

Herpes simplex encephalitis and pseudotumour cerebri due to isotretinoin

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Abstract

Isotretinoin can have significant adverse reactions on multiple systems. We report a unique case of pseudotumour cerebri and herpes encephalitis resulting due to isotretinoin. A 19-year-old female patient was admitted to our clinic, presenting with headache, nausea, vomiting and fever since three days. She had used isotretinoin for the last two months. The patient's neurological examination revealed the presence of neck stiffness and a body temperature of 39,0°C. MRI showed high signal localized to the temporal lobe and insula on the right and widened cerebrospinal fluid signal intensity on either side of the optic nerve. Electroencephalogram sharp and wave paroxysms on the right temporo-parietal region. Lumbar puncture showed an opening pressure of 320 mm H₂O. The cerebrospinal fluid displayed the presence of 4-5 lymphocytes. On these grounds, the diagnosis of pseudotumour cerebri and herpes encephalitis was made. It is thus suggested that the physicians must keep in mind that pseudotumour cerebri and herpes encephalitis are possible adverse effects of isotretinoin.

Keywords: isotretinoin, pseudotumor cerebri, herpes simplex encephalitis, side effect.

Introduction

Isotretinoin, or 13-cis-retinoic acid, has been prescribed frequently to treat severe acne, however, the most common ocular side effects are dry eye, decreased dark adaptation, and papilledema resulting from intracranial hypertension. The cause of intracranial hypertension due to isotretinoin is still unclear, although some adverse reactions are dose related. These adverse reactions can commonly be seen during use or a few years after the discontinuation of isotretinoin therapy ¹.

There are a few published reports including some on the relationship between isotretinoin treatment and herpes simplex infections ²⁻⁵. There are a few reports including pseudo tumour cerebri resulting from isotretinoin

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treatment ⁶⁻⁷. Our patient appears to be the first reported case of pseudo tumour cerebri and herpes encephalitis side effects resulting from isotretinoin treatment at the same time.

Case Report

In March 2016, a 19-years-old female patient was admitted to our clinic, presenting with headache, nausea, vomiting and fever over a history of three days. Upon admission, the patient's neurological examination revealed neck stiffness and her body temperature was 39.0 °C. The past medical history of the patient was unremarkable, and the family history was negative for any disorders.

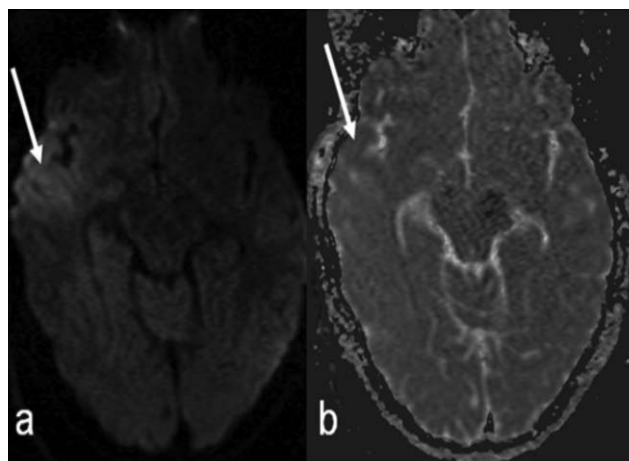


Figure-1: The MRI images showed high signals on the diffusion weighted (DW) imaging (a) and a marked reduction in the ADC values (b) localized to the temporal lobe and right insular area

The patient had been using isotretinoin to treat severe acne for approximately two months. The MRI images (Fig. 1) showed high signals on the DW imaging (a) and a marked reduction in the ADC values (b) localized to the temporal lobe and right insular area. Additionally, the T2-weighted axial MR images (Fig. 2) revealed widened cerebrospinal fluid signal intensities on either side of the optic nerve on axial images (predominantly right side). The fundoscopic examination was normal. An electroencephalogram showed sharp and wave paroxysms in the right temporoparietal region, and lumbar puncture (LP) revealed an opening pressure of

