

## Guam Seaweed Poisoning: Autopsy Findings

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**Abstract**—Pathological findings in 3 deaths due to acute seaweed intoxication were quite similar; there was generalized congestion and edema, the lungs were edematous, brains were swollen and edematous and, in 2 cases, the liver showed some fatty infiltration. The GI tracts were unremarkable except for petechial hemorrhage of the intestinal mucosa in one case.

I became involved with the Guam seaweed poisoning cases not because I know more about this type of illness than anybody else but as a result of my responsibilities as the Chief Medical Examiner. The person filling this position is obligated to investigate all unusual or unnatural deaths on Guam.

The first seaweed-associated death was a 33-year-old Filipina female (C.S.). At autopsy, conducted the day following death, there was a very severe bilateral pulmonary edema. When the lungs were cut, a profuse amount of watery fluid came out. This was associated with severe congestion verified by microscopic examination. There were many pinpoint petechial hemorrhages on the surface of the lung and on the heart. These are probably explainable on the basis of lack of oxygen or anoxia. The liver was very interesting because it showed rather severe fatty infiltration. There was generalized severe congestion affecting practically all organs, especially the brain.

The GI tract was very carefully examined to see if there were any pathological changes which could explain the diarrhea and the abdominal pain the patient experienced but the mucosa of the stomach and the intestinal tract merely showed some reddening. There was no ulceration or other severe pathological changes and there was no evidence of infection such as may be present in other forms of food poisoning.

The second death was a 32 year-old Guamanian lady (R.M.); her autopsy was also done the day following death. This patient also showed very severe bilateral pulmonary edema and each chest cavity was filled with about 1500 ml of watery fluid. This case showed even more severe brain edema than the first. Again there was generalized pitting edema, including the legs, and the abdominal cavity contained quite a bit of fluid. As in the first case, this patient showed generalized severe congestion affecting practically every organ.

The third case, a 48 year-old Filipino male (S.T.), was a bit different from the other two in that he went into coma, as you recall, on about the fifth day of hospitalization and was clinically brain-dead for some time. Upon autopsy the

brain appeared very turgid and swollen. Serial sections of the brain revealed multiple areas of infarct, some of which were hemorrhagic. These infarcts can probably be explained on the basis of vascular occlusion and I understand that this patient presented clinically with apparent disseminated intravascular coagulation and very drastic diminution of the platelet count. That probably explains why there were so many infarcts in the brain. This patient showed multiple anoxic-type pinpoint bleeding spots in the intestine, that is the only thing that was a little bit different from the other cases. This is explainable on the basis of low platelet count and intravascular coagulation.

Now if you compare all three cases in terms of pathological presentation, all three are quite similar; the lungs were very edematous and the brain also showed swelling, the liver showed some fatty infiltration in two cases, there were petechial hemorrhages, generalized congestion and edema. The GI tract, surprisingly, was unremarkable except that in the last case there was some petechial hemorrhage in the intestinal mucosa. As far as the cause of death was concerned, in the first case, I recorded "Acute respiratory failure" [due to] "Cerebral edema, severe", [due to] "Probably acute seaweed poisoning". For the second death I entered "Cardiopulmonary failure" [due to] "Probably acute seaweed poisoning". I recorded the the third death as due to "Multiple hemorrhagic infarcts of brain" [due to] "Disseminated intravascular coagulation" [due to] "Probably acute seaweed poisoning". After the autopsies were completed I submitted samples of intestinal contents, stomach contents, blood and organs (including brain, liver and muscle) to the U. S. Food and Drug Administration in Washington, D.C. To this date, however, I have not been informed as to the results of these tests.