Learning Point for Clinicians

Physicians should include Haff’s Disease in differential diagnosis when evaluating patients with rhabdomyolysis without risk factors. The potential for misdiagnosis is considerable, owing to the spectrum of symptoms, and missed history of fish consumption. Fish consumption should be included in the history of patients with unexplained rhabdomyolysis.

Case Presentation

A 48-year-old male with no significant past medical history came to the emergency department (ED) because of sudden onset of diffuse myalgia especially in the legs, chest and back. It was associated with mild diaphoresis. Symptoms started acutely as he was driving back home from his work as a cab driver. He denied fever, new medications, recreational drug use, recent illness, significant physical exertion and trauma. Vital signs on admission were: temperature, 98.2 F; pulse, 90/min; blood pressure, 148/88 mm Hg; and SaO2, 98% on room air. Physical examination was significant for tenderness in the thighs and shoulder area, without weakness. The patient was passing dark brown coloured urine in the ED. Electrocardiogram showed normal sinus rhythm, without irregularities. His laboratory testing showed normal haemoglobin and white cell count. Urinalysis was positive with 4+ haemoglobin, but minimal grouped red blood cells. Urine toxicology screen was negative. Creatinine Phosphokinase (CPK) was 16192IU/l (normal 41–85) on admission and peaked at >160,000, 40 h later. Serum myoglobin was elevated as well >4000 ng/ml, on admission. (Such high values are rarely seen, except in cases of crush injuries.) Diagnosis of rhabdomyolysis was made, but the etiology was unknown. He was started on intravenous normal saline at a rate of 200 cc/h, with strict monitoring of urine output. His urine output was maintained around 2–3 ml/kg/h. Labs done 4 h later revealed hyperkalemia and elevation of serum creatinine, consistent with acute kidney injury due to tubular toxicity (ATN) of myoglobin. His myalgias lasted for about 10–12 h, and then resolved. CPK and myoglobin started to improve on day 4. The acute kidney injury was likely ATN, due to myoglobinuria, and creatinine increased rapidly to 3.0 mg/dl within 48 h, peaked at 3.6 mg/dl on day 5, and then started improving. Rheumatologic work up including Anti-nuclear antibody was negative. His mother had been hospitalized the month prior, for weakness secondary to rhabdomyolysis, which led to renal failure. Her hospital course was complicated by intracranial haemorrhage and expiration. She had eaten buffalo fish before she was admitted. Our patient, had taken out soup fish from the freezer one month later which was made from the same fish, and ingested it. Diagnosis of Haff disease was established on basis of compatible history, laboratory findings, and in consultation with Center for Disease Control. Patient was discharged on day 6, asymptomatic, and improving renal function.
Discussion

First reported in 1924, Haff disease gets its name from the Koenigsberg Haff, a brackish inlet of the Baltic Sea where the syndrome was first described. Haff disease is characterized by sudden onset of severe rhabdomyolysis without associated symptoms in patients who have consumed fish within 24 h of symptom onset. Buffalo fish has been most commonly associated, but salmon and crayfish have also been reported. Some other symptoms that have been reported include nausea, vomiting, chest pain, dyspnea and pain with light touch. Laboratory features include a markedly elevated CK level with an MB fraction of less than 5%. Diagnosis is based on a compatible clinical history and laboratory abnormalities. Palytoxin, found in marine fish, has been associated with rhabdomyolysis.

Management of Haff disease is supportive. The cornerstone of therapy is aggressive intravenous hydration to maintain urine output of 2–3 ml/kg/h to prevent renal damage. Historically, the case-fatality rate is approximately 1%. In the United States, only 23 cases have been reported since 1984. There are no identifiable features of the toxic fish, and normal cooking methods cannot degrade the toxin due to heat stability. Given the near impossibility of screening the fish supply for the toxin, Haff disease occurs unpredictably, either sporadically or in outbreaks.

Conflict of interest: None declared.

References