



Case Report

Primary Pulmonary Sarcomatoid Carcinoma[☆]

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ABSTRACT

Objective: To describe the characteristics and the result of surgical treatment in a series of patients with primary pulmonary sarcomatoid carcinoma (PSC).

Methodology: A descriptive study of 11 patients with primary PSC who were treated by the Thoracic Surgery Department at the Hospital Universitario 12 de Octubre in Madrid (Spain) between 2005 and 2009. We analyzed age, gender, histologic type, pathological stage, type of surgery and survival (in months).

Results: Ten patients were male and 11 were smokers; mean age of was 55. The pathologic stages were: 4 stage IIA, 3 stage IIB, 2 stage IB and 2 stage IA. The most frequent histologic type was pleomorphic carcinoma, which was found in 5 cases. Complete resection was performed in 10 cases, and 7 received adjuvant therapy. Seven are disease-free after a mean follow-up period of 49 months.

Conclusions: Complete surgery in the initial stages of primary PSC can improve survival.

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Carcinomas sarcomatoides pulmonares primarios

RESUMEN

Objetivo: Describir las características y el resultado del tratamiento quirúrgico de una serie de pacientes con carcinomas sarcomatoides pulmonares primarios (CSPP).

Metodología: Estudio descriptivo de 11 pacientes con CSPP operados en el Servicio de Cirugía Torácica del Hospital Universitario 12 de Octubre de Madrid entre 2005 a 2009. Se analizó: edad, género, tipo histológico, estadio patológico, tipo de cirugía y supervivencia en meses.

Resultados: Diez pacientes eran varones y 11 eran fumadores, con una edad media de 55 años. Los estadios patológicos fueron 4 estadios IIA, 3 estadios IIB, 2 estadios IB y 2 estadios IA. El tipo histológico más frecuente fue el carcinoma pleomórfico, con 5 casos. Se realizó resección completa en 10 casos, y 7 recibieron terapia adyuvante. Siete de ellos se encuentran libres de enfermedad en un periodo de seguimiento con una media de 49 meses.

Conclusiones: La cirugía completa en estadios iniciales de los CSPP puede mejorar la supervivencia.

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Palabras clave:

Carcinomas sarcomatoides
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Introduction

Sarcomatoid carcinomas of the lung and pleura are rare tumors with a complex differential diagnosis. Primary pulmonary sarcomatoid carcinomas (PSC) must be differentiated from sarcomas and metastatic carcinoma, and account for 0.3%

of all malignant neoplasms of the lung. Since 2004, they have been classified according to the WHO grading system as pleomorphic carcinoma, fusiform cell carcinoma, giant cell carcinoma, carcinosarcomas and blastomas.¹ The histological diagnosis may be suspected by the analysis of small samples, but definitive diagnosis is only possible with the complete tumor resection, due to its histological heterogeneity and pleomorphism.¹

This disease generally occurs in older adults, with a mean age of 60–70 years, mainly males and smokers. The prognosis for these patients is poor, with a mean survival of 9–12 months in patients with complete tumor resection and 5-year survival of approximately 20%.²

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Table 1
Characteristics of Patients With Primary Pulmonary Sarcomatoid Carcinomas.

Histological type	Disease stage	Age	Gender	Smoker	Location	Resection	Follow-up	Adjuvant treatment/recurrence
Pleomorphic carcinoma	IIA	76	Male	Yes	Middle lobe	Lobectomy	72 months	Chemotherapy
Carcinosarcoma	IIB	59	Male	Ex-smoker	Right upper lobe	Lobectomy	72 months	Chemotherapy
Pleomorphic carcinoma	IIA	54	Male	Ex-smoker	Left upper lobe with endobronchial lesion	Pneumonectomy	2 months (died)	Chemotherapy radiation therapy on recurrence
Fusiform cell variant	IIB	46	Male	Yes	Left upper lobe with endobronchial lesion	Pneumonectomy	60 months	Chemotherapy
Carcinosarcoma	IA	52	Female	Yes	Left upper lobe	Lobectomy	48 months	No
Pleomorphic carcinoma	IIB	80	Male	Ex-smoker	Left upper lobe with endobronchial lesion	Lobectomy (incomplete surgery)	14 months (died)	Chemotherapy
Carcinosarcoma	IIB	57	Male	Yes	Left upper lobe with endobronchial lesion	Pneumonectomy	36 months	Chemotherapy
Giant cell variant	IIB	62	Male	Yes	Right upper lobe	Pneumonectomy	3 months (died)	Chemotherapy Radiation therapy on recurrence
Giant cell variant	IB	74	Male	Ex-smoker	Right lower lobe	Lobectomy	30 months	No
Pleomorphic carcinoma	IA	52	Male	Ex-smoker	Left lower lobe	Lobectomy	25 months	No
Pleomorphic carcinoma	IB	67	Male	Ex-smoker	Left upper lobe	Lobectomy	8 months (died)	No

