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CLINICAL CASE

Video-assisted thoracic surgery diagnosis of mucinous (colloid) lung adenocarcinoma: Case report[☆]



David Esmer-Sánchez^{a,*}, Carlos Adrián Jiménez-González^b, Cuauhtémoc Oros-Ovalle^c, Jesús Emmanuel Arriaga-Caballero^d

^a Departamento de Cirugía, Hospital Central «Dr. Ignacio Morones Prieto», San Luis Potosí, Mexico

^b Neumología, Facultad de Medicina, Universidad Autónoma de San Luis Potosí, San Luis Potosí, Mexico

^c Departamento de Patología, Hospital Central «Dr. Ignacio Morones Prieto», San Luis Potosí, Mexico

^d Departamento de Epidemiología y Salud Pública, Facultad de Medicina, Universidad Autónoma de San Luis Potosí, San Luis Potosí, Mexico

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KEYWORDS

Colloid carcinoma;
Lung;
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Abstract

Background: Mucinous colloid lung adenocarcinoma is an uncommon variant of lung carcinomas with similar features to tumours seen in the gastrointestinal tract. To distinguish between these tumours and other mucinous lung tumours, such as mucinous bronchioloalveolar cell carcinomas and metastatic mucinous lesions could be difficult with small biopsy specimens from fine needle aspiration.

Clinical case: The case is described of a 49-year-old female with history of dyspnoea and cough with bloody sputum and weight loss. Thorax axial computed tomography demonstrated a right lower lobe spiculated mass with calcifications. Transthoracic computed tomography-guided fine needle biopsy reported negative results, and the biopsy obtained with video-assisted thoracic surgery was useful for an adequate cytology report of a colloid variant of mucinous lung adenocarcinoma.

Conclusion: Video-assisted thoracic surgery is an appropriate option for obtaining a larger specimen in those cases where small biopsies are inconclusive for the diagnosis of thoracic pathologies such as malignant tumours.

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* Corresponding author at: Palmira 260 int 302, Col.: Pedregal 78240, San Luis Potosí, Mexico. Tel.: +52 44 4813 5519; fax: +52 44 4817 4465.

E-mail address: esmer_david@hotmail.com (D. Esmer-Sánchez).

PALABRAS CLAVE

Carcinoma coloide;
Pulmón;
Adenocarcinoma;
Adenocarcinoma
mucinoso;
Cirugía torácica
asistida por video

Diagnóstico de adenocarcinoma mucinoso (coloide) pulmonar por cirugía torácica asistida por video. Reporte de caso

Resumen

Antecedentes: El adenocarcinoma mucinoso pulmonar es una variante infrecuente de los carcinomas de pulmón con características similares a los tumores observados en el tracto gastrointestinal. La distinción entre estos tumores y otros tumores mucinosos pulmonares como el carcinoma mucinoso de células bronquioloalveolares y lesiones mucinosas metastásicas podría ser difícil, con pequeñas muestras de biopsia como en la aspiración con aguja fina.

Caso clínico: Se describe el caso de una paciente de 49 años con historia de disnea, tos, esputo hemoptoico y pérdida de peso; la tomografía computada torácica muestra un tumor del lóbulo inferior derecho, con espículas y calcificaciones. La biopsia con aguja fina transtorácica guiada por tomografía reportó: resultados negativos, y la biopsia pulmonar con cirugía torácica asistida por video, fue adecuada para el diagnóstico citológico de adenocarcinoma mucinoso pulmonar variante coloide.

Conclusiones: En casos donde las biopsias pequeñas no son esclarecedoras para el diagnóstico de alguna enfermedad torácica, principalmente tumorales malignas, la cirugía torácica asistida por video es una opción adecuada para la obtención de biopsias de mayor tamaño.

