DOI:10.4274/tnd.43650
Turk J Neurol 2017;23:138-139



# H1N1-Related Encephalitis in the Postpandemic Era

## *Postpandemik Periyodda H1N1 ile İlişkili Ensefalit*

Özlem Kayım Yıldız[1], Aslı Bolayır[1], Şeyda Figül Gökçe[1], Burhanettin Çiğdem[1], İbrahim Öztoprak[2]

[1]Cumhuriyet University Faculty of Medicine, Department of Neurology, Sivas, Turkey
[2]Cumhuriyet University Faculty of Medicine, Department of Radiology, Sivas, Turkey

**Keywords:** H1N1, influenza, neurological, encephalitis
**Anahtar Kelimeler:** H1N1, influenza, nörolojik, ensefalit

**Dear Editor,**

A 32-year-old female patient was admitted with symptoms of weakness on the left side, which developed one week after an upper respiratory tract infection. A neurologic examination showed left hemiparesis (Medical Research Council: upper extremity 1/5, lower extremity 3/5), left hypoalgesia, increased deep tendon reflexes in the left, and positive Babinski sign in the left. A laboratory investigation showed leukopenia, increased aminotransferase, gamma glutamyl transferase and creatinine kinase levels. Cerebrospinal fluid findings were normal except positivity for oligoclonal bands identical with serum. Cerebral magnetic resonance imaging (MRI) showed hypointense lesions in T1-and hyperintense lesions in T2-weighted imaging in the right hypothalamus, thalamus, mesencephalon, internal capsule posterior limb, posterior putamen, and insula (Figure 1A, 1B). The right thalamic lesion was hemorrhagic and enhancing (Figure 2A, 2B). Influenza A (H1N1) was detected using real-time polymerase chain reaction in a nasopharyngeal specimen. Intravenous methyl prednisolone 1 g/day for 5 days, intravenous immunoglobulin 0.4 g/kg/day for 5 days and oral oseltamivir were given. Neurologic findings and laboratory abnormalities improved in the days following treatment.

The postpandemic period began for influenza A(H1N1) pdm09 virus infection in August 2010, which was first detected in April 2009 (1). However, H1N1 virus infections are still being reported (1). H1N1 often presents with a febrile disease with mild respiratory symptoms and rarely causes severe cardiac, pulmonary and neurologic complications (2). H1N1 causes neurologic complications such as encephalopathy, encephalitis, seizures, ischemic stroke, benign intracranial hypertension, myelitis, Reye syndrome, and Guillain-Barre syndrome, more than seasonal influenza (3,4).

Cranial MRI should be preferred in diagnosis. The severity of clinical picture could be mild encephalopathy with reversible splenial lesions or acute fatal necrotizing encephalopathy. However, in the clinical practice, there are many cases that cannot be classified into these two categories (5). H1N1 virus infections are still being reported and patients who have neurologic disturbances with a temporal relationship with upper respiratory tract infection should be evaluated for H1N1.

**Ethics**

**Informed Consent:** Consent form was not filled out by the case.

**Peer-review:** Externally and internally peer-reviewed.

**Authorship Contributions**

Medical Practices: Ö.K.Y., A.B., Concept: Ö.K.Y., A.B., Design: Ş.F.G., B.Ç., Data Collection or Processing: B.Ç., Analysis or Interpretation: İ.Ö., Literature Search: Ş.F.G., Writing: Ö.K.Y.

**Address for Correspondence/Yazışma Adresi:** Özlem Kayım Yıldız MD, Cumhuriyet University Faculty of Medicine, Department of Neurology, Sivas, Turkey
Phone: +90 346 224 61 55 E-mail: ozlemkayim@yahoo.com ORCID ID: orcid.org/0000-0002-0382-9135
**Received/Geliş Tarihi:** 16.02.2017 **Accepted/Kabul Tarihi:** 23.04.2017

