

examination were normal. A standard workup revealed a carcinoembryonic antigen concentration of 20 ng/mL and lactate dehydrogenase concentration of 1321 U/L; the other variables were normal. A skin biopsy of the lesion revealed a dense cellular proliferation occupying the dermis. The lesion was composed of small cells with irregular basophilic nuclei, indicating poorly differentiated squamous cell carcinoma. The chest x-ray showed a mass with irregular borders in the anterior segment of the left lower lobe and another in the anterior segment of the left upper lobe, with accompanying pneumonitis (Figure B). Computed tomography of the chest and abdomen revealed a mass in the left upper and lower lobes, with enlarged hilar and mediastinal lymph nodes and possible adrenal metastasis. Fiberoptic bronchoscopy revealed a tumor in the posterior segment of the left lower lobe and infiltration of the mucosa in the trachea, the carina, the main bronchus, and the left upper lobe. The histologic and anatomic examination of the tumor biopsy and the bronchial aspirate showed cells indicating squamous cell carcinoma. The subsequent clinical course included additional cutaneous metastases of 1 to 2 cm in the paraumbilical region, with no ulceration. Respiratory symptoms worsened and the patient died 3 months after the initial diagnosis.

Tumors tend to invade other organs, including the skin, but distant cutaneous metastasis is rare. Lung tumors, which metastasize to the brain, bone, liver, and adrenal glands, are also responsible for most cases of metastases to the skin in men; in women, cutaneous metastasis is usually from a breast tumor.²

Cutaneous invasion may develop by direct extension from underlying structures, such as from lung and breast tumors, which are usually located in the anterior chest wall; by accidental seeding during diagnostic procedures, leading to lesions around the scar; by lymphatic embolization, in which case there is a predilection for the skin near the tumor; and by hematogenic spread, with possible early-onset lesions at remote sites. The preferred location is the anterior side of the chest, followed by the abdomen, the back, the scalp, and the face; metastasis to the skin of the extremities is rare.³ The most common forms are isolated or multiple nodules that are hard, normal to reddish-purple in coloring, and 5 to 60 mm in diameter. They grow rapidly, are painless, and may ulcerate. They may extend deep into the dermis and subcutaneous layers or may remain superficial. Histologically, undifferentiated lung cancer is the type that most frequently metastasizes to the skin (50%), followed by adenocarcinoma and squamous cell carcinoma (30% each).⁴ Pathology

of a metastatic skin lesion does not indicate the location of the primary tumor, but can suggest it.⁵

Cutaneous metastasis as the first sign of lung cancer is rare. In a large series of lung cancer cases with cutaneous metastatic lesions, the latter preceded the diagnosis of cancer in 14%. Metastasis to the skin of the nose as a first location has occasionally been reported associated with breast^{6,7} and, exceptionally, lung cancer.⁸ Lung cancer metastases may resemble lymphoma.⁹ As occurred in our patient, they may cause a "clown nose," so called because of the red color of the lesion, particularly at the tip.

The prognosis is poor for patients with lung cancer that metastasizes to the skin, as the disease has already reached an advanced stage. Survival ranges from 2.6 to 10 months after the discovery of metastasis; mean survival is 5 months.¹³ It is important to recognize cutaneous metastasis, as it may be the first sign of a silent neoplasm. These lesions always indicate an advanced stage of the disease, however, and their presence is considered a preterminal event.² "Clown nose" should therefore warn of the presence of an internal tumor.

References

1. Brady LW, O'Neill EA, Farber SH. Unusual sites of metastases. *Semin Oncol*. 1977;4:59-64.
2. Brownstein MH, Helwing EB. Patterns of cutaneous metastasis. *Arch Dermatol*. 1972;105:862-8.
3. Coslett LM, Katlic MR. Lung cancer with skin metastasis. *Chest*. 1990;97:757-9.
4. Terashima T, Kanazawa M. Lung cancer with skin metastasis. *Chest*. 1994;106:1448-50.
5. Vila Justribo M, Casanova Seuma JM, Portero L, Egido R. Metástasis cutáneas como primera manifestación de carcinoma broncogénico. *Arch Bronconeumol*. 1994;30:314-6.
6. de Simoni I, Iacovelli P, Lunghi F, Peris K, Chimenti S. "Clown nose" as a first manifestation of lung carcinoma. *Acta Derm Venereol*. 1997;77:406-7.
7. Soyer HP, Cerroni L, Smolle J, Kerl H. "Clown nose" skin metastasis of breast cancer. *Z Hautkr*. 1990;65:929-31.
8. Rubinstein RY, Baredes S, Caputo J, Galati L, Schwartz RA. Cutaneous metastatic lung cancer: literature review and report of a tumor on the nose from a large cell undifferentiated carcinoma. *Ear Nose Throat J*. 2000;79:96-101.
9. Nesi R, Lyfield Y. Rhinophymalike metastatic carcinoma. *Cutis*. 1996;57:33-6.