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Background

Mucinous, colloid carcinoma is a rare variant of lung adenocarcinoma.¹⁻³ Histopathological diagnosis tends to be difficult with small specimens such as those obtained by fine needle aspiration biopsy (BAAF). These tumours have distinctive macroscopic characteristics, they are usually strawberry-jelly like masses which are poorly circumscribed and of smooth consistency, under the microscope large amounts of mucin can be seen with low neoplastic cellularity of adenocarcinoma.^{1,4}

Clinical case

A 49-year old woman, with a history of smoking and cervical cancer 10 years ago, treated with radiotherapy. She attended hospital due to weight loss of 10 kg over 7 months, and 3 months with a non-productive cough and dyspnoea on minimal effort: for the past month she had had blood in her sputum and pleuritic pain in her right hemithorax. On physical examination she had diminished breathing sounds in the lower right hemithorax with dullness to percussion. As there were no further findings on examination and anamnesis, it was decided to perform complementary laboratory tests.

Spirometry was performed, which was normal. Chest X-ray showed consolidation in the middle right lobe of the lung, and computed tomography of the chest showed a large mass in the lower right lobe with calcifications (Fig. 1).

Due to the abovementioned findings, a tomography-guided transthoracic fine needle biopsy was performed, the histopathological report from that biopsy was negative, therefore an incisional biopsy was performed via video-assisted thoracic surgery, and the tumour had the

appearance of a gelatinous substance resembling strawberry jam (Fig. 2).

Macroscopically, this was a lung fragment 4.5 cm × 2 cm × 2 cm, with extensive yellowish and white areas calcified in a mucoid matrix. Histologically, the pathologist identified malignant columnar epithelium in a matrix of mucin, with positive alcian blue stains and periodic acid-Schiff (PAS). There were extensive areas of calcification with fibrous septa; a primary extrapulmonary neoplasm was ruled out, and therefore the final diagnosis was mucinous adenocarcinoma of the lung (Figs. 3-5).

This patient was not a candidate for surgery and received chemotherapy alone. She died one year after diagnosis.

Discussion

Lung tumours which produce large amounts of extracellular mucin matrix, termed "mucinous carcinoma" or "colloid carcinoma", are described as a variant of bronchial adenocarcinoma. This type of carcinoma is more common in the mammary gland and the gastro-intestinal tract, and is very rare in the lung.^{1,2,5}

The typical growth pattern of mucinous adenocarcinoma of the lung is an accumulation of abundant extracellular pools of mucin with destruction of the normal lung parenchyma. These types of tumour behave aggressively.

Diagnosis is difficult with small specimens, due in the main to the soft characteristics of the tumour and the scarcity of neoplastic cells. This is why these types of specimens have given false-negative diagnoses: as in our case, where the swabs in the first selection from the BAAF biopsy showed negative for a neoplasm of the lung. Another factor which led to a false negative was the type of tumour, which in itself was exceptional.



Figure 1 Thoracic CT scan, axial and coronal slices showing a hyperdense lesion with diffuse calcifications in its interior, in the anterior and lateral basal segments, in the lower right lung lobe.



Figure 2 Lung biopsy obtained by video-assisted thoracic surgery, for histopathological study.

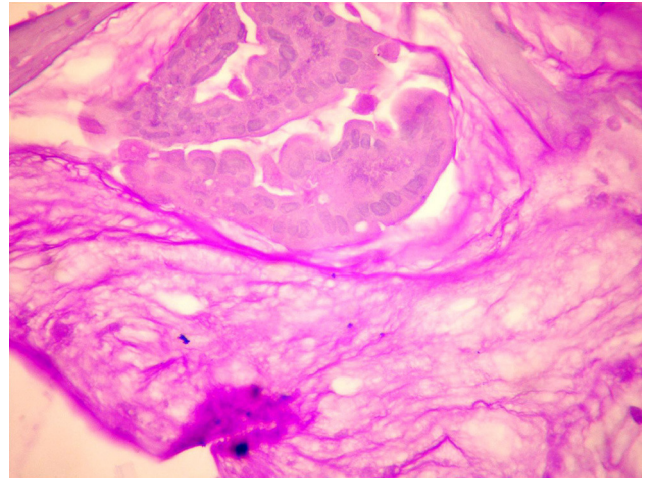


Figure 4 Island of neoplastic cells immersed in mucin matrix, periodic acid-Schiff (PAS) positive, characteristic of mucinous carcinoma.

