

BOTOX (Botulinum Toxin A): Spasmodic Dysphonia, Laryngospasm, Granulomas

BOTOX is used to treat a variety of problems with the voice box, including *spasmodic dysphonia*, *laryngospasm*, and *granulomas*.

How does it work? In patients with spasmodic dysphonia, BOTOX weakens the vocal cord muscles so that they no longer spasm, allowing the voice to sound natural. In patients with laryngospasm, this weakening effect prevents the vocal cords from closing during breathing, which allows a person to breathe easier. In patients with granulomas, the BOTOX keeps the vocal cords from striking together, allowing the granuloma to resolve and the irritated area to heal.

How is it injected? Botulinum is usually injected into the vocal cords through a small needle introduced directly through the skin of the neck. Usually both vocal cords are injected in this way. For patients who cannot be injected in this way, we can put a person under a short general anesthesia and inject the vocal cords directly usually a long needle inserted down the throat. Both methods are equally effective, but having the procedure performed under general anesthesia is something that needs to be scheduled in our ambulatory surgery center.

You cannot get botulism from the injections. The botulinum toxin acts locally at the level of the vocal cords. It does not disperse throughout your body. The amounts used to treat wrinkles of the skin are typically on the order of 40-80 units; in the voice box, we typically use doses of about 1 – 2 units, sometimes as high as 15, but doses much smaller than what is given for cosmetic purposes.

Phases: It takes approximately 24 to 72 hours for the BOTOX to begin to take effect. Once the BOTOX takes effect, a person will pass through three distinct phases.

I. **Breathy Phase** – in this phase, the BOTOX is at its highest concentration and the vocal cords are maximally weakened. During this time, a person's voice will sound soft, breathy, or sometimes high-pitched (like Mickey Mouse). In this phase, people with a granuloma will start to have reabsorption of the growth. Also, a person will notice that the cough sounds different, as if the person has the croup. In addition, difficulty swallowing, particularly liquids, may occur. This phase can last several days to several weeks, depending on the dose a person received. THESE EFFECTS ARE TEMPORARY. If you experience trouble swallowing, do the following:

- Swallow slowly and carefully
- Tip your chin down onto your chest when you swallow
- Get THICK-IT powder from the drugstore and add it to liquids – this makes liquids easier to swallow

II. **Normal Phase** – in this phase, the vocal cords are stronger, but not so strong as to go back into spasm. People note that the voice or breathing is quite normal during this phase. This phase typically lasts weeks to months.

III. **Recurrence Phase** – in this phase, the BOTOX is reabsorbing and the spasms may begin to return. Patients with spasmodic dysphonia or laryngospasm will notice the voice or the breathing getting worse. Patients with a granuloma may notice that their symptoms of throat irritation are coming back as well. It is now time to consider a repeat injection.

Dose and Timing: All patients are different, and therefore the amount of the BOTOX that is needed from patient to patient is different. Some patients may need regular injections to both vocal cords. Some may need higher doses than others. Generally speaking, the higher the dose that we use, the greater the side effects will be. For patients that get BOTOX for the first time,

these side effects will be new, but people will usually develop a tolerance for them. Our goal is to find the right dose and timing for your needs, and this will take time.

Miss: Sometimes the botox doesn't get in, or doesn't get in to the exact place as before – in these situations, the botox has “missed”. This may be particularly true in patients who are difficult to inject because of their anatomy.

Keeping a log:

You should keep a log of your injections and your response to them – what dose was given, which side, how long the side effects lasted, how long the voice was strong. This information will allow us to tailor your subsequent injections. The goal of successful therapy is to find the dose that gives a person the longest relief of their symptoms with the least side effects.

SUMMARY

Uses:

- Spasmodic Dysphonia
- Laryngospasm
- Granuloma

Side Effects/Complications:

- Soft, hoarse voice
- Difficulty swallowing
- Weak cough
- High pitched voice
- Recurrence of symptoms
- Persistence of symptoms – no response
- Miss

What to do:

- Wait – these side effects are temporary
- Tilt chin down onto chest during swallowing
- THICK-IT powder from the drugstore to thicken liquids
- If you think you're not responding to the BOTOX, see Dr. Damrose in the next BOTOX clinic for a repeat injection. Sometimes there has been a miss; sometimes the dose needs to be higher.

Courtesy of Edward J. Damrose, MD, FACS