

INFLUENZA ASSOCIATED ENCEPHALITIS CAUSING NEW SEIZURES IN A YOUNG ADULT

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INTRODUCTION

Multiple viruses have been implicated in causing encephalitis including herpes simplex, varicella zoster, and adenovirus, however, influenza has been difficult to pinpoint as a causative factor. In the case being presented, a patient presented to his primary care provider three days prior to onset of seizure activity with generalized influenza-like symptoms. He tested positive for Influenza A and the question remains if the influenza virus caused the encephalitis.

Influenza virus is rarely known to cause neurological symptoms and the predominant population affected neurologically is children, however, case reports have been published establishing a possible connection between influenza and encephalitis. We understand the impact of influenza on the respiratory system, however, the impact of influenza on other body systems remains unstudied. A young adult presented following a seizure with no known cause found on lab work or imaging. Only known abnormality was flu-like symptoms 3 days prior to seizure onset. The medical community established that some viruses cause encephalitis, but more research is needed to prove a correlation exists between influenza and encephalitis.

METHODS

Influenza A positive. After seizure activity, CT head revealed no abnormalities. Continued seizure activity prompted EEG which revealed focal seizures originating in the right anterior temporal region. MRI significant for T2 prolongation in the bilateral hippocampi and the medial temporal lobes in the regions of the amygdala with adjacent T2 prolongation in the cortex of the posterior right cingulate gyrus. CSF was clear with 5/CUMM nucleated cells, 1/CUMM RBC, 29 MG/DL protein, and 86 MG/DL glucose. HSV PCR negative without oligoclonal bands. Malignancy work-up and autoimmune workup both negative.

METHODS

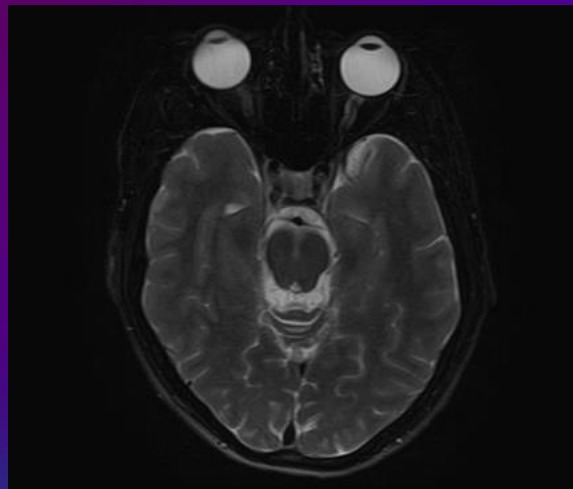


Figure 1. Axial T2 image showing T2 prolongation in the bilateral hippocampi

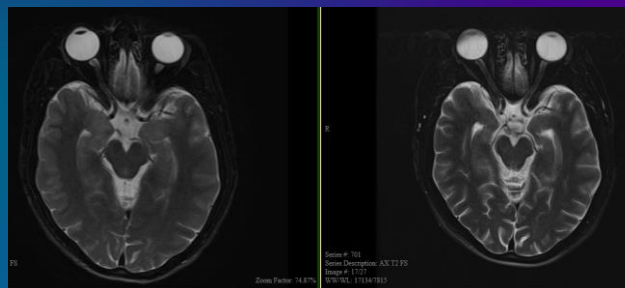


Figure 2. Comparison of the swelling and T2 signals. The image on the left is during seizures which shows swelling and T2 prolongation. The image on the right in 1 year later which shows improved swelling and loss of T2 prolongation.

RESULTS

Limbic encephalitis was the most likely diagnosis, but ascertaining the exact cause of the encephalitis proved to be a tall feat. Ruling out all other causes seemed to rule in influenza as being the causative factor. Discussion with neurology prompted examination of the literature which showed many cases like this one, where influenza correlated with encephalitis and seizure activity. This patient required initiation of 3 anti-epileptics to prevent further sub-clinical seizures which were found on continuous EEG. He has been seizure free for over one year and it currently being weaned off these medications. Repeat MRI over one year later showed improvement in the edema of the temporal lobes and the T2 prolongation was no longer evident

CONCLUSION

Although influenza has not been highly correlated or recognized as a major cause of seizures, it should be considered in cases like the one described here which show no exact cause after extensive work-up and a positive influenza PCR. Many viruses can cause seizures and we have testing for many of them, including HSV. Influenza testing of CSF should be readily available and affordable to institutions across the US as this would allow us to recognize this as a known cause and prevent unnecessary and expensive testing, such as autoimmune work-up.

REFERENCES

Meijer WJ, Linn FH, Wensing AM, et al. Acute influenza virus-associated encephalitis and encephalopathy in adults: a challenging diagnosis. JMM Case Rep. 2016;3(6):e005076. Published 2016 Dec 19. doi:10.1099/jmmcr.0.005076