

Metronidazole Induced Encephalopathy

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Abstract

Introduction: Metronidazole is a nitroimidazole antimicrobial drug prescribed to treat infections caused by anaerobic bacteria and protozoa. Metronidazole-induced encephalopathy (MIE) is a rare toxic encephalopathy caused by the drug metronidazole. The incidence of metronidazole-induced encephalopathy is unknown, although several previous studies have addressed metronidazole neurotoxicity. Metronidazole is efficacious in treating trichomoniasis, amebiasis, and giardiasis and in infections caused by obligate anaerobes and microaerophilic bacteria. It has been used for treatment of brain abscess, because anaerobic and microaerophilic bacteria constitute the most common pathogens. Metronidazole may produce neurologic side effects such as cerebellar syndrome, and encephalopathy in rare cases. Metronidazole is a commonly used antibiotic agent in various conditions such as anaerobic bacterial infections, protozoa infections (for example, giardiasis), *Helicobacter* associated gastritis, and hepatoencephalopathy. Previous reports have demonstrated that metronidazole toxicity may induce several neurologic side effects, including peripheral neuropathy, ataxic gait, dysarthria, convulsive seizures. MRI brain usually clinches the diagnosis. Metronidazole is commonly used in the treatment of brain abscess to cover anaerobes and MIEP can lead to irreversible neurologic sequelae. Therefore, MIEP should always be borne in mind when administering metronidazole for the treatment of cerebral abscess. Here, we report the case of a patient with reversible cerebellar dysfunction on magnetic resonance imaging, induced by prolonged administration of metronidazole for the treatment of infectious colitis.

Keywords: Metronidazole, Encephalopathy.

Here we present a case report on Metronidazole induced Encephalopathy 22 yr male pt k/c/o liver abscess was managed conservatively in outside hospital and then the patient came to our hospital. Since a night before the patient started having slurring of speech and giddiness. He was also complaining of heaviness in the head. But there was no history of any facial deviation, arm drift or limb weakness. There is also no history of loss of consciousness and no history of seizure. The patient also did not give any history of any recent trauma and no sick contact. He was diagnosed with Liver Abscess and was on Metronidazole and some pain medications for it. He also did not had any surgical procedure done for this

abscess as the treating physician advised for conservative management.

Ultrasound done outside showed RESOLVED ABCESS

H/O Right Nephrectomy several years before

Historian : Patient, Family

Primary survey

Airway assessment : patent

Breathing : respiration(rr/min) :18/min

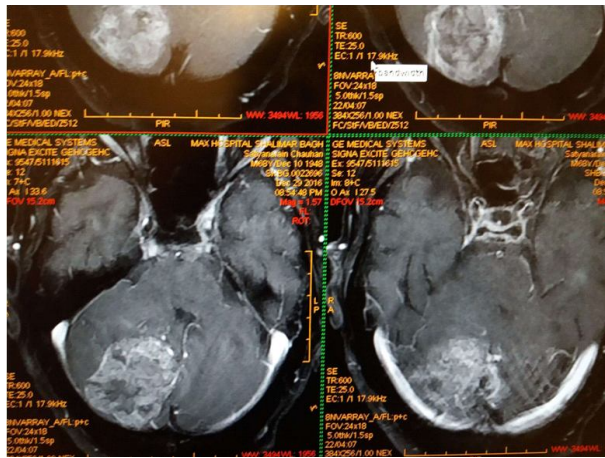
laboured : no

spo2 : 99 % on room air

Circulation	po2:29.8	
Pulse : 72/min	pco2:50.8	
BP: 110/80	Na:141	
Peripheral pulses: yes	K+:4.5	
Temp: 98	Calcium :1.22	
Cardiac monitor: Sinus	Lac:2.6	
RBS:126 mg/dl	Hb:13.5	
Pupils:	Lab Report:-	
Right eye : NORMAL	Test Name	Result
Left eye: NORMAL	TLC	10.8 H
Secondary survey	RBC	5.73 H
Review of systems	Haemoglobin	13.4 gm/dL
HEENT: No pallor/icterus/cyanosis	Packed Cell Volume	41.6%
CHEST: Air entry equal b/l,no adventitious sound	MCV	72.6 L fL
CVS : s1s2 heard	MCH	23.4 Lpg
ABD : soft, no organomegaly and no guarding and no rigidity	MCHC	32.3 gm/dL
EXTREMITY : No pedal edema	RDW	19.3 H%
NEURO: Conscious/oriented, No focal neurological deficit GCS-15/15, Power 5/5 in all the 4 limbs. MODERATE	Platelet Count	261
DYSARTHRIA+	Neutrophils	47%
REFLEXES 2+	Lymphocytes	43 H%
Allergies : not known	Monocytes	7%
Medications :on cefuroxime,metronidazole	Eosinophils	3%
Past history: No Diabetes and no HTN and only history of Right sided Nephrectomy. working diagnosis:? Seizure u/e? Encephalopathy investigations: CBC, LFT, KFT, SERUM CAL, SERUM MAG, MRI BRAIN STROKE PROTOCOL	Eosin ABS	10~9/L
TREATMENT ADVISED :	NEUT ABS	10~9/L
INJ LEVIPIL 500 MG IV STAT	MPV CBC Components	7.8-11.2
INJPAN 40 MG IV STAT		
INJEMSET 4 MG IV STAT		
<i>Care Plan:</i>	<i>Radiological Report</i>	
Case seen by Neurologist and Gastroenterologist	Mri Brain Stroke Protocol (BRAIN+D(MRI Detailed))	
Advise to stop Metronidazole	MRI Brain Stroke Protocol of 03-JAN-2017: Result :	
Advised Admission in ICU	Serial sections of the brain were obtained in sagittal, coronal and axial planes using T1, T2, and FLAIR images. There is evidence of subtle symmetrical T2/FLAIR hyperintensity involving the bilateral dentate nuclei. Rest of both cerebellar hemispheres show no obvious focal lesion. Both cerebral hemispheres shows normal MR morphology and gray-white differentiation. No evidence of restricted diffusion / acute infarct seen on DW sequence. The basal cisterns and superficial subarachnoid CSF spaces are normal. The ventricular system is normal. Bilateral basal ganglia and thalami are normal. The midbrain, pons and medulla are normal. Visualized parts of the	
Venous Blood Gas:		
ph:7.355		

sella, 5th, 7th and 8th nerve complexes are grossly normal on routine brain imaging.

Major flow voids are present.



Impression

MRI study reveals subtle symmetrical T2/FLAIR hyperintensity involving bilateral dentate nuclei concerning for metronidazole toxicity (advise- clinical correlation and follow up imaging).

Conclusion

Metronidazole may produce neurologic side effects

such as cerebellar syndrome, and encephalopathy in rare cases. We show that metronidazole-induced encephalopathy can be reversed after cessation of the drug. Consequently, careful consideration should be given to patients presenting with complaints of neurologic disorder after the initiation of metronidazole therapy.

References

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