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RESPIRATORY CASE REPORTS

A Case of H1N1 Pneumonia with Alveolar Hemorrhage that Resolved Rapidly with Steroid Therapy

Steroid Tedavisine Hızlı Yanıt Alınan Alveoler Hemoraji ile Birliktelik Gösteren H1N1 Pnömoni Olgusu

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Abstract

H1N1 infections have high mortality and morbidity around the world. Our case is 36 years old woman, was admitted to emergency service with tachycardia and dyspnea. Then she was transferred to the chest disease clinic with bilateral pneumonia. But in a few hours she was taken to intensive care unit for close follow-up and intubation. Her nasopharyngeal swabs were found positive for H1N1. She didn't improve despite anti-viral and antibiotics. Fiberoptic bronchoscopy was applied, diffuse hyperemia and hemorrhage from right lower lobe was seen. 60 mg/day prednisolone was started and at the third day of treatment she was extubated and her vital signs became better. This case shows that steroid therapy makes rapid improvement at H1N1 pneumonia patients with alveolar hemorrhage.

Key words: Viral pneumonia, H1N1, alveolar hemorraghe.

Özet

H1N1 enfeksiyonları, tüm dünyada önemli oranda mortalite ve morbiditeye neden olmaktadır. Olgumuz 36 yaşındaki bayan hasta taşikardi ve dispne nedeniyle acile servise başvurmuştur. Bilateral viral pnömoni nedeniyle serviste takip edilmiş ve çok kısa sürede durumu ağırlaştığı için yoğun bakıma alınmıştır. Boğaz sürüntüsü H1N1 ile uyumlu gelmiştir. Yoğun antiviral ve antibiyotik tedavisine rağmen düzelmeyen hastaya yapılan bronkoskopide yaygın hiperemi sağ alt lobdan hemoraji olduğu saptanmıştır. Hastaya 60 mg/gün prednizolon tedavisi başlanmış, tedavinin 3. gününde ekstübe olmuş ve genel durumu düzelmiştir. Steroid tedavisinin alveolar hemoraji ile birliktelik gösteren viral pnömonilerde kısa sürede düzelme sağladığının gösterilmesi amacıyla bu olgu sunulmuştur.

Anahtar Sözcükler: Viral pnömoni, H1N1, alveoler hemoraji.

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H1N1 infections and its complications have caused significant mortality and morbidity worldwide over the last four years. The clinical forms of the disease range from mild upper respiratory tract infection to fatal viral pneumonia with severe alveolar damage (1). Alveolar hemorrhage, a serious complication of influenza pneumonia, was shown in the autopsy reports of patients who died during the 2009 H1N1 pandemic (2). Corticosteroid treatment was administered in some cases of respiratory failure due to H1N1 pneumonia. This is a case with alveolar hemorrhage and H1N1 pneumonia that rapid clinical and radiological improvement was found with steroid treatment.

CASE

A 36-year-old female patient was admitted to the emergency room with complaints of dyspnea and tachypnea. She was also cyanotic and pale. The patients' complaints began one week prior with symptoms of flu and gradually increased at the last two days. Her blood pressure was 80/50 mmHg, temperature was 38°C, and pulse rate was 110/min. Respiratory system examination revealed diffuse fine cracks in all areas of both hemithoraces. The chest radiography showed nonhomogeneous opacities involving bilateral middle and lower regions (Figure 1). Bilateral diffuse areas of consolidation with air bronchogram was observed on tomography (Figure 2 and 3).

Figure 1: Chest X-ray of the patient.