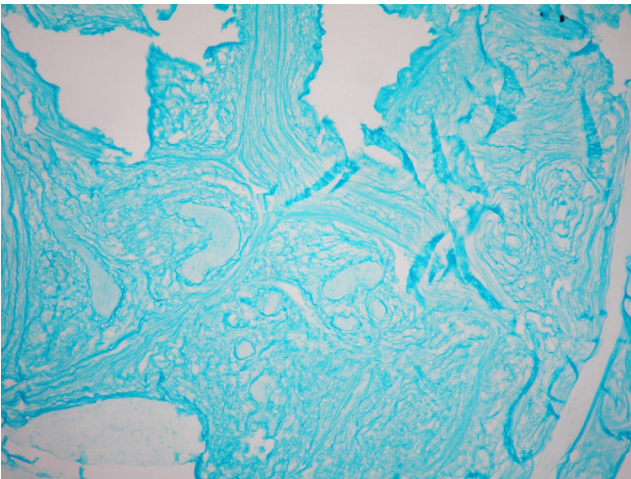


Figure 3 Histopathological slice of mucinous adenocarcinoma with alcian blue stain which we can see is strongly positive, 100 \times .

With this disease, it is only possible to reach a correct diagnosis if large tissue specimens are obtained. In our case we considered that video-assisted thoracic surgery was a useful diagnostic tool for an unusual type of lung cancer.

Mucinous (colloid) adenocarcinoma is a disease with a frequency of 0.25%, and is a well-differentiated variant of mucinous carcinoma, which is difficult to distinguish from a

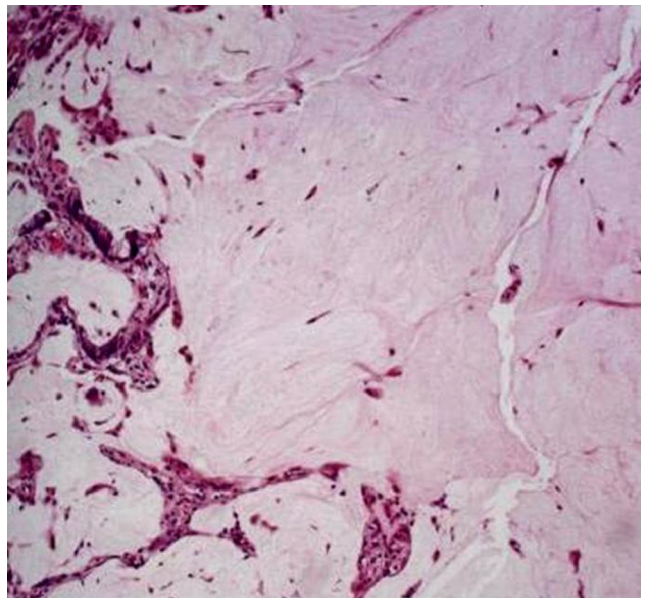


Figure 5 Vacuolated neoplastic cells of adenocarcinoma immersed in a matrix of abundant mucin. The alveolar walls are deformed due to the neoplastic proliferation. Haematoxylin and eosin, 200 \times .

metastasis, and can present as a colloid carcinoma or signet ring cell carcinoma with psammomatous calcifications, accompanied by fibrosis and inflammations. These observations help to differentiate it from a metastasis.⁶ This tumour has an unusual histological pattern in medical literature.

As reported by Moran et al.,¹ the behaviour of these types of tumour is similar to that of bronchioloalveolar carcinomas. They have a poor prognosis, more often affect middle-aged patients, and have a male to female ratio of 1.7:1.³ This patient was not a candidate for surgery and received chemotherapy alone, to which she did not respond well. The patient died one year after diagnosis.

Conclusions

Various diseases, principally tumorous diseases, require specimens of a considerable size in order to make a correct histopathological diagnosis, because the usual methods such as BAAF do not completely clarify the disease type, as in the case of mucinous adenocarcinoma of the lung, where video-assisted thoracic surgery can be a minimally invasive method which is ideal for acquiring more appropriate specimens and thus avoid more extensive surgery and achieve a firmer diagnosis.

Conflict of interests

The authors have no conflict of interests to declare.

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