



ORIGINAL RESEARCH PAPER

Radiodiagnosis

UNUSUAL CASE OF METRONIDAZOLE INDUCED NEUROTOXICITY OF A 64 YEAR OLD DIAGNOSED CASE OF AMOEBIC LIVER ABSCESS.

KEY WORDS:

Dr Safer VP*

Dr Dy Patil Medical College And Hospital, Navi Mumbai. *Corresponding Author.

INTRODUCTION:

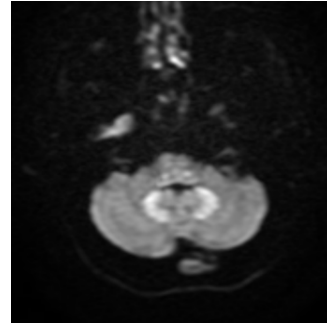
Metronidazole is widely used antimicrobial drug throughout the world. It is used commonly to treat protozoa and anaerobic bacteria. Usage of metronidazole for a limited period is very effective as shown in recent advances, however over usage of metronidazole has shown significant effects on central nervous system and peripheral neuropathy.

CLINICAL PROFILE:

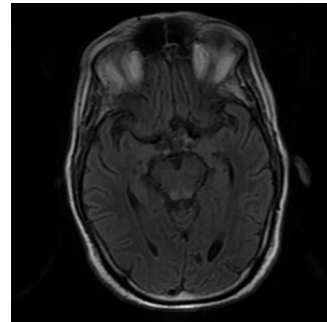
- A 64 year old male patient was referred to our hospital on 03.06.2020 with complaints of headache, intermittent vomiting and generalized weakness and tingling sensation in all the upper and lower limbs for the past 2 months.
- When detailed history was taken, it came to our notice that the patient had been diagnosed with amoebic liver abscess on 31.03.2020.
- Medical management was advised where the patient underwent the following drugs:-
 - 1)Injection and tab Metronidazole
 - 2)Tab Chloroquine
 - 3)Tab pantoprazole
 - 4)Tab ondansetron
 - 5)Tab udiliv
 - 6)Tab dolo
- Patient was advised Non enhanced computed tomography (NECT) Brain and MRI of Brain.

FINDINGS:

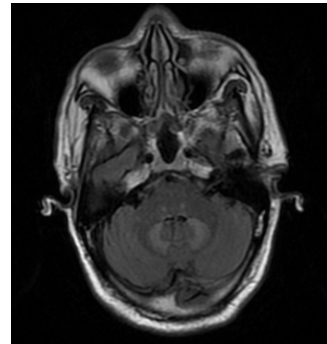
- NECT Brain done on 02.06.2020 revealed ill defined hypodensities in bilateral dentate nucleus.
- MRI of brain revealed:-



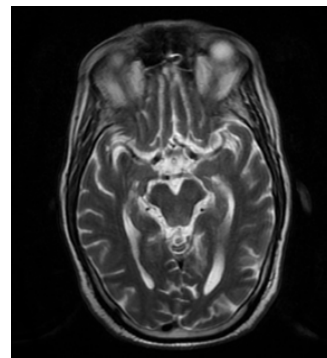
3)On Diffusion weighed images. restricted diffusion was noted in bilateral dentate nucleus.



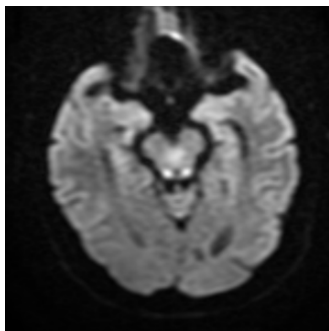
4)On FLAIR images hyperintensities were noted in bilateral superior colliculus.



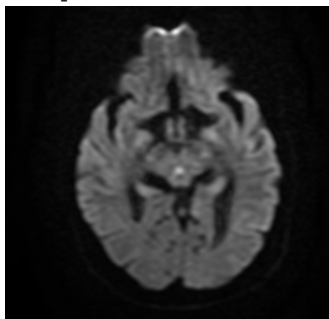
5)On FLAIR images hyperintensities were noted in bilateral dentate nucleus.



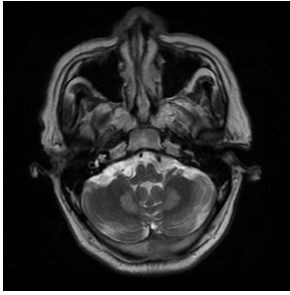
6)On T2W images hyperintensities were noted in bilateral superior colliculus.



1)On Diffusion weighed images. restricted diffusion was noted in bilateral superior colliculus.



2)On Diffusion weighed images. restricted diffusion was noted in pons.



- 4) Takada K.Maki Y.Kinosada M.et al. Metronidazole induced encephalopathy mimicking an acute ischemic stroke event. *Neurol Med Chir.* 2018; 58: 400-403.

7)On T2W images hyperintensities were noted in bilateral dentate nucleus.

DIAGNOSIS

Based on the clinico-radiological and laboratory findings, the diagnosis was: Metronidazole induced neurotoxicity (MIN).

TREATMENT

On prompt withdrawal of metronidazole, the movement disorder usually resolves within few days- weeks and may not require symptomatic therapy.. A follow-up brain MRI after 6 months usually shows disappearance of the findings.

DIFFERENTIAL DIAGNOSIS

- Congenital and acquired metabolic syndrome
- Leukodystrophy
- Demyelination
- Toxic encephalopathy
- Gadolinium deposition

DISCUSSION

MIN has characteristic imaging findings. The typical imaging presentation is bilateral hyperintense dentate nucleus lesions on T2-weighted and FLAIR images.

Their presence in a patient with a history of metronidazole therapy should strongly suggest the diagnosis of MIN. Other patterns of lesion distribution can also strongly suggest the diagnosis. Midbrain and corpus callosum lesions, particularly the midbrain tectum and splenium of the corpus callosum, are frequently observed in MIN,. Although the midbrain tectum can be involved in entities such as Wernicke encephalopathy, and the differential diagnosis for a splenium corpus callosum lesion is extensive,

the presence of such lesions in conjunction with dentate lesions is a pattern that may be unique to metronidazole toxicity. Lesions in MIN are not restricted to these structures. In other studies MIN also showed lesions in unusual locations such as the putamen, supratentorial white matter, and genu of the corpus callosum. Lesions in these areas have not been described frequently. In addition, lesion extent does not appear to correlate with cumulative metronidazole dose.

CONCLUSION

MIN is a rare entity that is important for radiologists to identify. Toxicity generally occurs in patients with high cumulative doses of metronidazole, but can be seen after short treatment periods, and may not be dose dependent. Symmetric lesions in the dentate nuclei are almost universally identified. The combination of dentate nucleus, tectum and corpus callosum lesions, in the appropriate clinical setting is highly suggestive of MIN.

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- 2) Roy U.Panwar A.Pandit A.et al.Clinical and neuroradiological spectrum of metronidazole induced encephalopathy: our experience and the review of literature. *J Clin Diagn Res.* 2016; 10: OE01-OE09.
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