

# Trochlear nerve mapping

**Trochlear nerve mapping** method has not been confirmed to date. The compound **muscle action potential** (CMAP) of CN-IV cannot be recorded because of the low **mapping** sensitivity and anatomical characteristics of the **superior oblique muscle** (SOM). The aim of a study of Sato et al. was to evaluate the effectiveness of a novel needle electrode (NNE), for the intraoperative mapping of CN-IV.

The NNEs were inserted in the target **extraocular muscles** in 19 patients. They compared the CMAP **amplitude** of the NNE with that of the conventional **needle electrode** (CNE). Furthermore, they investigated the dissimilarity between the CMAP of the CN-IV and other extraocular **cranial nerves** (ECNs) and the correlation between the readings of the CN-IV mapping and its postoperative **functional outcome**.

The CMAP of CN-IV has been measured in nine patients (47.4%). The CMAP of CN-IV was distinguishable from other ECNs. The CMAP of the NNE was found to be three times higher than that of the CNE. Although the NNE has shown the potential to record the CN-IV's CMAP, 4 cases ended up having a CN-IV postoperative dysfunction.

For the first time, they confirmed the possibility of intraoperative mapping the CN-IV using an NNE inserted into the SOM. The NNE can also be useful for other neurophysiological **monitoring methods** <sup>1)</sup>.

<sup>1)</sup>

Sato T, Itakura T, Bakhit M, et al. A novel needle electrode for intraoperative fourth cranial nerve neurophysiological mapping [published online ahead of print, 2020 Sep 9]. Neurosurg Rev. 2020;10.1007/s10143-020-01381-5. doi:10.1007/s10143-020-01381-5

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