Relapsing Acute Respiratory Failure Induced by Minocycline*

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The antibiotic minocycline, which is used in the treatment of acne, has been associated with various pulmonary complications such as pulmonary lupus and hypersensitivity pneumonitis. We now report a particularly severe case of minocycline-related pulmonary toxicity that was characterized by a relapsing form of hypersensitivity eosinophilic pneumonia complicated by acute respiratory failure.

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Key words: drug toxicity; eosinophilic pneumonia; minocycline; mechanical ventilation; respiratory failure

Minocycline, a semisynthetic tetracycline that is used in the treatment of acne, has been associated with several pulmonary complications, including pulmonary lupus,1 hypersensitivity pneumonitis,2,3 and pleural effusion.4,5 Several cases of minocycline-induced eosinophilic pneumonia have been reported,5–7 as well as one case of respiratory distress complicating minocycline-induced pulmonary lupus.1 We report an unusual case of minocycline-related pulmonary toxicity that was characterized by a relapsing form of hypersensitivity eosinophilic pneumonia complicated by acute respiratory failure requiring mechanical ventilatory support.

CASE REPORT

A 54-year-old woman with a 2-week history of low-grade fever, dry cough, fatigue, and dyspnea was hospitalized. Her medical history was unremarkable. There had been no recent travel abroad, no drug or alcohol abuse, and no toxic ingestion or inhalation. She did not have domestic animals, lived in an urban area, and worked as a secretary. On hospital admission, she was treated for a presumed community-acquired pneumonia with levofloxacin. Five days later, she developed severe respiratory failure and was transferred to the ICU. On physical examination, her respiratory rate was 30 breaths/min, her pulse rate was 110 beats/min, her BP was 90/70 mm Hg, and her temperature was 38.3°C. Respiratory crackles were heard over both lung fields. A chest radiograph disclosed diffuse bilateral opacities, and arterial blood gas analysis showed severe hypoxemia (ie, PaO₂/fraction of inspired oxygen ratio, 135 mm Hg), whereas a pulmonary capillary wedge pressure of 12 mm Hg was found by hemodynamic studies with a Swan-Ganz catheter. The results of laboratory tests revealed a high leukocyte count (30,000 cells/μL, with 93% polymorphonuclear cells) and a C-reactive protein level of 190 mg/L. Mechanical ventilation was initiated, and antibiotic therapy was empirically changed to imipenem/cilastatin and clarithromycin. The results of a microbiological examination of tracheobronchial aspirates were negative for any organism (including Mycobacterium tuberculosis, Legionella pneumophila, Mycoplasma pneumoniae, Chlamydia pneumoniae, Nocardia spp, Brucella spp, and Coxiella burnetii). Serologic tests for common agents of atypical pneumonia, HIV testing, and antinuclear antibodies were negative. The patient progressively improved and was liberated from the ventilator after 6 days. Leukocyte count and C-reactive protein level had returned to normal values. At day 9, the patient was transferred to the ward and was discharged from the hospital 1 week later. A chest radiograph showed near complete resolution of the pulmonary infiltrates.

Fourteen days after hospital discharge, the patient was rehospitalized because of rapidly progressive respiratory failure requiring mechanical ventilation (Fig 1). The clinical, radiologic, and hemodynamic findings were initially consistent with ARDS (ie, acute onset, PaO₂/fraction of inspired oxygen ratio of 120 mm Hg, bilateral pulmonary infiltrates, and no signs of left atrial hypertension). BAL was performed. Cultures were negative, but the BAL fluid was remarkable for the presence of eosinophils (2,008 cells/μL). At day 4, the patient also developed blood eosinophilia (1,040 cells/μL). A review of the patient’s history revealed that 2 weeks prior to the first episode of respiratory failure, she had started therapy with oral minocycline for acne vulgaris and that she had resumed oral minocycline treatment 24 h before the second episode. Finally, by reviewing the flow chart of the first hospitalization, it was noticed that from day 10, her blood eosinophil count had progressively increased to a peak value of 4,090 cells/μL at day 15. A diagnosis of relapsing minocycline-related eosinophilic pneumonia was made. IV methylprednisolone therapy was started, and the patient showed rapid improvement. The patient was extubated after 5 days, and steroid therapy was discontinued at day 21. She was discharged from the hospital at day 22. For the 12 months following minocycline withdrawal, the patient has remained free of any respiratory symptom.

