Claude Bernard–Horner Syndrome as a Rare Complication of Postoperative Drainage

Síndrome de Claude Bernard–Horner como complicación poco frecuente del drenaje postoperatorio

To the Editor:

The relationship between Claude Bernard–Horner syndrome and drainage tubes or pleural drainage, though a rare complication, has led to 2 case reports in the Spanish and Latin American literature within a 6-month period. Each case evolved differently.

In the first case, in a patient with atypical carcinoid tumor, after a left posterolateral thoracotomy through the fifth intercostal space to perform a lower lobectomy and mediastinal lymph node dissection, 2 pleural drainage tubes were placed.[1] The dorsal tube was removed on the second day and the presence of Claude Bernard–Horner syndrome was detected; the condition persisted 3 years after surgery. In the other case, left video-assisted thoracopic surgery was performed for resection of the pulmonary apex to treat subpleural bubbles that had caused a third recurrence of pneumothorax.[2] In this case only 1 tube was placed, anterior to the lung; the syndrome was detected 36 hours after surgery, but the condition gradually improved and remission was complete 6 months after surgery.[2] In both cases the drain was removed as soon as the syndrome was detected.

What is noteworthy is that in both cases, each in a different disease context and after different surgical approaches to the left hemothorax, Claude Bernard–Horner syndrome may have been due to inappropriate placement of the drainage tubes or to displacement when the patients were changed to decubitus position or transferred. To avoid such risks, we recommend the use of silicon drainage tubes marked with radiopaque threads that warn when placement is dangerously close to the stellate ganglion.[3] Displacement is avoided by securing the tube on each side with sutures. The tube should not be removed early unless it is fulfilling no function because the lung has re-expanded and there is no further air leakage or if the amount drained is less than 150 mL/d. There is no fixed number of days the drainage tube should remain in place.

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Melanoptysis: An Unusual Complication in Fiberoptic Bronchoscopy

Melanoptisis: una complicación inusual de la fibrobroncoscopia

To the Editor:

Melanoptysis may occasionally present as a complication of coal worker pneumoconiosis in the form of an isolated cough or as a severe attack,[1] with sputum in small or massive amounts that can lead to severe acute respiratory failure and death.[2] To date, only 1 case associated with a complication of fiberoptic bronchoscopy has been reported.[3] We report the first case to be published initially in Spanish.

The patient was a 77-year-old man referred to our department because of an abnormal chest radiograph taken when he consulted for urinary symptoms. He was an active smoker of 52 pack-years who had worked in the iron and steel industry in Russia for 45 years and had been diagnosed with silicosis in 1970 (no clinical or radiographic reports were provided). The physical examination showed blood pressure of 170/80 mm Hg, a respiratory rate of 15 breaths/min, an axillary temperature of 39°C, and a heart rate of 100 beats/min. Lung auscultation revealed diminished vesicular sounds and vocal fremitus in both hemithoraces with rhonchi that could be cleared by coughing. The patient had a distended bladder with overflow incontinence. Noteworthy laboratory findings included a white blood cell count of 13 200/μL (85% neutrophils), a urea concentration of 52 mg/dL, an alanine aminotransferase level of 49 U/L, a C-reactive protein level of 11.15 mg/dL, and an erythrocyte sedimentation rate of 43 mm. The following parameters were recorded in the arterial blood gas analysis (with an inspired oxygen fraction of 0.21): pH of 7.46, $PaCO_2$ of 34 mm Hg, PaO_2 of 83 mm Hg, and bicarbonate of 24 mmol/L. Chest radiography showed loss of volume in the right hemithorax, an interstitial nodular pattern in the middle and upper lung fields, areas of emphysema, signs of air trapping, a right parahilar mass measuring 5×4.5 cm, and another mass of similar characteristics in the left apex (Figure 1a). The chest computed tomography scan also showed enlarged hilar and subcarinal lymph nodes of 1 cm or more and calcified retrocaval precarinal nodes. Lung function tests showed a forced vital capacity (FVC) of 4270 mL (101%), forced expiratory volume in 1 second (FEV_1) of 2580 mL (88%), FEV_1/FVC of 60 (85%), diffusing capacity of lung for carbon monoxide (DLCO) of 76%, and a ratio of DLCO to alveolar volume of 73%. Fiberoptic bronchoscopy showed anthracotic pigmentation in both bronchi of the upper and intermediate lobes, distortion of the bronchial tree, scar lesions, and mucosal irregularity on the bifurcation ridge of the middle lobe bronchus. Microbiology and pathology of the bronchial aspirate and brushing were negative. A second fiberoptic bronchoscopy using radiological imaging techniques was performed to rule out the presence of cancer. Following a transbronchial biopsy of the posterior segment of the right upper lobe, the patient produced more than 100 mL of a dark dense fluid, indicative of melanoptysis, which required aspiration and repeated lavage until it stopped (Figure 1b). The transbronchial biopsy showed lymph node silicosis and macrophages with anthracotic pigment. Melanoptysis (a total of 200 mL) subsided spontaneously in the next 24 hours with no evidence of cavitation on the radiograph taken after the fiberoptic bronchoscopy. At 8 months of follow-up, the patient had presented no new episodes of melanoptysis and showed no radiographic changes.

