



## **Botulinum Toxin Therapy in Hemifacial Spasm Approaches To minimize Side Effects**

Amanj Khidhir Pastaksor\*

**\*Correspondence to:** Amanj Khidhir Pastaksor. MBChB, DIM, FICMS Neurology; Former director of Neurology program at Hawler Teaching Hospital (2010-2025), an active member and prime investigator of Erbil Multiple Sclerosis Clinic in Rizgary Teaching Hospital since 2012, an active member of Erbil Epilepsy Clinic in Rizgary Teaching Hospital since 2024, Specialist Neurologist and Neuroinjector at Rose Neurologic Botox Clinic, Erbil/Iraq.

### **Copyright**

© 2026 Amanj Khidhir Pastaksor, This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Received: 09 March 2026

Published: 01 April 2026

DOI: <https://doi.org/10.5281/zenodo.19433818>

## Introduction

Hemifacial spasm is a common disorder in Neurologic Botox Clinics. This condition is almost always unilateral and usually is idiopathic though may have causes like previous Bell's palsy, or lesions irritating the facial nerve in pons or Cerebellopontine Angle. The most common presentation is contraction or rippling movements in Orbicularis oculi ± asymmetrical movement of the angle of the mouth. Botox injection for the affected muscles 2-3 times per year is the first line therapy, followed by Carbamazepine that is less prescribed nowadays mainly for those who have needle phobia or allergy to Botulinum Toxin. Surgical decompression of the facial nerve is rarely performed for those seeking permanent therapy or those who have hypersensitivity for Botox injection.

Muscles to be injected are Orbiculares oculi (pars palpebralis or pretarsal fibers according to the part involved by the disease), Corrugators, Procerus, Levator labii superioris alaeque nasi, Zygomaticus, Orbicularis Oris (bilaterally for symmetrical lip thickness), Risorius, Mentalis and Platysma, the latter when involved. Usually the upper part of the face is injected for the first session especially if Risorius and platysma are not involved. Dose of Onabotulinum Toxin used ranged from 10-34 units<sup>1</sup>, but higher doses may be needed occasionally. Side effects may occur, incidence of which differs due to factors like injector's experience or disease's nature being involuntary contraction that may push the drug to nearby injected muscles leading to temporary weakness. The most common side effect is temporary ptosis that occurs in about 9.68<sup>2</sup>-36%<sup>3</sup>, some studies mention as low as 3.4%<sup>4</sup> others speak about incidence as high as 64.8%<sup>5</sup>, other side effects like facial asymmetry from diffusion of the drug to Levator anguli oris, or Depressor anguli oris, or asymmetry on smiling from weak injected risorius (especially after injection of higher doses) necessitating injection of the risorius on the other (normal) side for cosmetic purposes.

Herebelow I discuss the ways of decreasing incidence of the side effects of Botox therapy that is the most important concern for the injector and the patients.

Ptosis incidence can be decreased by the followings:

Diluting the 100 mouse unit vial of Botulinum Toxin with 1 mL of pyrogen free normal saline i.e. decreasing the volume of injection per site.

Educating and memorizing the following necessities after every injection not to press, wash or touch the area injected for at least 6 hours. first night sleep to be on the back after at least 6 hours.

Avoidance of Sujda during praying (for Muslim patients).

Meals during the first 6 hours better to be fluid.

Avoidance of conversations especially if overexpression is expected.

Use a special technique in injecting Orbicularis oculi pretarsal part by asking the patient to smoothly close the eyes, then the injector puts the pulp of his index finger for injecting innermost upper eyelid for the eye on his side (figure 1) and thumb on the upper eyelid for injecting the outermost pretarsal part of Orbiculares Oculi (figure 2) and sometimes gentle pulling is needed for the upper eyelid medially or laterally especially in patients having more forceful involuntary contraction of the Orbicularis oculi or redundant skin in the upper eyelid to be able to identify the outermost part of the upper eyelid and then the syringe crosses the finger and needle tip is directed to the inner or outer-most part of the upper eyelid nearer to the edge. For injecting the eye opposite to the injectors side the finger used will be opposite. This technique minimizes possibility of diffusion to Levator palpebrae superioris fibers that is the most likely cause for temporary ptosis and decreases its incidence to about 1%.



Fig. 1: Injecting the Rt upper eyelid pretarsal nasal part.



Fig.2: Injecting the Rt eye Pretarsal temporal part.

Using Ultrasound for injecting the Risorius muscle (fig. 3 and 4) guarantees injection to the muscle and minimizes wrong muscle injection or diffusion to nearby muscles especially Depressor anguli oris and helps in estimation of the needle depth to be reached and the dose needed to be injected as some have a hypertrophied muscle that needs higher doses up to 6 Mouse units in two injection sites. Doppler Ultrasound also helps in avoiding injection of nearby vessels (fig. 5), decreasing bruises in the area and diffusion to nearby muscles through small arteries and veins i.e. Doppler screening of the area before injection is advised.

