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OUTBREAK OF HAFF DISEASE IN THE BRAZILIAN AMAZON

Haff disease, first reported along the Baltic coast in 1924, is unexplained rhabdomyolysis in a person who ate fish in the 24 hours before onset of illness (1). Outbreaks resembling Haff disease were described in Sweden and the Soviet Union between 1934 and 1984 (2, 3). In the United States, only three reports have been published to date (4). Haff disease remains a rare clinical syndrome for which there is no physiologic explanation.

Outbreaks of Haff disease have never been reported in Brazil. But in June 2008, a 39-year-old female medical doctor was admitted by the emergency service of a public hospital in Manaus, Amazonas State, Brazil, with diffuse myalgia and chest pain. The plasma creatine kinase (CK) activity levels were 6 252 units per liter (U/L) and no history of classic risk factors for rhabdomyolysis was detected. Her mother had been admitted 1 week before, presenting the same symptoms. Both women reported eating fish 24 hours before the onset of symptoms; further inquiry revealed that two residents from the same household who had not eaten fish did not become sick.

The attending physician at the hospital was intrigued by the diagnosis of the two familial cases of Haff disease and began an epidemiologic investigation, looking for similar cases and potential risk factors. A case report form was designed and distributed along with a technical note to all hospitals in Manaus, instructions on how to report suspected cases, and suggestions for their management. The cases were defined as those who were hospitalized on or after 1 June 2008 with a diffuse myalgia of sudden onset who ate fish in the 24 hours before onset of illness and CK serum activity that exceeded five times the upper limit of normal. Patients with a classic risk factor for rhabdomyolysis were not included. The results of the investigation are reported here.

Twenty-five cases of Haff disease were identified in Manaus between June and September 2008. All reported consumption of fried or roasted *pacu*—silver dollars (*Mylossoma* spp.), *tambaqui*—black-finned colossoma (*Colossoma macropomum*), or *pirapitinga*—freshwater pompano (*Piaractus brachypomus*), three river fishes of the region, within 24 hours before the onset of symptoms. All patients were older than 13 years of age (range 13–80 years); there were a similar number of males and females (59% and 41%, respectively). Three patients came from rural areas surrounding Manaus and nine patients were clustered in four families: the initial mother–daughter pair, a brother–sister pair, a husband–wife pair, and a family of three (husband, wife, and daughter). Five other members of these four families, who did not eat fish, did not fall ill.

All patients were hospitalized (range 3–6 days) with myalgia of sudden onset, mostly localized at the beginning of symptoms and followed by generalized

TABLE 1. Symptoms of Haff disease cases, Amazon, Brazil, 2008

Symptom (n = 27)	Number of reports	%
Myalgia	27	100
Chest pain	19	70.4
Neck pain	17	62.9
Muscular stiffness	13	48.1
Pain upon light touch	12	44.4
Weakness	11	40.7
Nausea	11	40.7
Muscle contracture	10	37
Dark urine	9	33.3
Vomiting	9	33.3
Malaise	8	29.6
Diarrhea	4	14.8

spreading within a few hours. Nineteen patients reported chest pain, among other symptoms (see Table 1). No fever or kidney damage was observed.

Predominant laboratory abnormalities were elevated CK serum activity (mean = 12 795 U/L, range 1 444–36 896 U/L). Serum activities of transaminases and lactate dehydrogenase were also elevated. In two patients, myoglobin was measured and found to be higher than 700 U/L. Serology for leptospirosis and hepatitis A and B was negative. Patients were treated with intravenous fluid hydration and bicarbonate infusion. No deaths were observed.

In only 4 months, 27 cases of Haff disease were reported in Manaus and surrounding municipalities of the Brazilian Amazon. The diagnosis of Haff disease was made based on the fact that none of the cases could be explained by classic causes of rhabdomyolysis; all patients reported consumption of fish within 24 hours before the onset of symptoms; some cases occurred in family clusters and no cases were observed after the beginning of the period of prohibition of fishing in the region that occurs every year from October to March. This possible association between fish eating and rhabdomyolysis in the Amazon region may have an important impact, as fish is a major source of protein in the Brazilian Amazon (5). Active surveillance of this supposedly uncommon condition is necessary to corroborate its frequency in the region and enhance our understanding of this elusive disease.

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The views expressed here are those of the authors and do not necessarily reflect the official policy or position of the Brazilian Government, the U.S. Government, Department of the Navy, or Department of Defense.

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