Methodology

This was a retrospective, descriptive study in which 488 lung resections for lung cancer carried out in the Thoracic Surgery Department of Hospital Universitario 12 de Octubre de Madrid between 2005 and 2009 were reviewed; data were obtained from the clinical records of the hospital's Commission on Cancer Registry. Patients with a histological diagnosis of primary pulmonary sarcomatoid cancer were selected and analyzed. In all cases, contrast computed tomography of the lower cervical spine, chest and abdomen was performed, and a bronchoscopy was carried out. Age, gender, histological type, disease stage, type of surgery (complete with free surgical margins), survival in months, adjuvant treatment (chemotherapy or radiation therapy), tumor recurrence and disease-free survival were analyzed in all patients.

Results

Of the total of 488 patients with lung resections, 11 had a histological diagnosis of primary pulmonary sarcomatoid carcinoma. Of these, 10 were male and all had a history of smoking: 6 ex-smokers and 5 active smokers. They were aged between 46 and 80 years with a mean age of 55 years. Eight had tumors confined to the upper lobe and 4 had an endobronchial lesion (Table 1).

The preoperative diagnosis obtained from bronchoscopy was as follows: 6 cases of large cell carcinoma, 2 cases of epidermoid carcinoma, one case of adenocarcinoma and 2 undiagnosed cases.

The disease stages were as follows: 4 cases of stage IIA, 3 stage IIB, 2 stage IB and 2 stage IA.

The most frequent histological type was pleomorphic carcinoma, which was found in 5 cases, followed by 3 carcinosarcomas, 2 giant cell variants and one fusiform cell carcinoma.

Surgical resection was performed in all 11 cases (7 lobectomies and 4 pneumonectomies); in one of the cases the resection was incomplete due to infiltration of the bronchial resection margin. Eight patients received adjuvant therapy with chemotherapy: 4 with stage IIA, 3 with stage IIB and one patient with stage IB. Two of the latter also received radiation therapy.

Of the 10 patients with complete resection, 7 were disease-free for a follow-up period of between 25 and 72 months (mean=49 months). Three patients died 2, 3 and 14 months after surgery, and two had distant recurrence after 2 and 8 months. These latter patients received chemotherapy and radiation therapy.

Of the 4 patients who died, 3 had pleomorphic carcinoma.

Discussion

In this case series, all the patients had a history of smoking and the majority were men, which corresponds with the characteristics of other published series.^{3,4} Moreover, endobronchial lesions are common in this type of neoplasm.⁵

All patients with complete resection who died had the pleomorphic carcinoma histological type, which appears to be the most common and aggressive variant, with a survival of between 5 and 35 months.^{6–8}

In this series, 70% of the patients who had complete surgical resection had a mean disease-free survival of 49 months, which contrasts with other published series that report short periods of survival.^{3,9,10} This is probably because most of these patients underwent surgery in the early stages of the disease and no pathological lymph nodes were found in any of the cases.¹¹

Very few data are available in the literature on adjuvant chemotherapy and radiation therapy in these types of tumors. This approach has been proposed in some publications, but as the series in question were very small, the results are inconclusive. Moreover, preoperative histological diagnosis is rarely available in these patients, due to the need for large samples to obtain the diagnosis.¹² However, many authors recommend adjuvant treatment according to the disease stage.¹¹ In our patients, chemotherapy was administered to patients with clinical stage IIA or higher and radiation therapy was reserved only for cases of tumor relapse.

In conclusion, pulmonary sarcomatoid carcinomas are a very rare group of neoplasms with a poor prognosis. Nevertheless, complete surgery in the early stages of the disease substantially improves survival.

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