Melanoptysis (from the Greek *melas*, meaning black, and *ptysma*, meaning "spit"—*phtisis atra* in Latin[4]) consists of the expulsion or expectoration of black sputum made up of large quantities of carbon dust together with cholesterol crystals, collagen fibers, bronchial secretions, and, occasionally, blood.[1] This symptom can appear in both simple and complicated pneumoconiosis. It is most frequently associated with the cavitation of conglomerate masses in progressive

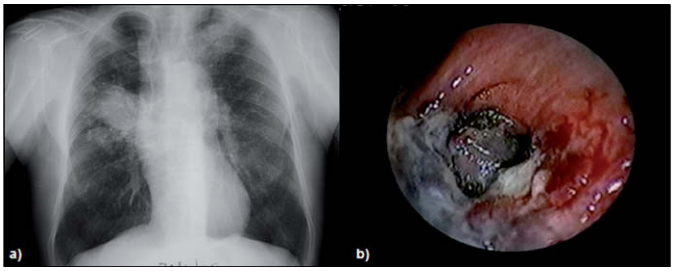

Figure 1. a) Chest radiograph; b) chest computed tomography scan.

massive fibrosis, and is attributed to the rupture of the contents of a lesion into the airway.[1] It has also sometimes been observed in other entitites[5] and, on only 1 occasion, as a complication in fiberoptic bronchoscopy,[3] a procedure often used in the differential diagnosis of bronchogenic carcinoma or tuberculosis in such patients. These conglomerate masses, containing coal particles that stain the bronchial walls the characteristic jet black color,[6] can cavitate due to ischemic necrosis, collagen disease (Caplan syndrome), infections (anaerobes, mycobacteria), or neoplastic disease. Exceptionally, cavitation may occur following transbronchial biopsy, as in the present case.[3] Two radiologic signs are characteristic of melanoptysis: the emptying of an apical cavity (with an alveolar pattern resulting from the bronchogenic dissemination of anthracotic material to the ipsilateral base due to inadequate clearance mechanisms) and the alternating filling and emptying of the fibrotic apical masses.[6] The aspiration of anthracotic material may sometimes lead to severe acute respiratory failure and death due to the flooding of the bronchial tree.[2,6] For this reason, it is essential that patients with melanoptysis be monitored carefully and that measures to facilitate clearance (the use of bronchodilators, humidification, directed physical therapy) be adopted.[1] Fiberoptic bronchoscopy allows the visualization of the bronchial content characteristic of melanoptysis, thereby making it possible to confirm or rule out the diagnosis. It can also be used to aspirate any accumulation of anthracotic material or endobronchial obstruction when, despite a decrease in the volume of sputum expectorated, there is no radiologic evidence of the complete emptying of the conglomerate mass.[1] If transbronchial biopsy is to be performed in the vicinity of the mass, it is important to be extremely careful to avoid producing melanoptysis, as occurred in the present case.[3]

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Spontaneous Pneumomediastinum and Subcutaneous Emphysema: An Uncommon Complication of Lung Cancer

Neumomediastino espontáneo y enfisema subcutáneo: una complicación infrecuente del cáncer de pulmón

To the Editor:

A diagnosis of spontaneous pneumomediastinum in patients with lung cancer is rare. Only 7 such cases have been reported in MEDLINE in the last 20 years (search strategy: "Mediastinal emphysema" [MeSH] AND "Lung neoplasms" [MeSH]).

We report a case of spontaneous pneumomediastinum in an 80-year-old man with large cell carcinoma. The stage IV cancer, with multiple vertebral metastases, had been diagnosed 18 months earlier and the patient, by his own decision, had received neither chemotherapy nor radiation therapy. He had a smoking history of more than 60 pack-years and had no other relevant history. He had not been diagnosed with chronic obstructive pulmonary disease (COPD). His functional status had been maintained during the progression of the cancer until he was hospitalized with severe dyspnea, chest pain, and general deterioration in health. The physical examination revealed rapid breathing (36 breaths/min) and swelling in the upper chest and right side of the neck, with crepitation on palpation. Heart auscultation was normal and the Hamman sign was not detected. Lung auscultation was normal as well. The chest radiograph showed pneumomediastinum and subcutaneous emphysema. Symptomatic treatment was given and the patient died 72 hours after admission.

Spontaneous pneumomediastinum represents approximately 1% of all cases of pneumomediastinum and is generally a benign process that mainly affects young people, especially men.[1] Possible triggering factors include cough and the presence of underlying lung disease, such as COPD or asthma.[1] While the prevalence of lung cancer is extremely high and many lung cancer patients present these triggering factors , only 7 cases in such patients are to be found in MEDLINE.[2,3] Spontaneous pneumothorax and spontaneous pneumomediastinum associated with lung cancer have pathophysiological mechanisms in common, such as bronchial occlusion or tumor ischemia. Nevertheless, while such cases of pneumothorax are uncommon, they are diagnosed much more frequently, most probably because spontaneous pneumomediastinum is less often suspected and is more difficult to diagnose, as it is less apparent on radiographs: in cancer patients with pneumomediastinum, only 50% of posteroanterior chest radiographs (the most usual type) show a line of radiolucency separating the structures of the mediastinum, which is the diagnostic finding.[1]

The Table shows the characteristics of the 7 patients with lung cancer and spontaneous pneumomediastinum indexed in MEDLINE in the last 20 years. In view of these cases, we believe that it is important to include pneumomediastinum in the differential diagnosis of patients with lung cancer when they present signs and symptoms suggestive of the disease, especially if they have been treated with chemotherapy or radiation therapy.

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