Deadly Threat in the Preserving Jar

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Objective

Botulism is a rare cause of foodborne poisoning. In Germany, almost 20 cases of botulism are registered by the Robert Koch Institute every year. Most of them are caused by the consumption of home-canned vegetables.

Case report

First Day of admission

fresh wax beans

canned wax beans

One day after admission

Eight days after admission

Nineteen days after admission

Six months after admission

Patient A, 47-year-old woman

Initial symptoms were diplopia and dizziness during the preceding night.

Diagnostic Measurements:
Brain stem insult was excluded by cranial computed tomography.

Further course
Within one day, however, the patient's condition dramatically worsened with bilateral ptosis, progressive dysphagia, dysarthria, and respiratory insufficiency **requiring intubation and artificial ventilation.**

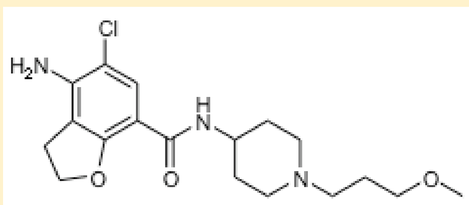
Further treatment
Although the woman was treated with neostigmine, a **paralytic ileus occurred**. **Gut motility successfully** was restorted by the buccal application of **pilocarpine and prucalopride**.

Patient B, husband of patient A

A few hours later than his wife, her husband was admitted to the hospital with similar but less pronounced symptoms. He reported that he and his wife had eaten salad from self canned wax beans two days ago .

In consideration of this anamnesis and the observed symptoms, botulism was suspected.

Eight days after admission, **botulinum toxin A was identified** in the patients' serum using an in vivo animal test model.



Chemical structure of the 5-HT4 receptor agonist prucalopride

Further course
After treatment at an intensive care unit for 19 days, the patients were transferred to a rehabilitation centre.
From there, the husband and his wife were discharged at the beginning and in the middle of October 2014, respectively.

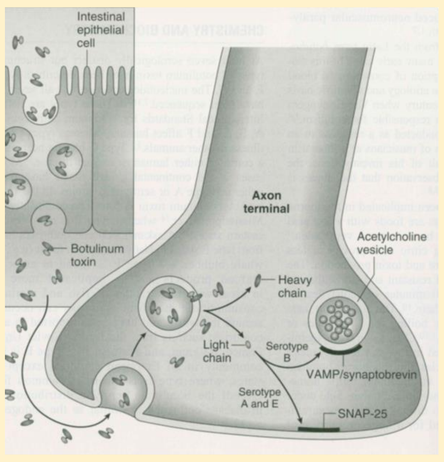


Fig. 1 Mechanism of botulinum toxin toxicity, from Simpson LL: Botulinum toxin: Potent poison, potent medicine. Hosp Pract (Off Ed) 34:87:91, 1999

Discussion

Botulinum toxin A-induced constipation and ileus might be life threatening complications of botulism. Because botulinum toxin A inhibits the release of acetylcholine in the neuromuscular junction (**Fig. 1**), the administration of cholinesteraseinhibitors like neostigmine might not be successful to improve bowel-movement due to the lack of acetylcholine. In these cases, administration of substances that act as **agonists on muscarinergic or 5-HT4 receptors** could be more promising to overcome paralytic ileus in botulism.

Conclusion

The reported case demonstrates the classical symptoms and the typical course of foodborne botulism. Besides respiratory insufficiency requiring artificial ventilation over a long time period, the inhibition of gut motility became life threatening. The paralytic ileus caused by botulin toxin A was treated successfully with a **combined administration of a muscarinic and a 5-HT4 receptor agonist**.