Oxygen saturation was 85% with 3 L/min oxygen therapy. Routine laboratory examinations showed a hemoglobin (Hb) level of 3.6 g/dL, a WBC count of 3000/mm^3, a C-reactive protein level of 108 mg/L. She was admitted to service with a diagnosis of pneumonia and clarithromycin and ceftriaxone therapy was initiated. The patient was taken to the intensive care unit at the twelfth hour of admission due to the need of intubation. Antibiotic treatment was changed to imipenem, teicoplanin and oseltamivir with the diagnosis of viral pneumonia and respiratory failure due to H1N1. Nasopharyngeal swabs were found positive for H1N1. Hb could not be raised over 6 gr/dL, despite the replacement of 8 units of erythrocyte suspension. Due to the inability to decrease FiO2 and PEEP under 80% and 12, respectively, bronchoscopy was performed from the endotracheal tube with alveolar hemorrhage in mind. The entire bronchial system was hyperemic. Minimal bleeding was seen from the right lower lobe. Bronchoalveolar lavage was taken. Bronchial epithelial cells on a layer covered with blood elements were seen on cytological examination. Sixty mg/day of corticosteroid treatment was initiated. The patient's saturation improved on the third day of corticosteroid therapy and hemoglobin increased to 10gr/dL. The patient was extubated and taken to the service on the seventh day. A significant improvement was seen in the chest radiography (Figure 4).

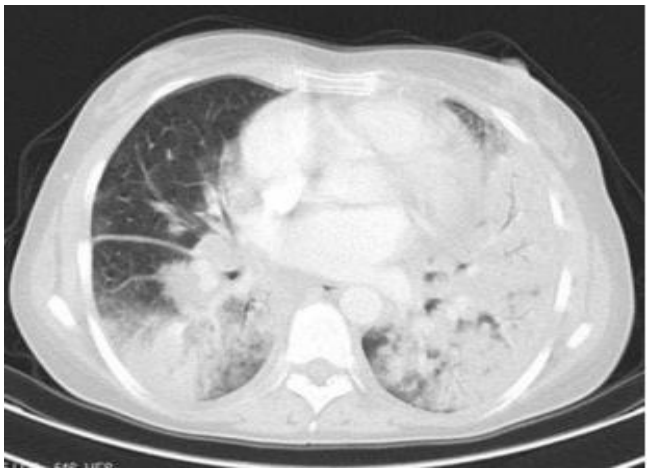

Figure 2: CT image of the patient.

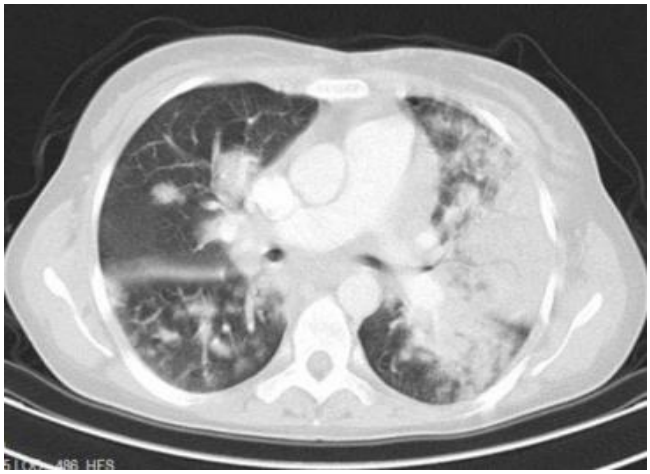

Figure 3: CT image of the patient.

