Endobronchial lipomatous hamartoma diagnosed on computed tomography scan in young new mother—A case report

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Abstract

INTRODUCTION: Hamartoma is the most common benign lesion of the lung, but endobronchial localisation is rare. Typically occurs between the fifth and seventh decade of life and in literature has never been described in association with pregnancy.

PRESENTATION OF CASE: We report the case of a young woman in whom the tumor seems to have gone to meet an increase in size after two pregnancies in the course of her life.

DISCUSSION: The pulmonary hamartoma is the most common benign lesion of the lung, but endobronchial localisation is rare. Early diagnosis and resection of benign endobronchial tumors may avert significant morbidity and prevent distal lung damage.

CONCLUSION: Following histological examination reassessment of the clinical history of our patient led us to hypothesize, on the basis of pathophysiological, a rise in the size of the endobronchial lesion given by hormonal stimulation pregnancy-related.

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1. Introduction

Lung hamartomas are the most common benign pulmonary tumors (incidence between 0.025% and 0.32%), mostly localized in the peripheral lung and endobronchial localization is rare. Typically occurs between the fifth and seventh decade of life and in literature has never been described in association with pregnancy. We report the case of a young woman in whom the tumor seems to have gone to meet an increase in size after two pregnancies in the course of her life.

2. Presentation of case

We report the case of a 31 years old female patient with endobronchial hamartoma diagnosed by CT scan after repeated episodes of chest pain and pyrosis. The first admission in March 2013, new mother for three months, the patient comes in pulmonology for the sudden appearance of stabbing chest pain, nocturnal cough and heartburn. A history of GERD treated with antacids as needed, and bronchial asthma onset after an episode of pneumonia arose during the first pregnancy occurred two years earlier.

Chest X-ray was performed and reported evidence of a prominent right hilum and a subtle increase in parenchymal density in the middle lung field but a mass could not be clearly identified (Fig. 1).

In June 2013, the patient returned to our structure for sudden onset of stabbing chest pain associated with dyspnea and fever. The laboratory tests revealed a mild neutrophilic leukocytosis associated with decreased hematocrit (35%) and slightly increased NSE.

A contrast-enhanced MD-CT scan of the chest was performed and revealed a beginning middle lobe pneumonia and presence of a mass within the bronchus intermedius consisting mostly of fat with minimal inclusions of soft tissue density (Fig. 2). Multplanar reconstruction with axis parallel to the bronchus clearly showed that the lesion determined subtotal obstruction of the bronchus intermedius (Fig. 3).

The bronchial wall was very uneven and seemed to have a continuous solution on the outside, making its content not separable from the lesion (Fig. 4). Virtual-bronchoscopy reconstruction from the non-enhanced CT scan displayed the mass within the bronchus intermedius (Fig. 5).

Based on the findings and subsequent consultation between radiologist, pulmonologist and thoracic surgeon, the patient underwent wedge resection of the bronchus intermedius by thoracotomy. The macroscopic and microscopic sections of the lesion are shown in Figs. 6 and 7 respectively.

3. Discussion

The pulmonary hamartoma is the most common benign lesion of the lung, but endobronchial localization is rare (Figs. 6 and 7).
Fig. 1. CXR shows a poorly demarcated opacity in the right upper lobe (red arrow) with a normal aspect of the pulmonary hilum (white arrow).

Fig. 2. Non contrast CT shows the presence of a well demarcated endobronchial (right main bronchus) mass characterized by smooth margins and negative density (−89HU).

Fig. 3. Oblique multiplanar CT reconstruction (lung window) shows entirely the mass within the right main bronchus lumen just before the bifurcation of the anterior segmental bronchus of the upper lobe and posterior segmental bronchus of the upper lobe.

Fig. 4. Non contrast CT axial section (pulmonary window) shows the endobronchial mass (red arrow) that obstructs the right main bronchus.

Fig. 5. 3D reconstruction (virtual bronchoscopy) at the carina level shows a smooth mass that obstructs the right main bronchus lumen.

Fig. 6. Macroscopic section of the lesion. Courtesy of Prof. Giorgio Cavaliere, Department of General and Thoracic Surgery, “S. Anna” University Hospital, Ferrara, Italy.
Endobronchial hamartomas originate from the bronchus and may contain components of mature cartilage, muscle, fat, fibrous tissue, and epithelial components. Typically, endobronchial hamartoma contains more fat than parenchymal hamartoma. Clinical symptoms include cough, wheezing, and intermittent shortness of breath leading to misdiagnoses of asthma or chronic obstructive pulmonary disease. Sensitivity of chest X-ray in the diagnosis of endobronchial tumors is low (66%). Findings are often nonspecific and related to postobstructive changes such as pleural effusions and atelectasis in symptomatic patients and enlarged hila, parenchymatus consolidation, and bronchiectasis in asymptomatic patients. MDCT and MRI can narrow differential diagnoses to endobronchial lipomatous hamartoma or endobronchial lipoma if the tumor contains fatty tissue. CT then typically shows a fatty lesion with a density between 70 HU and 140 HU without contrast enhancement. Whereas endobronchial lipoma shows a homogenous fat density, tissue density is more heterogenous in hamartoma and might show additional calcification in up to one third of hamartomas. Similar results can be obtained by MRI. Early diagnosis and resection of benign endobronchial tumors may avert significant morbidity and prevent distal lung damage. Prognosis of endobronchial hamartoma is good.

Subsequently, the inflammatory episodes were not more presented until the second pregnancy, during which the patient had complained a worsening of dyspnea and two episodes of pneumonia after 4 months of each other. The first episode two months after the birth of his second child, investigated through chest X-ray. Three months later, a further episode of inflammation has led our team to investigate the case and to the execution of CT scan that has undergone a clear diagnosis and led to the planning of surgery.

Following histological examination reassessment of the clinical history of our patient led us to hypothesize, on the basis of pathophysiological, a rise in the size of the endobronchial lesion given by hormonal stimulation pregnancy-related. However, the disease is still poorly described in the literature and we have not found evidence that would show a possible growth of this tumor in pregnancy.

Conflict of interest

All authors report no financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work.

Funding

The study did not require funds.

Ethical approval

There was no need to seek the opinion of the ethics committee, because the patient has came to our observation for diagnostic tests and it was not necessary to carry out special investigations, if not routine ones.

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy
of the written consent is available for review by the Editor-in-Chief of this journal on request

**Author contributions**

Daniele De Falco Alfano: study design, Marilina Totaro: writing, Riccardo Duati: writing, Andrea Bernardoni: figures, Nicola Murri Dello Diago: writing, Melchiore Giganti: reference.

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