Orellanus Syndrome: A Rare Cause of Uremia

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Table 1. Effect of *C. orellanus* ingestion on renal function

Bouget et al. , Grzy mala, 1957,1990 1959

(n = 26) (n=135)

Dear Sir,

Mushroom poisoning is a rare cause of clinical toxicity. In most cases death results from consumption of *Amanita phalloides* (death cap) or closely related species. Ingestion of the genus *Cortinarius*, particularly *Cortinarius orellanus* or *Cortinarius speciosissimus* may cause acute renal failure [1,2]. The clinical symptoms due to poisoning by *C. orellanus* were first described in 1957 (orellanus syndrome) [3]. Severe poisoning by *Cortinarius* species has been reported rarely since then.

A 27-year-old, previously healthy man consumed self-picked wild mushrooms. Nine days later he developed persisting nausea and anorexia. He had noticed a marked reduction in urine volume from the 11th day after eating the mushroom stew. On admission, 14 days after the meal, he was remarkably well, afebrile and anicteric. The pulse rate was 90/min, with normal sinus rhythm. Blood pressure was 160/90 mm Hg and there was uremic factor. Microscopic study of the urine revealed marked leukocyturia (500 cell/ μ l), but only a small number of red blood cells (10 erythrocytes/ μ l). Plasma creatinine was 16.4 mg/dl (1,449 μ mol/l), urea 353 mg/dl (59 mmol/l), sodium 131 mmol/l, potassium 6.63 mmol/l, and calcium 2.1 mmol/l. Liver function tests, blood cell count and coagulation screening were normal. Circulating anti-dsDNA antibodies, anti-GBM antibodies, anti-TBM antibodies, anti-neutrophil cytoplasmatic antibodies, rheumatoid factor, anti-streptolysin titer, cryoglobulins and anti-CMV antibodies were all negative. Serum immunoglobulin

Normal renal function, Acute renal failure, Chronic renal failure, % concentrations were within the normal range.

Ultrasonography of the kidneys ruled out obstruction as the cause of renal failure. Renal biopsy (light-microscopic studies) revealed pronounced acute tubulointerstitial nephritis. No glomerular damage was noted. Immunofluorescence studies showed no significant deposition of immunoglobulins, complement or fibrin in the glomeruli.

Hemodialysis was started immediately, but acute renal failure could not be reversed. The patient decided to use continuous ambulatory peritoneal dialysis and a peritoneal catheter was placed. In

August 1994 he underwent an uneventful kidney transplantation. The kidney transplant still performs well.

Given a history of mushroom ingestion, poisoning by mushrooms can be classified according to the morphology of the ingested mushroom, its principal toxin or its clinical signs and symptoms. In the case presented,

the diagnosis of poisoning by *C. orellanus* was based on the mushrooms, which were classified by a professional mycologist and on the typical features of the orellanus syndrome.

Clinical symptoms of intoxication with *C. orellanus* are characterized by a latency period of up to 14 days followed by acute gastroenteritis with nausea, vomiting, diarrhea or constipation.

Acute renal failure is the main consequence of intoxication and may lead – as in the case presented – to end-stage renal failure requiring renal replacement therapy. The prolonged latency period may be the reason for categorizing *C. orellanus* as an edible mushroom until the 1950s when Gryzmala [3] presented the first evidence of its toxicity.

The main toxin of *C. orellanus* consists of a hyperidine (termed orellanine) which is extremely heat stable and is not inactivated by drying periods of over 20 years [4]. This toxin attacks the proximal tubular cells lead-

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ing to interstitial nephritis or tubular necrosis.

Poisoning with *Cortinarius* is not uncommon in Europe, Japan and the United States, but there have been few documented cases of *Cortinarius* poisoning in the literature during the last decades. Possibly this form of mushroom poisoning has not been recognized for several reasons: (1) previous reports and animal studies indicate considerable variability in the susceptibility to the toxin (table 1), and (2) affected patients may have presented with renal failure of unknown origin, having eaten mushrooms days to weeks before because of the prolonged latency period the two events are often not linked. Taken together, intoxication with *C. orellanus* might be more often the cause of acute renal failure than previously assumed.

There are no specific antidotes for poisoning by *Cortinarius* species. Since the onset of symptoms is delayed, it is unlikely that activated charcoal or extracorporeal detoxication would be of much benefit [5]. Treatment therefore consists of close monitoring of renal function.

Dialysis is performed for renal failure in the hope that renal function may return. Fatalities are due to the complications of renal failure, but had occurred only in the era before hemodialysis. Bearing in mind the widespread popularity of picking and eating wild mushrooms, poisoning with *C. orellanus* should be considered as a rare cause of acute renal failure.

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