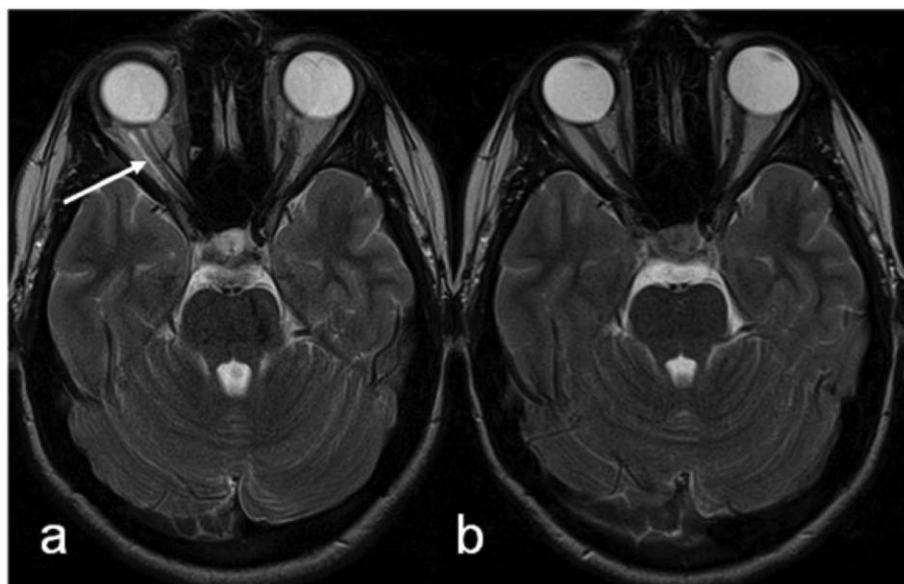


Figure-2: T2-weighted axial MR images revealed widened cerebrospinal fluid signal intensities on either side of the optic nerve on axial images.

320 mm H₂O. The cerebrospinal fluid (CSF) showed that there were 4 – 5 lymphocytes and normal levels of glucose at 57 mg/dL (40 – 70 mg/dL), microprotein at 19 mg/dL (15 – 45 mg/dL), and Cl at 127 mmol/dL (118 – 132 mmol/dL). The culture of the CSF was normal, and the presence of brucella and tuberculosis were excluded. The IgM- and IgG-herpes simplex type II tests were positive. The patient was diagnosed as having pseudotumor cerebri and herpes encephalitis and acetazolamide and acyclovir was initiated. The patient's headache became less severe after three days, and after two weeks, the patient's neurological examination appeared completely normal and the patient was discharged. Also, approval form was taken from the patient for publication.

Discussion

Pseudotumour cerebri, often referred to idiopathic or benign intracranial hypertension, predominantly affects obese young women⁸. In our case, the lumbar puncture revealed an opening pressure of 320 mm H₂O with normal chemistry, despite having 4 – 5 lymphocytes in the cerebrospinal fluid. Depending on these clinical and laboratory findings, the diagnosis of pseudotumour cerebri was made, and thought to be secondary to isotretinoin use. However, when reviewing the literature, there were a few reports including pseudotumour cerebri due to isotretinoin treatment⁶.

Increased intracranial venous pressure may play a role as a universal mechanism in pseudotumour cerebri of different etiologies, and this increased venous pressure

decreases cerebrospinal fluid reabsorption, leading to a rise in the cerebrospinal fluid and intracranial pressure⁷. It has also been reported that increased intracranial pressure may be a presenting (present mi olacak) side effect of isotretinoin use⁸; however, the exact mechanisms responsible for this side effect are still unclear. We thought that pseudotumour cerebri developed due to increased intracranial pressure, as in our case.

Pseudotumour cerebri has been associated with multiple conditions, including infections, anaemia, tetracycline use, corticosteroid use or withdrawal, vitamin A deficiency or intoxication, oral contraceptive use and certain endocrine disorders⁸. The majority of the cases are idiopathic, and in the reported

patient, all of the above disorders were eliminated. In our case, we believed that the cause of the pseudotumour cerebri was the use of isotretinoin, and the pseudotumour cerebri might have promoted the development of herpes simplex encephalitis.

Herpes simplex encephalitis is of high potential lethality⁹. There are a few reports concerning herpes simplex infections when using isotretinoin²⁻⁴. In contrast, Isaacs et al. reported¹⁰ that retinoic acid isomers reduced HSV-1 replication. We thought that the relationships between HSV-1 replication and the use of isotretinoin may be variable in different situations. In our case, we speculated that herpes simplex encephalitis developed result of increased HSV-1 replication due to the use of isotretinoin.

Conclusion

We have demonstrated a patient with pseudotumour cerebri and herpes encephalitis due to isotretinoin use. The early diagnosis and immediate treatment of herpes simplex and encephalitis pseudotumour cerebri are very important because of the high potential lethality, and therefore, physicians should be alert to the presence of both pseudotumour cerebri and herpes encephalitis in patients treated with isotretinoin.

Disclaimer: None to declare.

Conflict of Interest: None to declare.

Funding Sources: None to declare.

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