Foraging gone wrong: a case of poisoning from wild mushrooms

A previously healthy 52-year-old woman presented to the emergency department in early August with abdominal pain, nausea, vomiting and diarrhea. Approximately 12 hours earlier, she had harvested wild mushrooms from a local park with her husband, who had previous foraging experience. She ate some, but nobody else ingested the mushrooms. She brought a sample of the mushrooms with her to the emergency department.

Fig. 1. Specimens of Amanita bisporigera at varying stages of maturity collected from the fruiting patch where the patient foraged

The following morning, the mushrooms eaten by the patient were identified as *Amanita bisporigera*, a known species that causes liver toxicity. Local public health authorities were contacted to help identify the location of the mushrooms and prevent further public consumption. Meanwhile, the patient's liver function tests progressively worsened. Approximately 36 hours following ingestion, she was transferred to the intensive care unit and the liver transplant team was contacted.

An expedited pre-transplant work-up was completed and she subsequently underwent an urgent deceased-donor liver transplantation. There were no complications associated with the procedure. Her post-operative course was unremarkable and she was discharged home 10 days following transplantation.

Over 20,000 mushroom species are currently recognized and estimates of up to one million undiscovered species have been proposed. Despite this sizeable biodiversity, only a few hundred named species have been reported as poisonous to humans. Amongst those most poisonous of mushrooms, several members of the genus *Amanita* are responsible for the majority of deaths from mushroom toxicity: these include *A. phalloides* (accounting for greater than 90% of all fatalities), *A.*

verna and *A. virosa*. The culprit in this case report was *A. bisporigera* (Fig. 1). *A. bisporigera* is commonly found in eastern North America from late summer to fall.

Due to the likely high number of underreported cases, the true incidence of mushroom poisoning is unclear. In the United States, approximately 6,000 toxic mushroom exposures occur annually, the vast majority associated with only mild symptoms. In Western Europe, mushroom toxicity is more common with 50-100 fatal cases reported annually. When serious toxicity does occur, as in this case, it is typically in the setting of foraging adults who misidentify a toxic mushroom with morphology similar to a known edible species.

The clinical presentation of amatoxin poisoning classically occurs in three phases. The first phase is characterized by severe gastrointestinal symptoms including nausea, vomiting, abdominal pain and diarrhea that occur 6-24 hours after ingestion. The second phase lasts from 24 to 48 hours and is considered a false recovery period since symptoms typically improve. It is during this phase, however, that mushroom toxins damage the liver. Finally, the third phase, occurring after 48 hours, is characterized by liver dysfunction. It is during this phase, as well, that kidney failure may also develop.

Unfortunately, there is currently no proven specific antidote for treatment of amatoxin poisoning. Deaths still occur, as do examples of survival with significant emergency intervention, carrying their own life-time morbidity. Distinguishing safe from harmful mushrooms is a challenge even for mycologists and people should be counseled to the fact that many mushrooms can be very similar in appearance. This is especially important for immigrants who might mistake local poisonous mushrooms for familiar edible species from their native land.

Publication

Fulminant hepatic failure following ingestion of wild mushrooms.
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