

## P-39

### **Type B botulism in a Korean couple after eating homemade doenjang**

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**Objective:** Botulinum neurotoxins (BoNTs) are potentially deadly toxins with a median lethal dose of only 1 ng/kg. From 2011 to 2015, the Center for Disease Control and Prevention (CDC) reported 162 cases of botulism annually in the United States. In 2016, the CDC reported 29 confirmed cases of foodborne botulism, with 25 cases of BoNT type A, three cases of BoNT type E and only one case of BoNT type B (BoNT/B). We present two cases, wife and husband, of foodborne botulism due to BoNT/B after ingestion of homemade doenjang, a Korean fermented bean paste.

**Case Series:** A 58-year-old female and her 58-year-old husband both presented with diplopia, nausea, and vomiting roughly 24 hours after ingesting homemade doenjang. Associated symptoms included dry mouth, facial numbness, and dysarthria. Vital signs for both patients were unremarkable and laboratory findings, including a complete blood count and comprehensive metabolic panel, were within normal limits. Computed tomography of the brain were normal in both patients. Due to a history of ingesting a homemade fermented dish, as well as similar physical findings classic for botulism in both patients, the CDC was notified and botulinum antitoxin treatment was subsequently given. Serum and stool samples were collected for each patient and food samples were retrieved in search for botulinum toxin. Final results showed the food sample to be positive for BoNT/B, while botulinum toxin in the serum and stool samples of each patient was not detected by mouse neutralization laboratory assay.

**Conclusion:** Food-borne botulism can occur after ingestion of preformed toxin in home-canned foods and improperly preserved fish, meats, or vegetables. BoNTs prevent the release of acetylcholine at presynaptic nerve terminals of the neuromuscular junction. Bulbar palsies classically occur first with cranial nerve dysfunction and signs of diplopia, dysphagia, dysphonia, and dysarthria, which are especially prominent with BoNT/B. Respiratory failure due to paralysis of the muscles of respiration may be fatal. Treatment in adults involves botulinum antitoxin, and is initiated based on clinical suspicion due to the lack of immediately available laboratory confirmatory studies. Interestingly in this case, serum and stool studies were negative for BoNT by mouse neutralization, but food sampling tested positive for BoNT/B. The negative predictive value of testing for BoNT using mouse neutralization bioassay ranges from 56-67%. Physicians should be cognizant of the signs and symptoms of botulism. Aggressive supportive treatment with diligent attention to respiratory status is crucial.