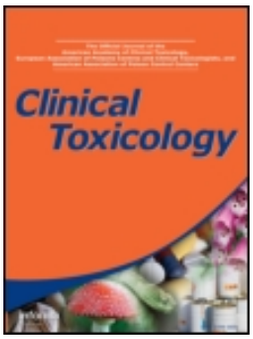

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CASE REPORT

Cerebellar effects after consumption of edible morels (*Morchella conica, Morchella esculenta*)

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Morchella esculenta and *Morchella conica* are well known edible morels, which seldom induce clinical symptoms. We report six persons who developed cerebellar effects 6–12 hours after consumption of these mushrooms. The symptoms were self-limited and disappeared after one day.

Keywords Edible morels; *Morchella conica*; *Morchella esculenta*; Mushrooms

Case reports

Case One

A 46-year-old woman with no pre-existing disease conditions was admitted with an ataxic gait that started ten hours after eating of 600 g freshly self-collected and self-prepared *Morchella conica var deliciosa*. On admission she was ataxic, her mouth was dry, and her pupils were dilated. Physostigmine 2 mg intravenously did not alter the ataxia, which vanished over the next 20 hours.

Case two

A 63-year-old woman complained of dizziness and blurred vision 12 hours after eating 250 g of freshly collected and fried morels (identified as *Morchella esculenta*). On admission, 14 hours after consumption, an ataxic gait, miotic pupils, and a fine tremor were observed. All symptoms resolved over the next three hours.

Case three

Her husband, a 71-year-old man, had eaten the same dinner and had the same symptoms, which also resolved in the same time.

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Case four

A 67-year-old woman felt dizzy, drowsy, and nauseated 10 hours after a meal including freshly self-collected *Morchella esculenta*; after having vomited she went to hospital where, on arrival, all symptoms had resolved.

Case five

A 67-year-old man felt dizzy and nauseated 9.5 hours after a self-prepared meal of 250 g self-collected *Morchella esculenta*. On admission 13 hours after the meal, he also complained about movement disorders which made it impossible for him to write. Neurological examination revealed an ataxic gait, fine tremor, a bradydysodochokinesia, and a pathologic Romberg test. All symptoms resolved within one day.

Case six

His wife, a 59-year-old woman, had eaten the same dinner and developed ataxia, tremor, and nausea nine hours after the meal. She also presented to the hospital and her symptoms resolved completely within one day.

All six cases were seen in our toxicology unit. All brought specimens of the mushrooms which were identified macroscopically and by microscopic identification of spores. In all cases routine laboratory tests were normal. Qualitative tests for alcohol in expired air (a routine test in the toxicology unit) were negative, although patients 3 and 5 had consumed one or two glasses of beer with the meal. Tests for detection of other drugs were not done.

Our poison control center reported 10 similar cases: a party of eight persons had dizziness 6–8 hours after a meal of *Morchella esculenta*; two persons also had diarrhea; and one

(11-year-old) had hyperacusis. Twelve hours after a dinner of self-collected morels (*Morchella esculenta* or *M conica*), two other persons developed dizziness, atactic gait, and blurred vision.

All cases occurred in April and May in the region Oberbayern. In all cases, patients or the mushroom hunters reported that they had collected only one species of mushroom that had grown in great amounts in one spot.

Discussion

In this case series we describe self-limited, benign neurologic effects after consumption of edible morels. The effects started after a latency of 6–12 hours and consisted primarily of ataxia and visual disturbances. They lasted up to one day and vanished without sequelae. In those cases seen in our department, the morels were identified: five of them were *Morchella esculenta* and one was *Morchella conica*. The neurologic symptoms in theses cases could not be explained by other conditions such as alcohol, other diseases, or intoxication with other mushrooms. *Gyromitra esculenta*, which causes neurotoxic effects, possibly can be mistaken for edible morels but *Gyromitra* grows predominantly in late summer/fall and is very rare in the region of Oberbayern. Our cases happened in Oberbayern in April and May, the patients had eaten only one type of mushroom, and among a collection of morels *Gyromitra* would stand out by its different phenotype. *Gyromitra esculenta* also is hepatotoxic, but our patients did not exhibit signs of hepatotoxicity. We did not test our patients for drug consumption, thus we cannot exclude the possibility of drug intoxications with absolute certainty. However, all patients were asked about their medications, and no one had reported the use of drugs or sedatives.

In the medical literature (searched by PubMed) these neurotoxic effects have not been published before. However, in the mycological literature, sporadic reports of inconsistent cases with neurologic symptoms are reported (1): six persons in a family of seven members had dizziness and inebriation after a meal of 3 kg *Morchella esculenta*; one person remained asymptomatic, even though he ate the morels a second time the next day. Nothnagel (1) cites Jaccodet, who in 1930 reports *Morchella conica* causing a kind of mild drunkenness.

The morels *Morchella esculenta* and *Morchella conica* are well known and often collected as delicious, edible mushrooms. The incidence of the herewith reported effects is rare and inconsistent. One of the authors (RP), after having examined the patient in case 2, collected specimens of *Morchella esculenta* from the same place, where the patient had found them. He prepared a meal with 200 g of fresh morels, which were delicious, and he remained asymptomatic. In all cases, the patients had eaten a large amount of freshly collected morels. One explanation may be that the assumed neurotoxin is volatile or unstable and the morels contain only small quantities. In the cases of intoxication, the mushrooms may have been cooked for too short a time to remove all of the poison and the morels were eaten in large amounts.

Reference

1. Nothnagel P. Gesundheitliche Störungen nach Morchelgenuß. Mykologisches Mittelungsblatt, Halle/S 6, 1962:32–33.