Rhabdomyolysis – An Unusual Feature with Mushroom Poisoning

Case presentation

Nine workers consisting of 8 males and 1 female, developed nausea, vomiting, diarrhea and agitation after having wild mushroom soup. The mushroom was a wild plant obtained from the nearby mountain where they worked. At first all of them presented with gastrointestinal symptoms within 2 hours. The 60 y/o male also had chest tightness, dyspnea, generalized muscle pain, and weakness. His vital signs were as follows: blood pressure 179/109 mmHg, pulse rate of 129 beats per min, respiratory rate of 17 beats per min, and body temperature 36.0℃. Hematological analyses included a white blood cell (WBC) count of 13,500/cumm, hemoglobin of 16.7 g/dl and a platelet count of 248,000/cumm. The amylase 114 U/L, blood urea nitrogen (BUN) 17 mg/dL, creatinine (Cr) 1.1 mg/dL, blood glucose 158 mg/dL, sodium 139 mmol/L, potassium 4.4 mmol/L, chloride 100 mmol/L, alkaline phosphatase 57 U/L, and gamma-glutamyl transferase 60 U/L were normal. Biochemical tests were remarkable, with an elevated alanine transaminase (ALT) 112 U/L, aspartate transaminase (AST) 343 U/L, lactate dehydrogenase (LDH) 361 U/L, and creatinine phosphokinase (CK) 12,551 U/L. His urine was grossly dark red on admission and urinalysis showed protein 3+, bilirubin trace, occult blood 3+, RBC 8-10/high power field, and WBC 3-5/high power field. Intravenous fluid was then commenced and he was admitted. Deterioration of renal function was noted with BUN 44 mg/dl and Cr 2.3 mg/dl on day 3. Persistent leukocytosis (WBC 21,700/mm^3), marked elevation of CK 204,500 U/l, ALT 1,660 U/l, AST 6,780 U/l, LDH 5,290 U/l, and uric acid 15.0 mg/dl were also noted. Later a severe electrolytes imbalance (potassium 6.5meq/L, calcium 5.4 mg/dL, inorganic phosphate 11.8 mg/dL), ventricular tachycardia and drop of BP occurred. These were controlled temporarily by cardioversion, magnesium sulfate and calcium gluconate. Hemodialysis was started for hyperkalemia, oliguria (200ml/day) and pulmonary edema. During a two weeks course of hemodialysis, the patient became stable except a right upper lobe pneumonia which was controlled by cefotaxime. Ventilator was weaned successfully and a diuretic phase followed after two weeks of dialysis. The patient was discharged on the 33rd day with Cr 1.9mg/dL and CK 128 U/L. The peak CK was 246,600 U/L (MM form 237394 U/L) on the 5^{th} day.

The female patient, 46 year old, also presented with chest tightness, stiff neck and muscle soreness six hours after ingestion. After admission, laboratory examinations included CK 2,225 U/L, LDH 278 U/L, AST 79 U/L, ALT 28 U/L, BUN 18 mg/dL and Cr 0.8mg/dL. Vigorous hydration was initiated and the peak CK was 14,230 U/L

on the second day. She made good recovery without renal failure during the episode and was discharged with no complications.The other seven persons presented only with nausea, vomiting and diarrhea 2 hours after ingestion. The symptoms were all self-limited and they recovered in one day with supportive care at home.

The leftover mushroom was identified as Russula subnigricans. (Figure 1) It is important for physicians to be aware of these unusual presentations as no such kind of mushroom poisoning was found in textbooks or literature. The differential diagnosis of rhabdomyolysis of unknown cause should include mushroom poisoning.

Figure 1. **Russula subnigricans**. The world geographic distribution of Russula subnigricans is not well known. According to the limited reports, the mushrooms can been found in the United States, Taiwan, China, and Japan. They grow in crops or along in the evergreen broad leaf forest from summer to fall. The flesh is white, but once damaged, turns to red. The similar species, Russula nigricans is less poisonous and when split is distinguished by the change of fresh white color to red and then finally to black.