Ana Camarasa Escrig*, Eusebi Chiner Vives,
and Jesús N. Sancho Chust

*Servicio de Neumología, Hospital Universitario San Juan de
Alicante, Alicante, Spain*

*Corresponding author.

E-mail address: anacamarasa@hotmail.com (A. Camarasa Escrig).

Continuous Interscalene Brachial Plexus Block: A Rare Cause of Pleural Effusion

Bloqueo continuo del plexo braquial por vía interescalénica: una causa poco común de derrame pleural

To the Editor:

We report a rare case of transient pleural effusion due to an interscalene brachial plexus block.

An 80-year-old woman was admitted to the orthopedics department for rupture of the tendons of the subscapularis and supraspinatus muscles of her right shoulder. Her past history was unremarkable. Routine preoperative clinical and laboratory examinations, arterial blood gases, and chest radiography were all normal.

The patient underwent right shoulder arthroscopy. After successful surgery, a continuous interscalene brachial plexus block was started to provide postoperative analgesia. The morning after surgery the patient complained of dyspnea and chest pain and was referred to the respiratory medicine clinic. On physical examination,

diminished breath sounds and egophony were found at the right lower lung region. A chest radiograph demonstrated a small right-sided pleural effusion. The routine laboratory findings were still within normal ranges and an electrocardiogram was normal. Thoracentesis was performed and 50 mL of pleural fluid was removed. The effusion was an exudate with lymphocyte predominance (75%). Cultures and cytology of the fluid were negative. A spiral computed tomography scan of the chest was performed to rule out the possibility of pulmonary embolism. A small right-sided pleural effusion with atelectasis of the underlying lower lung regions were the only findings. The interscalene catheter was removed. During the following days the patient's symptoms gradually improved and on the sixth postoperative day the pleural effusion had completely resolved with no further intervention.

As far as we know, this is only the second reported case of pleural effusion after a continuous interscalene brachial plexus block for postoperative analgesia.¹ This procedure is common in arm and shoulder surgery and is generally considered safe. A number of complications have been reported, including cardiac arrest, pneumothorax, central nervous system toxicity, aspiration of blood,

seizures, atelectasis, and nerve injuries)²⁻⁴; their frequency is extremely low. Abnormalities of pulmonary function and chest wall mechanics have also been observed, due to the potent ipsilateral paralysis of the phrenic nerve and the corresponding hemidiaphragm.^{5,6} This effect is reversible after removal of the catheter. The mechanism of pleural fluid formation during a continuous interscalene brachial plexus block is obscure. Irritation of the pleura by the catheter, underlying atelectasis or leakage of the anesthetic drug into the pleural cavity might be implicated. The benign nature of this extremely rare complication is confirmed by the disappearance of the effusion after removal of the interscalene catheter and the exclusion of other possible diagnoses. Close monitoring of the patient on the following days is essential.

References

1. Souron V, Reiland Y, Delaunay L. Pleural effusion and chest pain after continuous interscalene brachial plexus block. *Reg Anesth Pain Med.* 2003;28:535-8.
2. Borgeat A, Ekatodramis G, Kalberer F, Benz C. Acute and nonacute complications associated with interscalene block and shoulder surgery. *Anesthesiology.* 2001;95:875-80.
3. Turker G, Demirag B, Ozturk C, Uckunkaya N. Cardiac arrest after interscalene brachial plexus block in the sitting position for shoulder arthroscopy: a case report. *Acta Orthop Belg.* 2004;70:84-6.
4. Sardesai AM, Chakrabarti AJ, Denny NM. Lower lobe collapse during continuous interscalene brachial plexus local anesthesia at home. *Reg Anesth Pain Med.* 2004;29:65-8.
5. Urmey WF, McDonald M. Hemidiaphragmatic paresis during interscalene brachial plexus block: effects on pulmonary function and chest wall mechanics. *Anesth Analg.* 1992;74:352-7.
6. Pere P, Pitkanen M, Rosenberg DH, Bjorkenheim JM, Linden H, Salorinne Y, et al. Effect of continuous interscalene brachial block on diaphragm motion and on ventilatory function. *Acta Anesthesiol Scand.* 1992;36:53-7.

Psathakis Kostas,* Kokkonouzis Ioannis, and Polizois Fotis

Department of Pulmonology, Army General Hospital, Athens, Greece

*Corresponding author.

E-mail address: kpsazkis@hol.gr (P. Kostasza).

