Botulinum Toxin in Epilepsia Partialis Continua: case report and review of the literature

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Epilepsia partialis continua (EPC) is a rare, drug-resistant neurological disorder marked by continuous focal motor seizures and spikes firing [1].

Materials & Methods:

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Case report of a 30-year-old male with a 21-year history of EPC

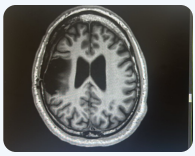
Unclear etiology

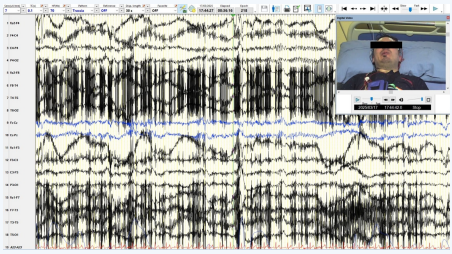
- Onset after vaccination (measles, rubella, mumps) when aged 9 yrs old,

but an autoimmune cause was not demostrated → Negative antibodies and unresponsive to Immunoglobulins

Refractory epilepsia partialis continua since the beginning

- Lack of response to a 5-year trial with monthly immunoglobulins (2019-2024)
- Ineffectiveness of right opercular frontal region cortectomy
- Failure of multiple trials with antiseizure medications (ASM)





EEG monitoring hampered by muscle artifacts, but revealed epileptic activity in the right fronto- central region, along with two tonic-clonic seizures.

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Persistence of continuous focal motor seizures affecting the right hemiface and, less frequently, the left.
Recurrent tonic-clonic seizures occurring several times per month.
Significant facial discomfort, language and functional impairment, drooling and reduced quality of life due to persistent involuntary contractions.

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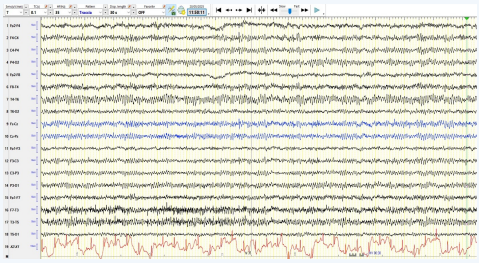
Proposal of a **trial with tailored BoNT-A injection**
How: targeting the most active muscles guided by EMG and clinical observation.
Where: in orbicularis oculi, zygomaticus major, and others involved muscles on the right side.



Results:

♦In two weeks marked reduction in intensity and frequency of facial muscle contractions.
♦No adverse events were referred.
♦Follow-up EEG, free of muscle artifacts, confirmed persistent epileptic abnormalities in the right fronto-central region.
But…Recurrence of tonic-clonic seizure remained unchanged

Discussion and Conclusions:

- BoNT-A is an **effective symptomatic treatment for facial motor manifestations in EPC** [2,3]. BoNT-A should be considered in selected cases where involuntary motor symptoms are distressing and refractory to anti seizures therapy.
- **Myoclonus and motor cerebral cortex mutual modulation** could be postulated, influencing cortical neuroplasticity and potentially decreasing each other.
- BoNT-A **reduced muscle artifacts, improving EEG clarity** and suggesting a potential diagnostic role in localizing epileptic foci.

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[2] Mader EC Jr, Fisch BJ, Villemarette-Pittman NR, Olejniczak PW, Carey ME. Botulinum toxin injections for simple partial motor seizures associated with pain. Case Rep Med. 2012;2012:295251. doi: 10.1155/2012/295251. Epub 2012 May 31. PMID: 22701489; PMCID: PMC3371349.
[3] Wilkenfeld AJ, Frank SA, McCarthy DC Jr. Botulinum toxin for painful spasms from focal seizures: theoretical considerations and case report. Neurologist. 2013 Jan;19(1):15-6. doi: 10.1097/NRL.0b013e31827aa7ab. PMID: 23269101.