**Background**

- Botulinum toxin is an exotoxin secreted by Clostridium botulinum that paralyzes muscles and glands. It acts by blocking the acetylcholine release from cholinergic nerve end plates at the neuromuscular synapses.
- Besides its cosmetic benefits, Botox has many utilities in medical conditions such as sialorrhea, achalasia, or cervical dystonia.
- Sialorrhea (excessive salivation) is commonly seen in patients with neurodegenerative diseases. Anticholinergic medications has been used for treatment but limited due to systemic side effect.
- Botox injection to the parotid glands and submandibular glands offers a localized and effective treatment to decreased saliva secretion.
- Botox injection is relatively safe and effective, but serious complication can occur. We are presenting a case of oropharyngeal dysphagia from suspected hypoglossal nerve paralysis after a Botox injection for idiopathic sialorrhea.

**Case Presentation**

- 84 year-old female with idiopathic sialorrhea was presented with severe dysphagia and dysarthria after a Botox injection. She was evaluated by an otolaryngologist and received her first Botox injection (25 units of Botox to each parotid gland) two-months prior with symptomatic improvement.
- Her workup for neurodegenerative diseases was unremarkable with a normal EMG and MRI of the brain.
- One month after the first botox injection, her hypersalivation returned to baseline. Patient returned to the otolaryngologist for a second botox injection, which included a total of 70 units of botox to bilateral parotid glands and left submandibular gland.
- Two days after her second Botox injection, the patient developed dysarthria and dysphagia to both solid and liquids. She was severely dehydrated and was admitted for intravenous hydration.
- During her hospital course, ENT evaluation showed symmetry and mobile vocal cords with good abduction and closure. Patient had an intact gag reflex and laryngeal sensation.
- Dysmotility workup including esophagram was limited with tertiary contractions throughout the esophagus. Upper endoscopy did not reveal any mass or stricture.

**Discussion/Conclusion**

- ENT and dysmotility workup has been unremarkable except for a prolonged and significantly reduced lingual anterior to posterior propulsion, leading to poor pharyngeal transit and maximum pharyngeal retention on video fluoroscopy swallow study.
- Hypoglossal nerve palsy related to Botox injection was suspected to be the cause given the abrupt onset after injection. The normal EMG, MRI brain, intact vocal cord function and EGD findings make advance neurodegenerative diseases and luminal obstruction less likely.
- Due to persistent dysphagia and dysarthria, a PEG tube was placed for temporary nutrition and hydration. The patient continued to require PEG tube for nutrition one year after the initial event.
- Hypoglossal nerve is a somatomotor nerve that innervates the intrinsic and extrinsic muscles of the tongue.
- It originates from the hypoglossal nucleus at the dorsal medulla of the brain stem, which exits through the hypoglossal canal and travels adjacent to the internal carotid artery and internal jugular vein. At the common carotid bifurcation, the hypoglossal nerve passes above the hyoid bone and travel on the lateral aspect of hypoglossus and mylohyoid muscle before its innervation to the tongue.

**References**