

Blink synkinesis during microvascular decompression of hemifacial spasm: a case report.

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Objective

Microvascular decompression (MVD) of hemifacial spasm (HFS) may be guided by IONM. Described techniques include lateral spread response (LSR), blink reflex (BR), corticobulbar motor evoked potentials (CoMEPs), facial nerve F-wave and AEP. Although the BR is widely used, the intraoperative disappearance of blink synkinesis in lower facial nerve branches is scarcely described¹⁻². We present a case of MVD of HFS **adding blink synkinesis assessment** to the standard modalities to test hyper-excitability.

Methods

A woman with right HFS (**of all facial branches**) was operated under IOM to guide MVD with LSR, CoMEPs, BR and AEP. We recorded from right frontalis, orbicularis oculi, nasalis, orbicularis oris and mentalis muscles. LSR was elicited by stimulating the mandibular and zygomatic branches. Bilateral BR were stimulated by both supraorbital nerves.

Results

Right supraorbital stimulation elicited responses in all right facial muscles, whereas left supraorbital stimulation elicited responses in both orbicularis oculi muscles. After MVD CoMEPs thresholds increased. Blink synkinesis and LSR almost disappeared, **remaining a small amplitude orbicularis oris response** at high intensity stimulation of ipsilateral supraorbital nerve and zygomatic branch. Postoperatively, the patient presented **a significant improvement of symptoms with slight residual spasms in the right corner of the mouth**.

CONCLUSION

- **Blink synkinesis evaluation may contribute to guide MVD in HFS.**
- Previous studies describing blink synkinesis had used one muscle per branch.
- **We described for the first time intraoperative recordings of multiple muscles.**
- Correlation of the clinical outcome with intraoperative findings was specific for the muscle involved but further studies are needed to evaluate the true benefit.