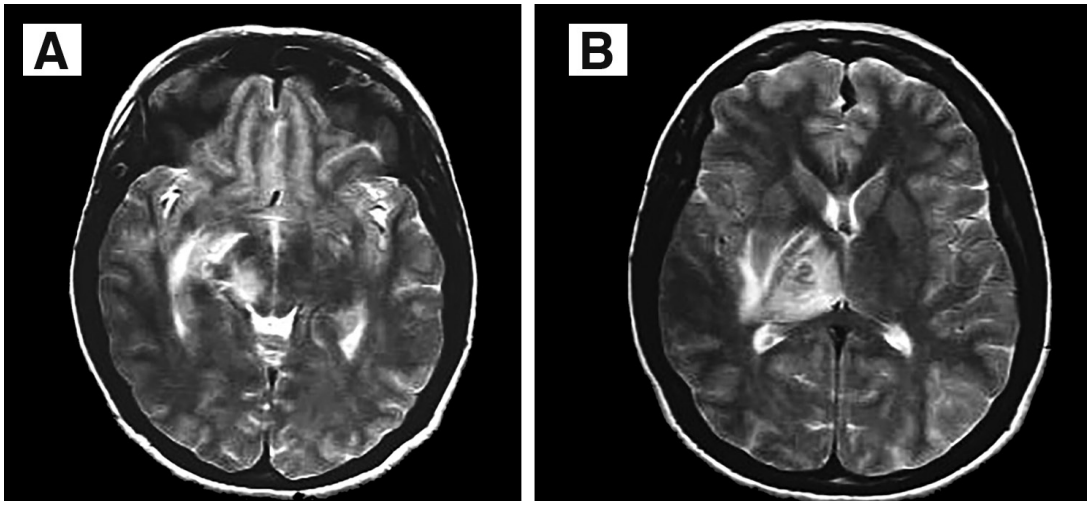


**Figure 1.** Hyperintense lesions in T2-weighted imaging in the right hypothalamus, thalamus, mesencephalon, internal capsule posterior limb, posterior putamen, and insula (A, B)

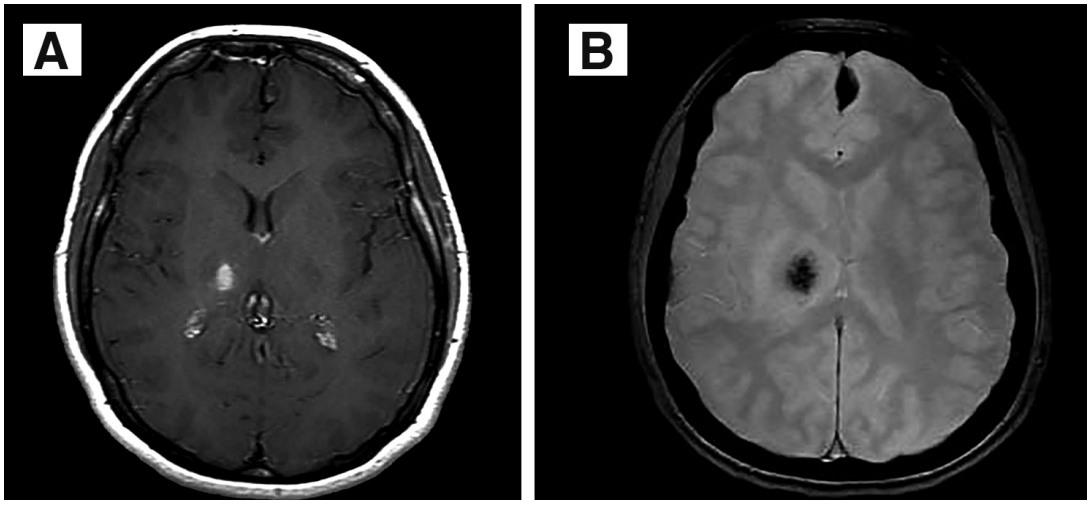


**Figure 2.** Enhancing lesion in right thalamus in post-contrast T1-weighted imaging (A), hemorrhage in the right thalamus in echo-gradient weighted imaging (B)

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study received no financial support.

## References

1. World Health Organization (2010): H1N1 now in the postpandemic period. Erişim tarihi: 16 Şubat 2017. Available from: http://www.who.int/csr/disease/swineflu/en/
2. Jhung MA, Swerdlow D, Olsen SJ, Jernigan D, Biggerstaff M, Kamimoto L, Kniss K, Reed C, Fry A, Brammer L, Gindler J, Gregg WJ, Bresee J, Finelli L. Epidemiology of 2009 pandemic influenza A (H1N1) in the United States. Clin Infect Dis 2011;52(Suppl 1):13-26.
3. Prerna A, Lim JY, Tan NW, Isa MS, Oh HM, Yassin N, Low CY, Chan DW, Chong CY, Leo YS, Chow AL, Tambyah PA, Tan K. Neurology of the H1N1 pandemic in Singapore: a nationwide case series of children and adults. J Neurovirol 2015;21:491-499.
4. Ekstrand JJ, Herbener A, Rawlings J, Turney B, Ampofo K, Korgenski EK, Bonkowsky JL. Heightened neurologic complications in children with pandemic H1N1 influenza. Ann Neurol 2010;68:762-766.
5. Ishida Y, Kawashima H, Morichi S, Yamanaka G, Okumura A, Nakagawa S, Morishima T. Brain magnetic resonance imaging in acute phase of pandemic influenza A (H1N1) 2009-associated encephalopathy in children. Neuropediatrics 2015;46:20-25.