



## Parameters for electromyographic monitoring of the facial nerve during Vestibular Schwannoma Surgery

**Youssef Aladham**

*Hospitals of Derby and Burton, United Kingdom*

### Abstract:

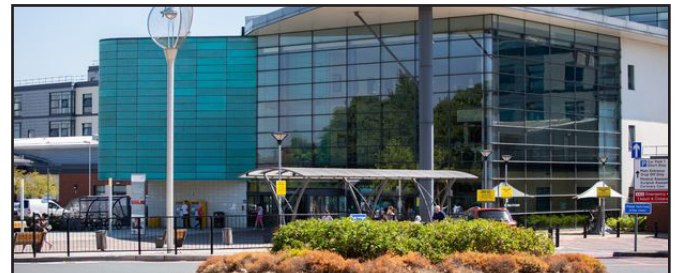
**Aim:** To evaluate the effectiveness of multi-channel electromyographic monitoring of the facial nerve in improving the detection of mechanically-elicited EMG activity and providing new predictive criteria for post-operative facial nerve function.

Study design: Prospective study

**Patients and Methods:** The Study was conducted on 20 patients undergoing vestibular schwannoma resection in a tertiary referral center (Alexandria Main University Hospital). All patients have been subjected to facial nerve monitoring during the surgery by a 5-channel set-up monitoring the frontalis, O.oculi, nasalis, O.oris, and mentalis muscle. Mechanically elicited EMG activities of the monitored facial muscles were recorded for analysis. After tumor removal, the facial nerve was stimulated proximal to the tumor site using 2 different types of probes (Prass and flush-tip). Post-operative facial nerve function was assessed using the House-Brackmann scale immediately post-operatively and after six months and was correlated to the study tested parameters.

**Results:** The use of the 5-channel montage has led to significantly higher sensitivity in detecting the mechanically elicited EMG activity than would have been possible with the ordinary 2-channel one. Mentalis muscle has shown significantly higher number and amplitude of spontaneous EMG activities than other facial muscles. Positive correlation was found between the proximal threshold and the post-operative facial nerve outcome. The Prass stimulator has shown significantly lower than the ball-tip probe.

**Conclusion:** The use of multi-channel facial nerve monitoring allowed earlier and more efficient monitoring of



the facial nerve. The use of the “Prass stimulator” is more accurate and correlates more with the real threshold needed for post-resection stimulation of the facial nerve than the ball-tip one.

### Biography:

Youssef Aladham has graduated from Faculty of Medicine, Alexandria University, Egypt in 2009, completed his ENT training in Alexandria Main University Hospitals, and obtained a master’s degree in ENT from Alexandria University. He holds the membership of The Royal College of Surgeons of England in ENT. He currently works as a head and neck surgery fellow in University Hospitals of Derby and Burton, United Kingdom.

### Publication of speakers:

1. Youssef Aladham, Transoral robotic surgery for residual and recurrent oropharyngeal cancers: Exploratory study of surgical innovation using the IDEAL framework for early-phase surgical studies, *Head Neck*, 2018 Mar; 40(3):512-525.

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