of fibrosis. The specimen was identified as an endobronchial lipoma.

To date, nearly 2 years after her initial diagnosis, there are no signs of any recurrence of her endobronchial lipoma, although we did not perform a repeat bronchoscopy.

DISCUSSION

Most of lung tumors are malignant (either primary bronchial carcinomas or metastatic lesions). Only 5% of all lung tumors are benign. Ninety percent of these benign lesions are adenomas (mucous cell adenoma, pleomorphic adenoma, and oncocytoma) or hamartomas.

Although lipoma is the most common tumor of the body, endobronchial lipomas are extremely rare. They are benign tumors, with an incidence reported to range from only 0.1 to 0.5% in all lung tumors.[1,2] They are probably one-sided developments of the mixed mesenchymoma (so-called hamartoma).[3] They have no premalignant connotation. Lipomas, as benign pulmonary tumors, can be found endobronchially, intrapulmonary, and mediastinal.

Intrapulmonar lipomas are extremely rare. There are only nine published cases. The most common parenchymal location is in the periphery surrounded by normal lung tissue. They typically give no complaints and grow until they are noticed as a sharp delineated lesion on a chest radiograph. At CT they are well differentiated lesions with a homogeneous fat attenuation.

Endobronchial lipomas are very rare. Their incidence ranges from 0.1 to 0.5% of all pulmonary tumors. A total of 3.2 to 9.5% of all benign endobronchial tumors are lipomas. Muraoka et al.[4] published a series of 64 cases in Japan. Seventy-five percent of patients are symptomatic with cough as the most frequent complaint. The other symptoms include: increased sputum, hemoptysis, fever, and dyspnea. Eighty percent of patients have abnormalities on chest radiograph (e.g., atelectasis, consolidation, or mass).

The accuracy in making the diagnosis of lipoma by bronchial biopsy is low (31%).[4] The presence of a thick fibrous capsule makes it hard to obtain a good biopsy specimen, as was the case in our second patient. In such cases helical CT can be of value.[5] By describing its imaging characteristics (a pedunculated homogeneous lesion with attenuation of around–100 HU) a diagnosis of a lipoma can be made. The definitive diagnosis, however, is often made after surgical treatment. Resection by bronchoscopy is considered the first choice of treatment. It can be performed by snaring forceps or laser therapy during rigid bronchoscopy. Recurrence rate is low.[4] In the Japanese series of 64 patients with an endobronchial lipoma, 17 of them received an endobronchial procedure. None of them developed a recurrence.

Nassiri et al.[6] performed a retrospective multicenter study investigating the role of interventional bronchoscopic techniques in the management of endobronchial lipomas between 1981 and 2002. Thirty-six of 38 patients underwent a rigid bronchoscopic intervention. The majority of lipomas were removed by lasering and mechanical debulking (76.3%). There was no recurrence in the follow-up period.

Sometimes surgical resection is indicated in case of diagnostic difficulties (such as the presence of extrabronchial growth, destructive lung disease due to long term atelectasis or pneumonia, and difficulties to obtain a good histologic sample).

In one of our patients an endobronchial lipoma was associated with a hilar lipoma, an association that was never described before.

CONCLUSION

Endobronchial lipomas are rare benign tumors. The accuracy of a transbronchial biopsy is low due to the presence of a thick fibrous capsule. Demonstration of homogeneous fat attenuation by CT imaging can guide the differential diagnosis. If the endobronchial lipoma causes symptoms, then resection by bronchoscopy is the first choice of treatment. Lipomas have no premalignant connotation and the local recurrence rate is low.

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