For patients having HFS and asking for treatment of concomitant spider crow, it is advised to inject eyebrow elevator and depressor bilaterally to avoid eyebrow fluttering on the side of HFS.



Fig.3: Ultrasound Linear probe put Longitudinally in the area between angle of the mouth and Masseter muscle at the level of lower lip making the injection technique (off plane).

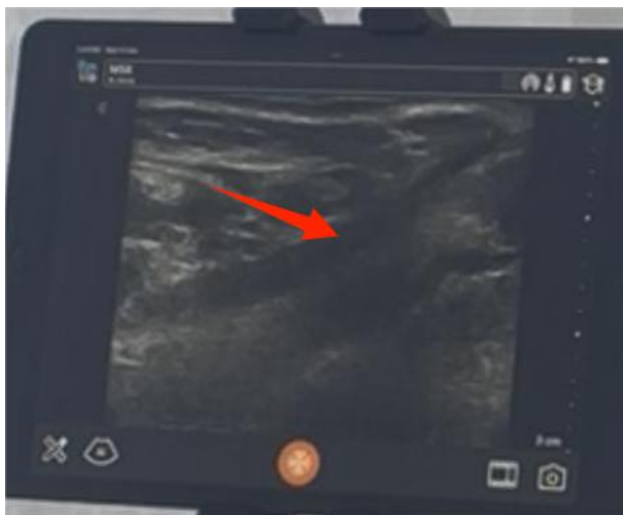


Fig. 4: Ultrasound of Risorius Muscle.

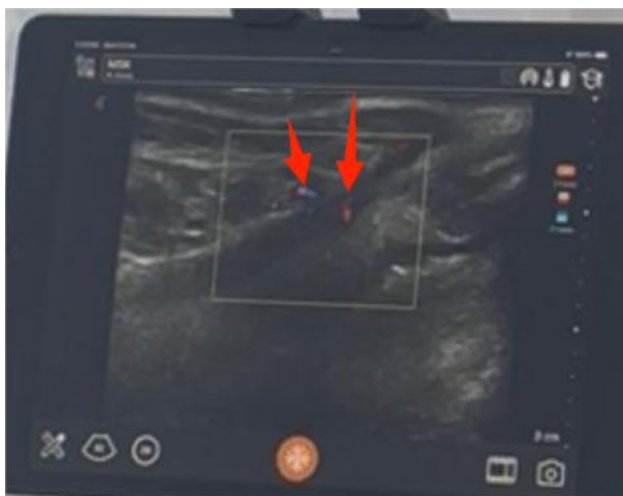


Fig. 5: Doppler the area to see vessels to be avoided.

This manuscript comes out of treating 102 patients having Hemifacial spasm referred to our clinic over 8 years. I hope that it will be helpful for new and experienced injectors.

#### References:

- 1) Daniel Truong, Mark Hallett, Dirk Dressler, Christopher Zachary and Mayank Pathak: *MANUAL OF BOTULINUM TOXIN THERAPY; THIRD EDITION; 2024; page 100-106.*
- 2) Jean Pierre Mette Batisti<sup>1</sup>, Alais Daiane Fadini Kleinfelder<sup>1</sup>, Natália Bassalobre Galli<sup>1</sup>, Adriana Moro<sup>2</sup>, Renato Puppi Munhoz<sup>3</sup>, Hélio Afonso Ghizoni Teive<sup>2</sup>: *Arq Neuropsiquiatr* 2017;75(2): page 89.
- 3) Suthipun Jitpimolmard, Somsak Tiamkao, Malinee Laopaiboon: *Long term results of botulinum toxin type*

A (Dysport) in the treatment of hemifacial spasm: a report of 175 cases | Journal of Neurology, Neurosurgery & Psychiatry:<https://jnnp.bmj.com/content/64/6/751>.

4) Mine Hayriye Sorgun, Rezzak Yilmaz, Yusuf Alper Akin, Fatima Nazli Mercan, Muhittin Cenk Akbostanci: Botulinum toxin injections for the treatment of hemifacial spasm over 16 years: J of Clin Neurosci. 2015 Aug;22 (8):1319 -25. doi: 10. 1016/j.jocn.2015.02.032. Epub 2015 Jun 19.

5) Egberto Reis Barbosa, Leonel Tadao Takada, Lilian Regina Gonçalves, Rose Mary Paulo do Nascimento Costa, Laura Silveira-Moriyama, Hsin Fen Chien: Botulinum toxin type A in the treatment of hemifacial spasm: an 11-year experience: Arq Neuropsiquiatr: 2010 Aug;68(4):502-5.doi: 10.1590/s0004-282x2010000400006.