

DOI:10.3348/kjr.2010.11.5.587

Follow-up Aspects of Influenza A (H1N1) Virus-Associated Pneumonia: the Role of High-Resolution Computed Tomography in the Evaluation of the Recovery Phase

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We read with great interest the manuscript written by Lee et al. (1), who described the imaging findings of pulmonary complications in two patients with influenza A (H1N1) infection. The first patient showed ill-defined ground-glass opacity nodules and patchy areas of ground-glass attenuation. The second, with secondary bacterial pneumonia, showed bilateral areas of lobar consolidation and ground-glass opacities. In addition, some other reports describing the imaging features, especially on high-resolution computed tomography (HRCT), have been published in the last months (2). The predominant HRCT findings reported bilateral, peripheral, ground-glass opacities and/or bilateral areas of consolidation. The patients who presented with consolidations had a more severe clinical course (2). Limited data are available, however, on the tomographic or pathological aspects observed during the recovery phase after H1N1 infection.

However, the information available on pneumonias caused by other strains of the Influenza A virus allow us to presume similarities with the behavior of H1N1. In the early stages, features of diffuse alveolar damage are predominant. Later stages may show typical changes of organization and fibrosis, including interstitial fibrosis, and

bronchiolitis obliterans with or without evidence of organizing pneumonia (3). Recently, Gill et al. (4) described the pulmonary pathologic findings of 34 people who died following confirmed H1N1 infection. Twenty-five patients showed focal to extensive diffuse alveolar damage (DAD). Of these, 16 cases showed only acute DAD, seven showed acute and organizing DAD, and two had fibrosing and organizing DAD (average hospitalization time: 31.5 days).

During the treatment and recovery phases, persistent opacities on radiographs may not be informative enough to distinguish disease progression from healing. HRCT may play a role in the detection and characterization of the disease, in monitoring the disease progress and response to treatment, as well as in the identification of complications. We have recently followed a patient treated for H1N1 virus-associated pneumonia, whose condition improved. The initial HRCT showed consolidations and ground-glass opacities. A follow-up examination conducted at one month, during convalescence, showed marked improvement in cough; however, dyspnea on exertion persisted. A follow-up scan performed in this phase revealed an almost complete remission of the lesions, as well as the development of linear opacities in the same location. These opacities probably represent the stage of organizing pneumonia. The patient was then treated with corticosteroids and became asymptomatic. An additional follow-up HRCT performed three months after the onset of the symptoms was normal.

In conclusion, although pulmonary opacities secondary to H1N1 infection usually regress during convalescence, the consolidations may occasionally progress to linear opacities (parenchymal bands). These linear opacities probably represent organizing pneumonia.

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