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.

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## 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 serotoninergic effects, and it is hypothesized that serotonin may act as a profibrotic agent, with high concentrations enhancing fibroblastic activity and causing tissue damage.[6]

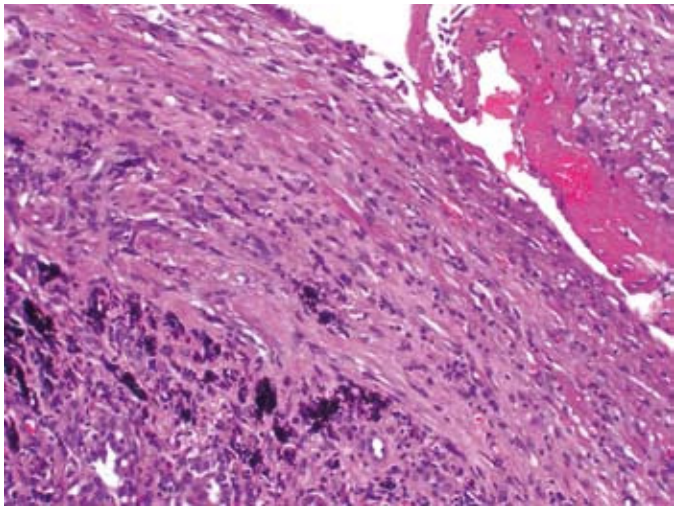

**Figure.** Pleural biopsy: lymphocytic infiltrate with areas of fibrosis, free of granulomas or cellular atypia. (Hematoxylin-eosin, ×20.)

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