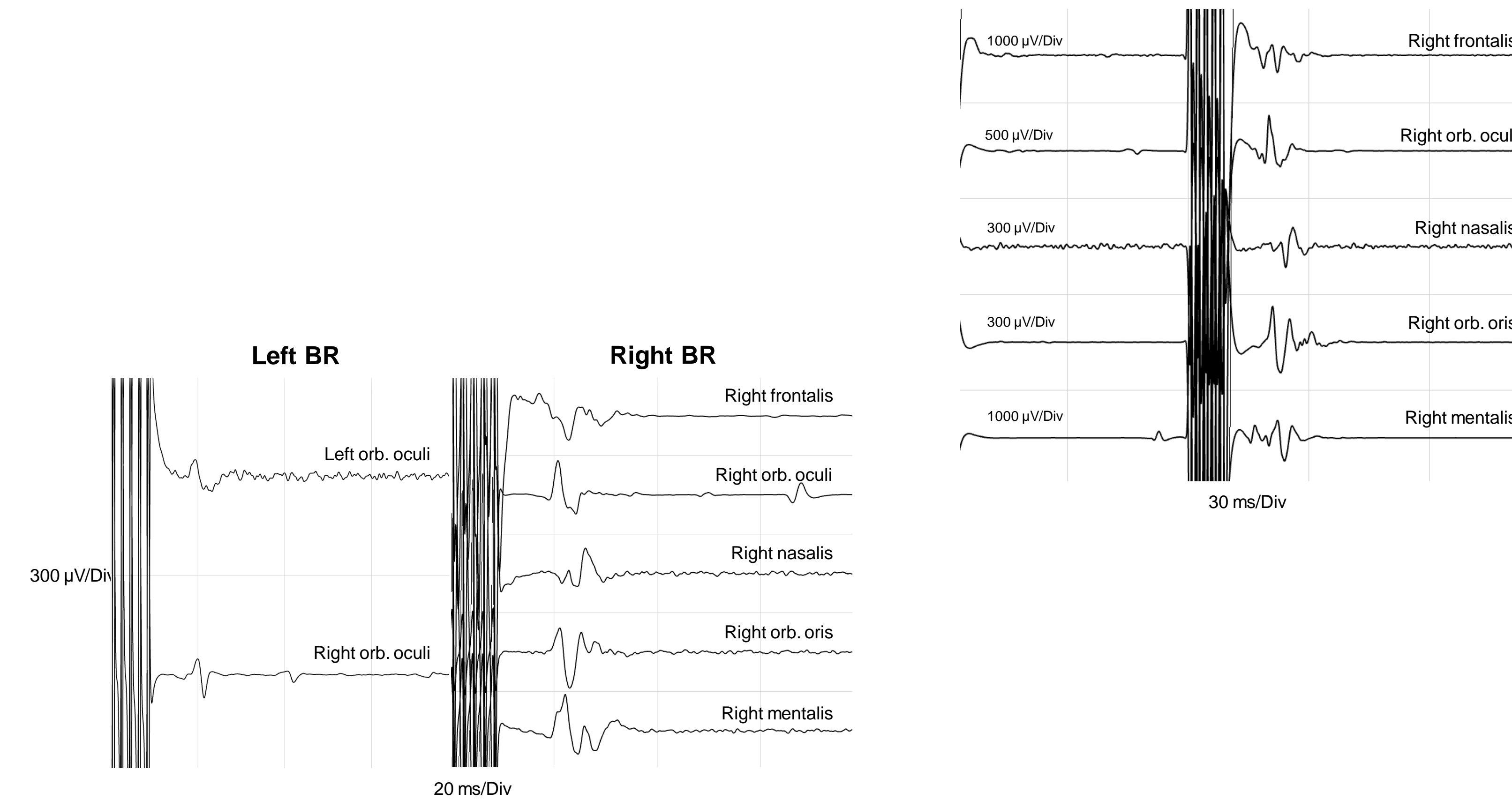


Fig. 2. Baseline BR. Left: left supraorbital nerve stimulation, with positive responses in both orbicularis oculi. Right: right supraorbital nerve stimulation, with positive responses in all the ipsilateral facial muscles.

