

This article, from a South African medical journal, reports on the use of injectable vitamin C to treat poisoning from eating as few as 20 grams of the deadly mushroom *Amanita phalloides*. Although conventional treatment for such poisoning results in a 34 to 63 percent mortality rate, the author reports, therapy that includes the use of 3 grams of injectable vitamin C begun prior to onset of advanced stages of poisoning is always successful. The therapy was discovered by a French physician and is "the treatment of choice at a number of centers in France." —*R.D.M.*

## A Cure for Mushroom Poisoning

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**T**o the Editor: Fatal mushroom poisoning occurs regularly in the RSA and, as in the rest of the world, the mushroom involved is almost invariably *Amanita phalloides*, the 'death cap'. Appearing in spring and autumn after good rains, it is always found close to symbiotic oaks, poplars, pines<sup>1</sup> and wattles (unpublished observation). The mushroom is initially bell-shaped, maturing into a 'classic' toadstool shape with a slender white stem and a flat cap. The cap may exhibit a number of different colours: 'different shades of greenish yellow-olive, smoky brown-green, umber brown to smoky olive, darker towards the centre'.<sup>1</sup> A greyish-khaki colour is also common in the RSA (unpublished observation). Its distinctive features are white gills, a white annulus (a membranous ring around the stem just under the cap), and a large white volva (an eggshell-type structure from which the mushroom 'hatches' and which remains to surround the base of the stem). In the RSA *A. phalloides* may easily be mistaken for the delicious i'kowe mushrooms (*Termitomyces* spp.) which emerge from termite nests after rain. These exhibit a similarly coloured cap and white gills, but do not have an annulus or a volva.

Ingestion of as little as a quarter of a cap (20 g) of *A. phalloides* is usually fatal.<sup>2</sup> Part of the deadly nature of the fungus is its pleasant taste<sup>2</sup> and the latent period of 6-24 hours which renders gastric and intestinal lavages ineffectual.<sup>3</sup> Initial symptoms consist of violent vomiting, diarrhoea, dehydration, reduced blood pressure and hypoglycaemia.<sup>3</sup> If the victim survives this there may be a 48-hour remission<sup>2</sup> followed by a relapse, with coma and death occurring in 3-5 days, the mycotoxins causing irreversible loss of renal and hepatic function.<sup>3</sup> Conventional treatment consists of fluid replacement, haemodialysis or blood transfusions,<sup>3</sup> general care, especially of the heart, and attempts to protect the liver and kidneys from the deleterious effects of the toxins.<sup>2</sup> Thiocetic acid,<sup>3,4</sup> choline<sup>2</sup> and cytochrome c<sub>3</sub> have had some effect as therapeutic agents, but in most cases conventional treatment has been inadequate and fatality rates of 34-63% have been reported.<sup>3</sup> In a recent case in Matatiele 5 out of 6 children died after

eating wild mushrooms.<sup>5</sup> I would therefore like to pass on a report in the mycological literature<sup>6</sup> of the cheap, simple and apparently successful treatment of *A. phalloides* poisoning developed in France. The treatment consists of giving, as soon as possible, intravenous vitamin C (ascorbic acid) 3 g/d, oral nifuroxazide 1200 mg/d and dihydrostreptomycin 1500 mg/d.<sup>4</sup> The three drugs are administered for 3 days during which time carrot broth is the only source of nutrition.<sup>7</sup> At the anti-toxic centres in France this treatment is combined with 'the indispensable reequilibration of fluids and electrolytes'<sup>6</sup> and a course of penicillin.<sup>6</sup>

A Dr Bastien discovered this method by chance in 1957 and between that year and 1969 successfully treated 15 patients. It has since been adopted as the treatment of choice at a number of centres in France and has been successful in all cases except those in which poisoning was already at an advanced stage before treatment commenced. In order to publicize the treatment Dr Bastien has on two occasions publicly consumed fatal doses of *A. phalloides* (65 g and 70 g) and then successfully treated himself, a flamboyant but eminently convincing display of the efficacy and reliability of this treatment. Further evidence of its efficacy has been provided by others.<sup>4,8</sup>

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