

Neurological effects of *Morchella* sp.

Denis R Benjamin MD

*An interesting article in the spring 2015 issue of FUNGI by Davoli and Sitta discussed the edibility of *Verpa bohemica*, and mentions a “cerebellar” syndrome (Pfab et al., 2008) sometimes associated with overconsumption of morels. Before describing it, allow me a personal note. Despite efforts to reproduce this “syndrome” by eating super-heroic amounts of morels for days on end, I failed miserably. One memorable season we began picking a burn in late May and continued for the next 50 days. We ate morels every day. Whether the absence of any symptoms, other than sheer joy, was due to a strong constitution, the lack of a specific toxin in my morels, or the mitigating effect of wine, I cannot tell. But here are the facts, as we know them today.*

What is known:

Some people who eat morels will develop transient neurological effects.

What is not known:

The incidence and nature of the toxin.

The toxicity of raw morels is well known and documented. It is generally an acute gastrointestinal syndrome with bloating, abdominal pain, vomiting and diarrhea. The chemical toxin causing this reaction is unknown. As far as we know it is NOT due to hydrazines. Not everyone is equally affected, but enough so that no one should eat raw morels. And some unfortunates suffer similar effects even when the mushrooms are cooked.

Photo courtesy L. Cook.

Over the years there have been vague suggestions that a few people occasionally develop neurological symptoms after eating cooked morels. The effects were often referred to as disorientation, dizziness and/or poor muscle coordination. In 2008, six patients were reported in Germany who developed dizziness and evidence of mild cerebellar dysfunction (ataxia = staggering gait, lack of balance, a fine tremor and poor motor functions). In some it was accompanied by nausea and vomiting. The symptoms developed between six to twelve hours after rather generous amounts of cooked, fresh morels. The effects were self-limited and completely resolved over the next 24 hours.

A 30-year retrospective study of cases related to morels, collected by poison centers in France, was reported in 2010 by Saviuc et al., wherein 146 patients had the typical gastrointestinal syndrome, with an onset of symptoms under six hours; 129 patients had neurological manifestations which appeared around 12 hours and more frequently followed generous meals of seemingly well-cooked morels. This report, while being helpful, suffers from all the problems of a retrospective study, including acquisition bias, self-reporting, incomplete and inconsistent documentation, lack of controls, and no possible way of assessing the incidence. As an example, alcohol accompanying the meal was only documented in a few cases. Even the authors suggest under-reporting. This is an understatement, as a meal in France without wine is almost as rare as an American meal without a glass of iced water.

The North American Mycological Association (NAMA) case registry also contains a number of cases in which disorientation and lack of muscular coordination was reported after eating morels (Beug et al., 2006). This database suffers similar shortcomings, not the least of which is detailed medical reports, due in some measure to our HIPPA regulations relating to privacy.

With all these caveats in mind there are some valuable and useful takeaways.

What is known:

1. Some people who eat morels will develop transient neurological effects, with the onset around 12 hours. This may include dizziness, disorientation, ataxia with a staggering gait, fine tremors, and visual symptoms (blurred or double vision, poor accommodation, flashing lights). A variety of other effects were occasionally noted including tingling sensations (paresthesias) and slurred speech (dysarthria). It may resemble inebriation.
2. All patients recover within a couple of days, usually in 24 hours.
3. Approximately 25% may also have some gastrointestinal symptoms accompanying the neurological effects.
4. The mushrooms were adequately cooked.
5. Most, but not all, followed meals containing “generous” amounts of morels. (“Generous” is in the eye of the beholder, which the French study classified as a “several successive platefuls.” This suggests a dose related effect.)
6. The syndrome occurs most frequently with fresh morels. In only two cases were dried-rehydrated mushrooms implicated.
7. It is probably a response to a toxin, as multiple individuals eating the same collection were all similarly affected.

What is not known:

1. The incidence. The syndrome is probably quite rare, perhaps less than 0.5%
2. The nature of the toxin.
3. It does not appear to have any relationship to alcohol, medications, supplements etc., but the data are not adequate to exclude anything.
4. The rare, vague reports of similar reactions to *Verpa bohemica* may or may not be due to the same toxin. This awaits further investigation.

Bottom line:

Feeling woozy about 12 hours after gorging on a large plate of delicious morels? Don't call me. Stagger into bed. You will feel much better in the morning.

References Cited

Beug, M.W., M. Shaw, and K.W. Cochran. 2006. Thirty-plus years of mushroom poisoning: summary of the approximately 2,000 reports in the NAMA case registry. *McIlvainea* 16(2): 47–68.

Davoli, P., and N. Sitta. 2015 Early morels and little friars, or a short essay on the edibility of *Verpa bohemica*. *Fungi* 8(1): 4-9.

Pfab, R., B. Haberl, J. Kleber, and T. Zilker. 2008. Cerebellar effects after consumption of edible morels (*Morchella conica*, *Morchella esculenta*). *Clinical Toxicology* 46: 259–260.

Saviuc, P., P. Harry, C. Pulce, R. Garnier, and A. Cochet. 2010. Can morels (*Morchella* sp.) induce a toxic neurological syndrome? *Clinical Toxicology* 48: 365–372. †



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