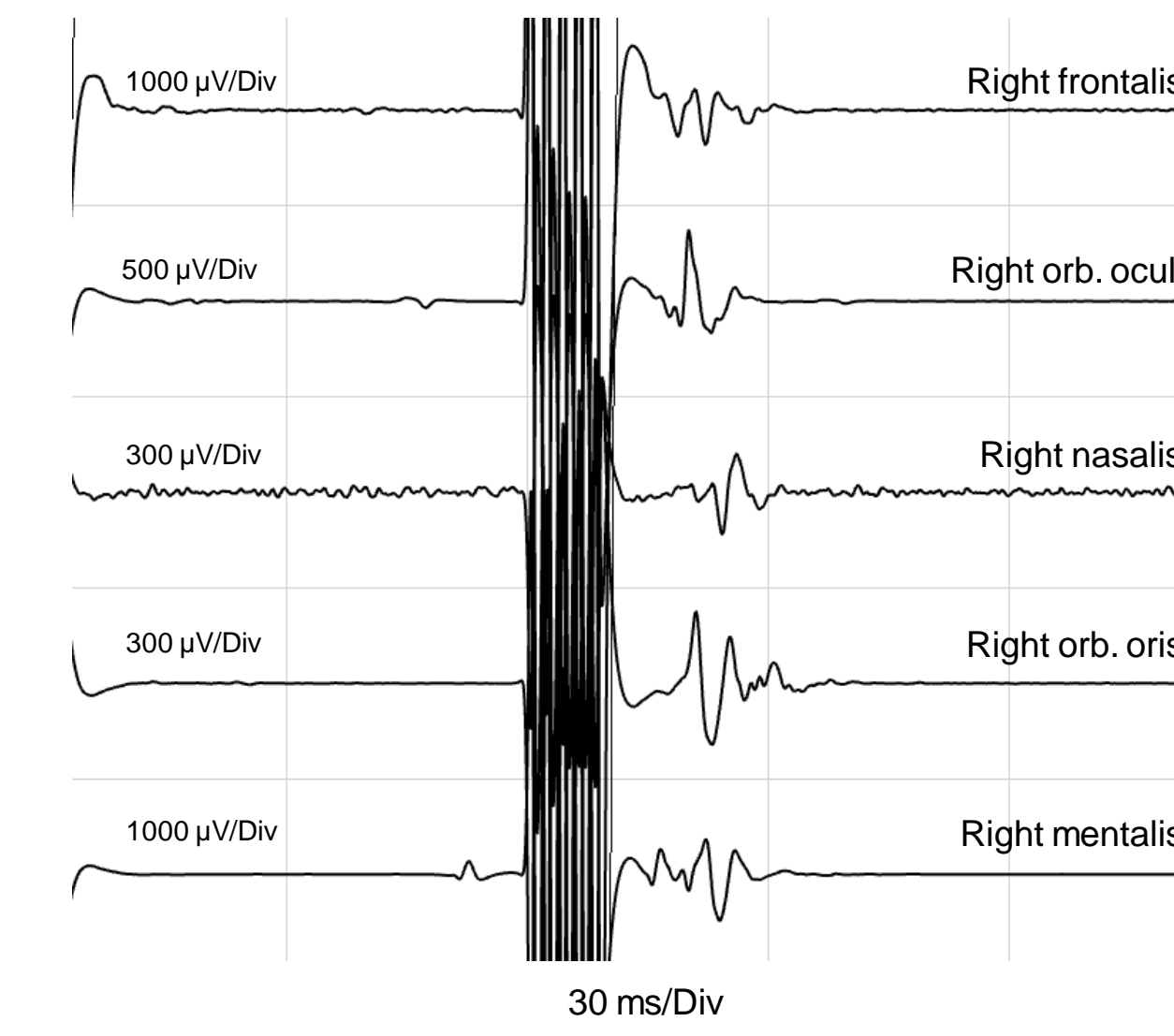


Fig. 1. Baseline CoMEPs. With 55 mA there were positive MEP responses in all the facial muscles evaluated.

