Botulism – Putting the Toxin to Work Legacy From a Sausage

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They say that botulism is a Latin word that means "sausage." It also means disease and death. Let's examine that.

Clostridium botulinum, that malicious microbe, breeds a toxin that is reported to be – along with its cousin tetanus toxin – the most venomous molecules ever to kill man or animal. Its history reaches backward to the early seventeenth century. Its malignant power grows ever bolder in this new millennium. Its immediate effect is paralysis; often, death.

This is how it works: aping tetanus and anthrax, it seals itself in a protective shell (spore) and hibernates, often for decades, often in the soil. From farm dirt, the spore finds itself in a home-processed can of slightly alkaline food like corn or green beans. Here, it promptly hatches from its spore-prison into a vibrant toxin-producing microbe. Now it's ready to roll, ripe for mayhem. That's been the classic story on botulism. A mere taste of the tainted food leads to muscle weakness, then paralysis. Without immediate help, it's one way to the mortuary.

More recently, botulinum toxin has learned how to thrive in marinated fish and olives. It has even sulked in potatoes wrapped in foil and heated in the oven or microwave. Drug users who "skin-pop" be ware – botulism toxin lurks in that black tar heroin that you've hooked on to lately.

As a terrorist tool, botulism along with anthrax, smallpox and others, is attractive. The toxin, dissolved in water, whether bottled or city supply – to say nothing of hiding the tasteless, odorless poison in the food supply – is a formidable terrorist threat. Botulism toxin in the hands of terrorists is bad for the health.

Is it all black news? Can we find no good for these molecules? Well, consider this: In infinitely small amounts, the toxin is therapeutic for persons with chronic muscle spasm. Muscles of the neck can get tight and cause the head to tilt painfully to either side. "Wry neck," we call it. A deft infiltration of the toxin into the muscle can straighten up the head, wipe out the pain. A miracle for the sufferer with torticollis!

Another miracle is "Botox." Application? The faces of beautiful people. It's like this: As we age, it sows up as little wrinkles around the mouth or nose, furrows between the eyebrows, and deep wrinkles across the forehead. Sure, it take skill to needle the toxin directly into the muscles that underlie the furrows and folds, creases and crinkles. And the skill is hat hand. Dermatologists, plastic surgeons, and other physicians who have developed the surgical and ascetic know-how can make those wrinkles disappear for months on end. So that's botulism at its best.
Botulism toxin – it’s a killer, definitely. Or it can heal. It's a Dr. Jekyl, or a Mr. Hyde. So, let's recognize the enemy, but at the same time lend some respect to our "Botox" buddy.

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