

Auditory Hallucination Associated With Metronidazole: A Case Report

● Sumeyra DAG¹, ● Melike Efnan BİNİCİ¹, ● Duhan KANMAZ¹, ● Bahadır TASLIDERE¹

¹Bezmialem Vakıf University, School of Medicine, Istanbul, Türkiye

Abstract

This article presents a case of auditory hallucinations occurring in a mentally healthy young patient, which are associated with the administration of metronidazole. A 43-year-old female patient presented to the emergency department with complaints of auditory hallucinations, altered consciousness, and nausea after the use of metronidazole. During the physical examination, the patient was alert, oriented, and cooperative; cranial nerve examination, sensory and motor functions, and cerebellar tests were all normal; no signs of meningeal irritation were detected. This case underscores the importance of being vigilant regarding the potential neurological side effects associated with metronidazole use.

Keywords: Metronidazole; Auditory hallucinations; Side effects

Introduction

Metronidazole is an antibiotic belonging to the 5-nitroimidazole class, utilized in the treatment of a range of bacterial and protozoal infections. Due to the rarity of serious side effects, it has been safely used for decades. Common side effects associated with metronidazole include nausea, headaches, alcohol intolerance, a metallic taste in the mouth, and gastrointestinal discomfort¹⁻³. Rare side effects include neutropenia, hemolytic-uremic syndrome, Stevens-Johnson syndrome, psychotic episodes, and encephalopathy^{2,3}. Although neurological side effects are infrequently observed, early clinical identification and intervention are essential for optimal patient management⁴⁻⁷. This article presents a case of auditory hallucinations occurring in a mentally healthy young patient, which are associated with the administration of metronidazole.

Case Report

A 43-year-old female patient presented to the emergency department with complaints of auditory hallucinations,

altered consciousness, and nausea after the use of metronidazole. It was learned that she had undergone a right hemicolectomy 8 days ago due to a transverse colon tumor. The patient, who had been undergoing inpatient treatment in the general surgery unit, was discharged on the seventh postoperative day with a prescription that included ciprofloxacin at a dosage of 750 mg administered twice daily and metronidazole at a dosage of 500 mg administered three times daily. The patient has been using ciprofloxacin for urinary tract infections over many years and has not experienced any side effects. After being discharged from the hospital, the patient reported confusion and auditory hallucinations that began approximately 1.5 hours after taking the metronidazole. She indicated that these symptoms persisted intermittently for a period of 6 hours. In the emergency department, the vital signs were stable (temperature: 36.4 °C, pulse: 94 bpm, O₂ saturation: 95%, respiratory rate: 20 breaths per minute, blood pressure: 164/76 mmHg). During the physical examination, the patient was alert, oriented, and cooperative; cranial nerve examination, sensory and motor functions, and cerebellar tests were all normal; no signs of meningeal irritation were detected. The patient's surgical site examination revealed

Corresponding Author: Bahadır TASLIDERE **e-mail:** drbahadir@yahoo.com

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no abnormalities. Laboratory analyses indicated elevated levels of C-reactive protein (CRP), leukocytes, platelets, alanine aminotransferase (ALT), aspartate aminotransferase (AST), and gamma-glutamyl transferase (GGT), alongside decreased hemoglobin and hematocrit levels. As shown in Table 1. All laboratory values examined in the patient are included in Table 1. Furthermore, cranial diffusion-weighted magnetic resonance imaging (MRI) did not demonstrate any acute pathological findings. Consultations were conducted with both the neurology and general surgery departments. It was concluded that the patient's current symptoms could be associated with the administration of metronidazole. Following the discontinuation of metronidazole therapy, there was a notable improvement in the patient's symptoms. Upon follow-up five days later, the patient reported a complete resolution of her symptoms and stated that she had not experienced any further episodes of hallucinations.

Discussion

The improvement of auditory hallucinations after stopping metronidazole in our patient, who has no personal or family history of psychiatric disorders, indicates a possible causal link between metronidazole and the occurrence of auditory hallucinations. Metronidazole is an antibiotic that has been

associated with various central nervous system adverse effects, including a condition referred to as "metronidazole-induced encephalopathy." The existing literature has primarily documented peripheral neuropathy as one of the neurological side effects linked to metronidazole^{8,9}. Early diagnosis is essential for achieving a good prognosis in serious conditions such as encephalopathy. Most patients demonstrate significant improvement following the discontinuation of the offending medication.

Conclusion

This case underscores the importance of being vigilant regarding the potential neurological side effects associated with metronidazole use.

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Table 1: Laboratory results.

Laboratory Data	Value
CRP	43.8 mg/L
Leukocytes	10.83x10 ³ /uL
Hemoglobin	10.8 g/dL
Hematocrit	33.7%
Platelets	513.10 ³ /uL
Glucose	97 mg/dL
eGFR	109 ml/min/1.73m ²
BUN	6 mg/dL
Urea	13 mg/dL
Potassium	3.57 mmol/L
Sodium	143 mmol/L
Calcium	9 mg/dL
Creatinine	0.64 mg/dL
ALT	268 U/L
AST	149 U/L
ALP	143 U/L
GGT	147 U/L
Total Bilirubine	0.51 mg/dL
Direct Bilirubine	0.16 mg/dL
Amilase	72 U/L
Lipase	38 U/L

CRP: C-reaktif protein, GFR: Glomerüler Filtrasyon Hızı

ALT: Alanin aminotransferaz, AST: Aspartat Aminotransferaz

ALP: Alkalen Fosfataz, GGT: Gama Glutamil Transferaz