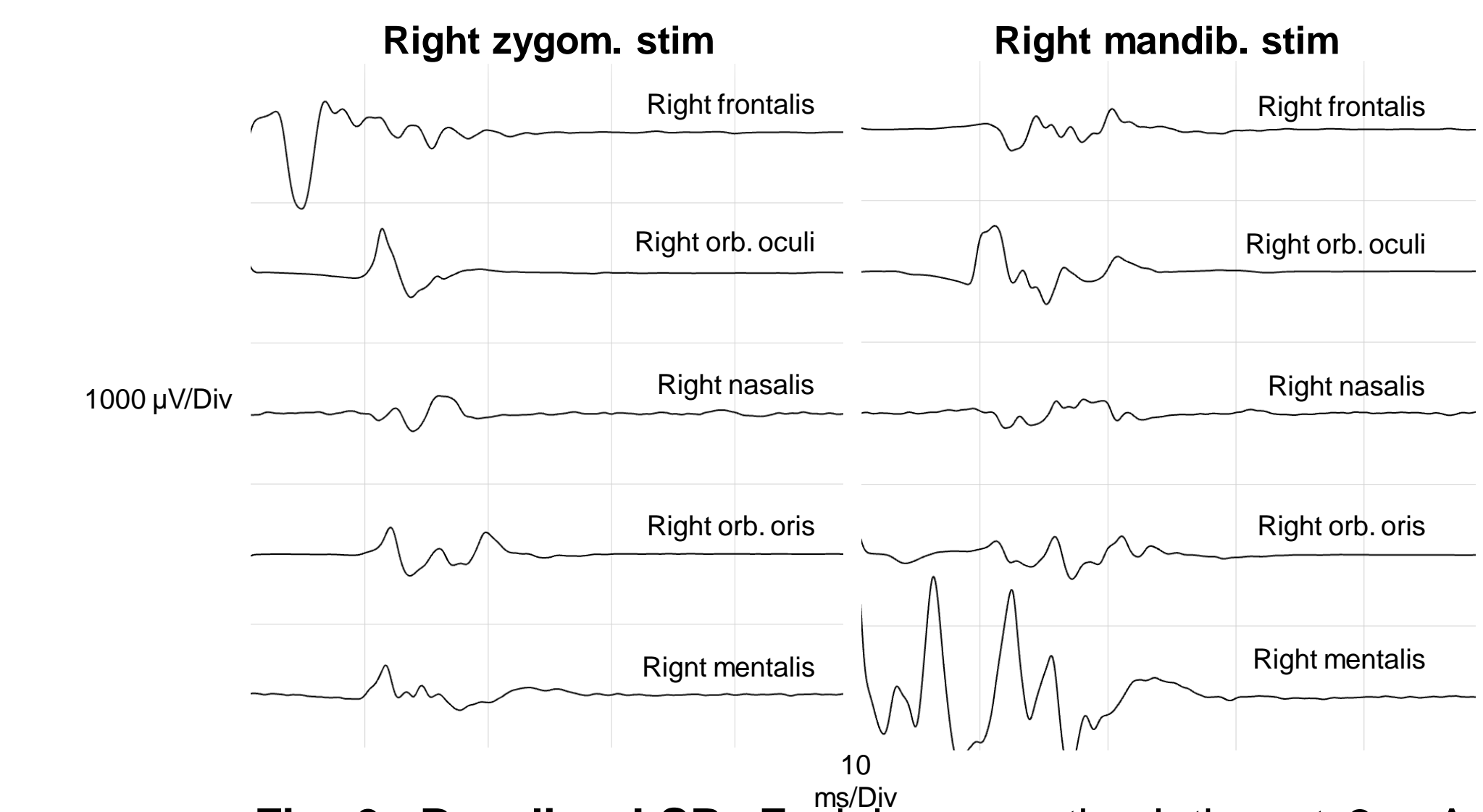


Fig. 3. Baseline LSR. Facial nerve stimulation at 2 mA. Left: zygomatic stimulation. Right: mandibular stimulation.

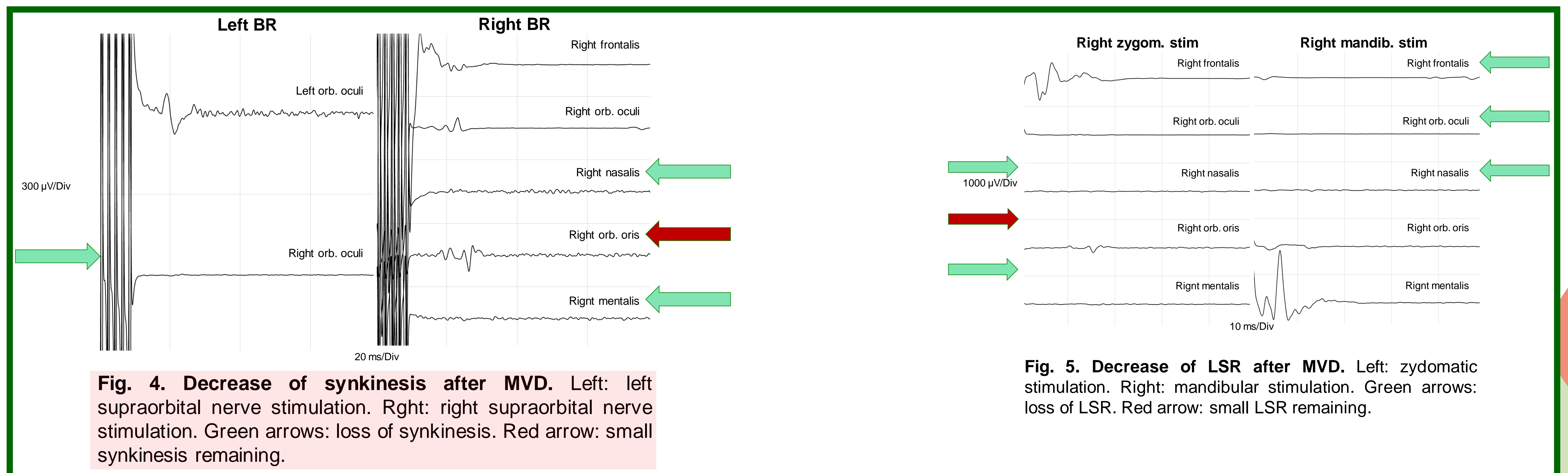


Fig. 4. Decrease of synkinesis after MVD. Left: left supraorbital nerve stimulation. Right: right supraorbital nerve stimulation. Green arrows: loss of synkinesis. Red arrow: small synkinesis remaining.