Pleural Effusion Associated With Pergolide Treatment

Derrame pleural asociado al tratamiento con pergolida

To the Editor:

Pergolide is an ergot-derived dopamine receptor agonist used to treat Parkinson disease. The administration of ergot derivatives has been associated with retroperitoneal fibrosis, pleural effusion and thickening, acute pneumonitis, pericarditis or pericardial effusion, and cardiac valve fibrosis.¹⁻³ We report a case of pleural effusion and fibrosis following the administration of pergolide that resolved completely after withdrawal of the drug.

Our patient was a 77-year-old man with a history of hiatal hernia, mild chronic obstructive pulmonary disease, and Parkinson disease for the last 5 years. He had been receiving treatment with carbidopa (125 mg/d), levodopa (950 mg/d), and pergolide (0.75 mg/d) for the last 3 years. In the last 2 months, because of a worsening of clinical symptoms, the dose of pergolide had been increased to 1.5 mg/d. The patient then consulted because of left pleuritic pain, cough, hemoptysis, and low-grade fever of 15 days. Lung sounds were diminished in the left hemithorax and a chest x-ray showed a left pleural effusion. Thoracentesis revealed a serosanguineous effusion with the biochemical characteristics of an exudate. Adenosine deaminase values were normal and cytology demonstrated a lymphocytic inflammatory infiltrate. Fiberoptic bronchoscopy showed a moderate bilateral inflammatory process; cytology and culture of samples were negative. A ventilation-perfusion scan was inconclusive for pulmonary thromboembolism. Chest computed tomography showed no evidence of pulmonary thromboembolism but did reveal a left pleural effusion. A pleural biopsy obtained with a Cope needle showed pleural fibrosis. Given the presence of a lymphocytic exudate without a definitive diagnosis, video-assisted thoracoscopy was performed; this showed a diffusely thickened pleura free of masses. Pleural biopsies were compatible with pleural fibrosis (Figure). Once malignancy was ruled out, a diagnosis of pleural fibrosis due to pergolide treatment was made and this drug was discontinued. At check-ups 6 and 12 months later, there were no signs of pleural effusion.

Pergolide may have toxic effects on the lung and pleura although toxicity is often a diagnosis of exclusion. Onset is insidious and dyspnea is the most frequent symptom.² Radiologic abnormalities have been observed in all patients who developed toxicity.^{2,3} The dosage of pergolide varies from 1 mg/d to 8 mg/d, and toxicity has been reported to present after dosage increases in patients receiving

treatment for several months, or even years,^{3,4} although there is no clear evidence that the toxic effect is dose-dependent. However, in our patient clinical symptoms did not manifest until 2 months after an increase in the pergolide dosage.

Diagnosing drug-related pleural toxicity is difficult. Often a pleural biopsy must be performed with the aim of ruling out other diagnoses. Once malignancy has been excluded, no definitive diagnosis is reached in 5% of cases of lymphocytic pleural effusion. A case of pleural effusion due to cabergoline was recently described in Spain.⁴ In this study there was no histologic confirmation and other diagnoses were not ruled out definitively.

Treatment in the majority of cases described consists of discontinuing the drug, although surgical management has sometimes been required (pericardiectomy, valve replacement).⁵ In our patient the clinical and radiologic improvement after the drug was withdrawn, the absence of other pleural disease, and stability on follow-up all confirm that pergolide was the cause of the pleural effusion. The mechanism by which ergot derivatives cause retroperitoneal or pleuropulmonary fibrosis is not well established. Pergolide has serotonergic effects, and it is hypothesized that serotonin may act as a profibrotic agent, with high concentrations enhancing fibroblastic activity and causing tissue damage.⁶

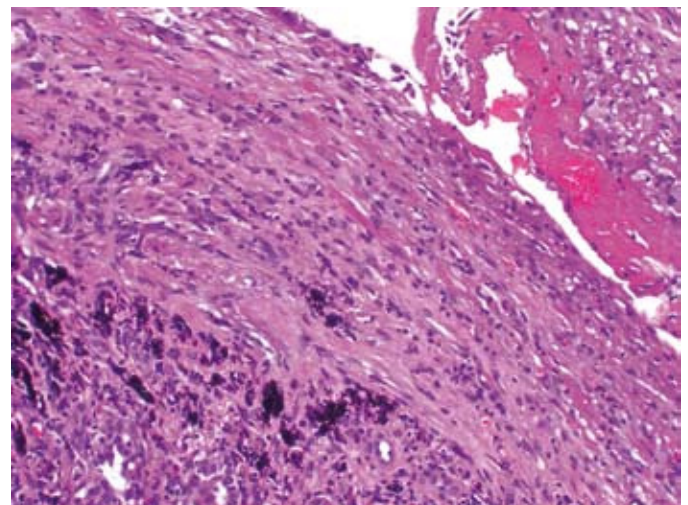


Figure. Pleural biopsy: lymphocytic infiltrate with areas of fibrosis, free of granulomas or cellular atypia. (Hematoxylin-eosin, $\times 20$.)