DISCUSSION

Severe H1N1 infection may result in viral pneumonia causing acute respiratory failure, multiple organ dysfunction, and alveolar hemorrhage. Although it is not fully understood the mechanism and the pathology in these cases, alveolitis, bronchiolitis, acute alveolar edema, and diffuse alveolar damage due to the neutrophil infiltration of the alveolar wall was found on histological assessment (3). During the 1918 pandemic, hemorrhagic bronchitis and tracheobronchitis were reported in 50% of autopsy studies of the cases (4). During the 2009 flu pandemic, in the autopsies of five cases in Mexico, the causes of death were linked to cerebral and pulmonary hemorrhage (5). Various degrees of alveolar hemorrhage were revealed in 20 patients in the report of 21 cases published in the same year in Brazil (2,6). Gilbert and his colleagues clinically associated the alveolar hemorrhage caused by H1N1 and massive hemoptysis for the first time. However, because their cases had a history of using anticoagulants, and anticoagulant therapy can cause pulmonary hemorrhage, the distinction between hemorrhages due to H1N1 or due to anticoagulant use has not been clear (2). By damaging alveolar septa, depending on the filling inside the alveolar spaces as a result of extensive bleeding, alveolar hemorrhage causes dyspnea, hemoptysis, anemia, and clinical and radiological findings of bilateral alveolar consolidations. These features are not specific and may not occur at all times. Despite extensive intra-alveolar hemorrhage, it has been reported that there is no hemoptysis in up to 33% of patients with alveolar hemorrhage (7,8). This is explained by the lack of free access from acinus to the proximal airways (8,9). The current case also did not have hemoptysis. Anemia is specific in patients with alveolar hemorrhage. In the present case, other causes were investigated that could lead to anemia. A sudden decrease in hematocrit with acute dyspnea and chest x-ray findings of infiltration should be cause to consider the possibility of rapid alveolar hemorrhage. In the present case, determining a hemoglobin value of 3.6 g/dL in the emergency room aided in the diagnosis. Marchiori et al. (10) reported the case of a patient with 2009 influenza A, who presented with alveolar hemorrhage. This case is supported by the findings of Nakajima et al. (11), who found an intense hemorrhagic component in six of 20 patients with A (H1N1) infection who had undergone autopsy.

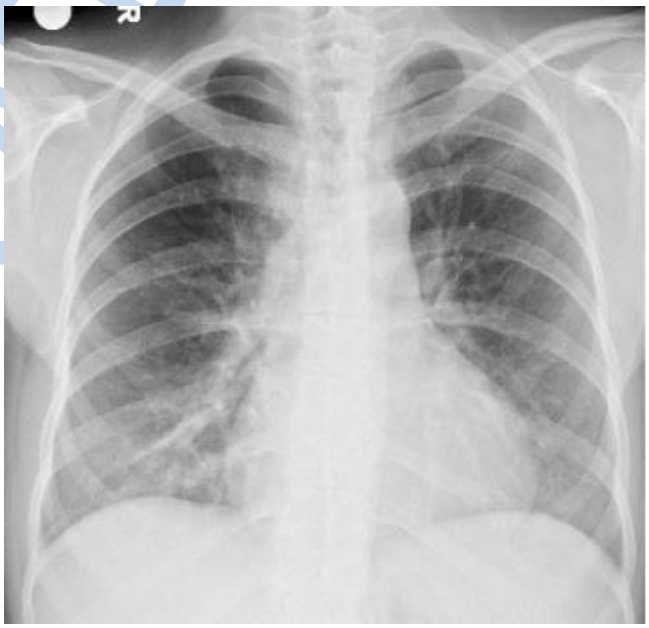

Figure 4: Chest X-ray of the patient after treatment.

Because of high mortality rates in patients with the diagnosis of alveolar hemorrhage, diagnosis and initiating treatment in these cases should be rapid (12). Although differential diagnosis between pulmonary edema and infection could not be made completely, because a few hours delay could lead to death in severe alveolar hemorrhage, the patient must be started on corticosteroid treatment. Rapid improvement in the patient's oxygenation and hemoglobin levels supported our diagnosis of alveolar hemorrhage. Similarly Rhee et al. (13) described a case of atypical HUS with pulmonary alveolar hem-

orrhage that was triggered by H1N1 and was successfully treated with steroid pulse therapy. Berk et al. (14) reported a case from Turkey, who had H1N1 pneumonia with diffuse alveolar hemorrhage, rapidly improved after early metilprednisolone therapy.

As a result, alveolar hemorrhage in cases of severe H1N1 are difficult to radiologically distinguish from diffuse pneumonia or pulmonary edema. Alveolar hemorrhage should be considered in patients with anemia, hemoptysis, and diffuse pulmonary infiltrates. In patients with H1N1 pneumonia associated alveolar hemorrhage, steroid treatment is unclear. Because of the positive impact of steroid therapy on the prognosis in the current case, it is believed that early steroid therapy would increase the chances of the patient's life.

CONFLICTS OF INTEREST

None declared.

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