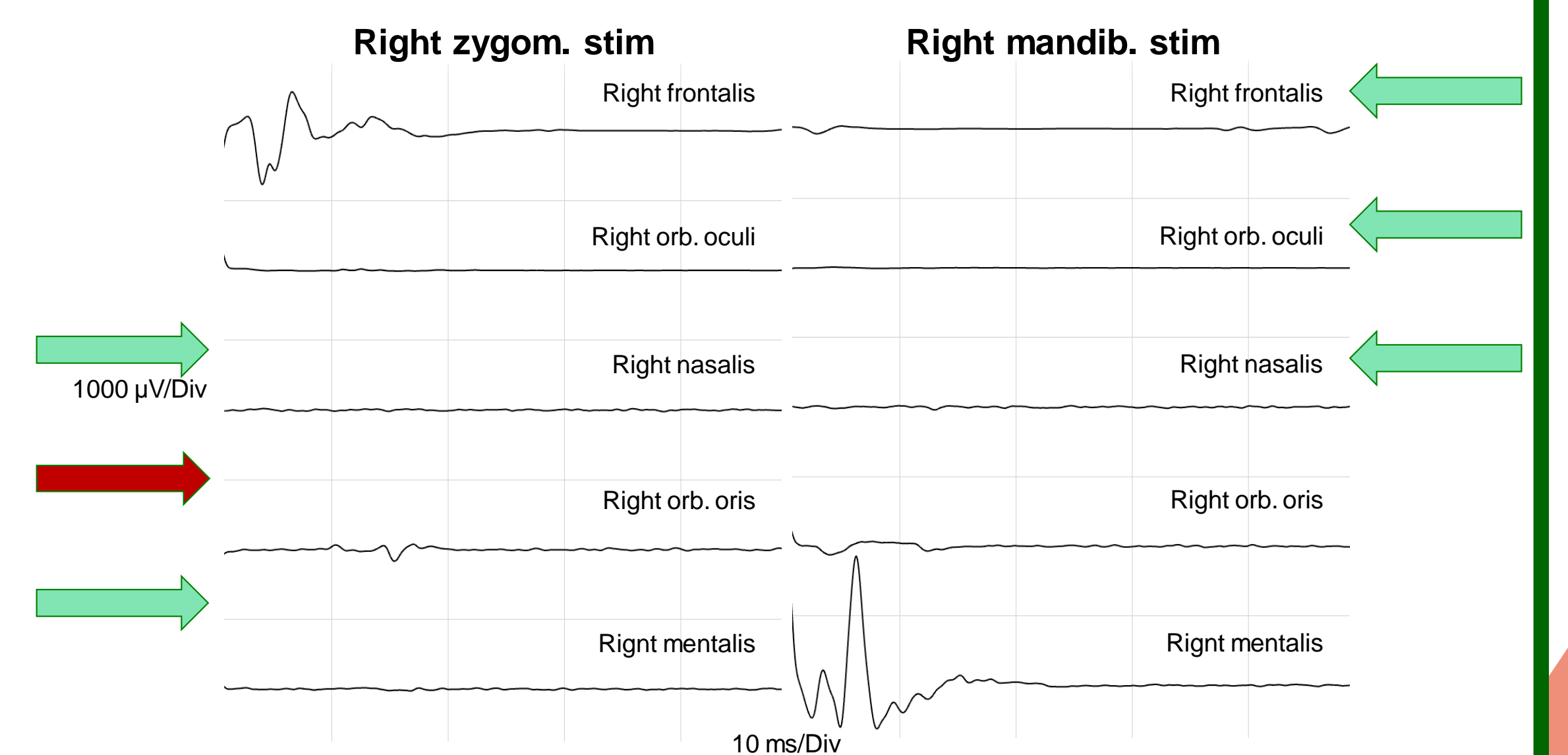


Fig. 5. Decrease of LSR after MVD. Left: zygomatic stimulation. Right: mandibular stimulation. Green arrows: loss of LSR. Red arrow: small LSR remaining.

References

1. Møller AR. et al. J Neurol Sci 1986;72:2.
2. Po-Cheng H. et al. J Chin Med Assoc 2019;82:519.