DISCUSSION

Previous reports have been published1–7 on minocycline-induced pulmonary complications, including eosinophilic pneumonia, pleural effusions, and pulmonary lupus. Only one case of respiratory distress has been reported,1 occurring in the setting of minocycline-induced pulmonary lupus with positive antinuclear antibodies. In our patient, blood eosinophilia was present during both episodes of acute respiratory failure, and there were no antinuclear antibodies. Acute minocycline-induced eosinophilic pneumonia was the most likely diagnosis in view of the elevated count of eosinophils in peripheral blood and BAL fluid, the sequence of pulmonary symptoms after minocycline exposure, and the absence of recurrence thereafter. This case is remarkable for the severity and the relapsing nature of the respiratory failure, which required mechanical ventilatory support. It is worth mentioning that an incorrect diagnosis of infectious pneumonia was made during the first hospitalization and that BAL was not performed since the patient improved with antibiotic...
therapy. After the second hospital admission, a careful reevaluation of the patient’s drug history, together with the marked blood and BAL eosinophil counts led us to the correct diagnosis. It is worth noting that, during both episodes, blood eosinophilia developed only several days after hospital admission (10 and 4 days, respectively). In contrast, eosinophils were recovered from BAL fluid soon after the onset of the second episode of respiratory failure. Thus, the analysis of BAL fluid cytology was essential for the rapid diagnosis of the condition and the initiation of appropriate therapy. This emphasizes the need to carefully review patients’ drug history and the potential contribution of BAL fluid cytology in patients with acute respiratory failure of unclear origin.

In conclusion, we report here on the first case of relapsing eosinophilic pneumonia complicated by acute respiratory failure following minocycline therapy. As this agent is often prescribed for acne, physicians should be aware of its potential to lead to such serious respiratory complications.

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Figure 1. Chest radiograph taken at the time of the second hospitalization, showing diffuse opacities in both lung fields.
Tracheal Lobular Capillary Hemangioma*

A Rare Cause of Recurrent Hemoptysis

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Lobular capillary hemangioma (LCH) is a polypoid form of capillary hemangioma occurring on the skin and mucosal surfaces. While LCH of the oral and nasal cavity is a well-known entity, tracheal localization is extremely rare. We present the case of a 72-year-old woman with recurrent hemoptysis due to a small tumor of the proximal trachea. By endoscopic removal of the tumor by flexible bronchoscopy, the diagnosis of LCH was made, and during the following year there was no recurrent hemoptysis. To our knowledge, this is the first case of histologically proven LCH of the trachea.

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Key words: hemoptysis; lobular capillary hemangioma; pyogenic granuloma; trachea

Abbreviation: LCH = lobular capillary hemangioma

Lobular capillary hemangioma (LCH) is a benign lesion that may occur either on skin or mucosal surfaces, the latter accounting for about 60% of all cases.1 LCH has a distinctive lobular arrangement of capillaries in an edematous, fibroblastic stroma. The surface is occasionally ulcerated, and the lesion may have an inflammatory cell infiltrate. The often-used term pyogenic granuloma is a misnomer, because the tumor is neither induced by bacterial infection nor is it a true granuloma.2 In a review of 639 cases of vascular lesions of the oral cavity and upper respiratory tract by Mills et al.,2 73 cases with LCH were found, and none of them was localized in or below the larynx. The following case illustrates the occurrence of an LCH of the tracheal mucosa and its successful removal by flexible endoscopy.

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Figure 1. Endoscopic view of the proximal trachea of our patient, showing a polypoid tumor of the cartilaginous area, measuring 0.2 to 0.3 cm in size, approximately 3 cm below the vocal cords.