

## Facial Nerve DTI Tractography In Large Vestibular Schwannomas: Is It Helpful?? Results Of A Prospective Randomized Controlled Study

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### Objective:

This prospective randomized study was conducted to find out effectiveness of Preoperative Facial Nerve Diffusion Tensor Imaging Tractography (DTI) to predict location of the nerve and its preservation of facial nerve.

### Methods:

In this prospective randomized study, we recruited 94 patients and randomized them based on computer generated chart. In group I, preoperative DTI was done and operating surgeon was informed about the position of facial nerve preoperatively. In group II, DTI was not done. The facial nerve preservation rates between the two groups were compared.

### Results:

Out of 94 patients, there were 47 patients in group I (DTI group) and 47 patients in group II (non DTI group). In DTI group, facial nerve was not identified by preoperative imaging in five patients (technical failure) and two patients did not undergo surgery; leaving 40 patients for comparison. Preoperative DTI predicted facial nerve position was concordant with intraop position in all the patients in group I (100% concordance)

Facial nerve was preserved in 36 of 40 patients in group I (90%) and 29 of 47 in group II (62%). The preservation rates are statistically significant in group I (DTI group) ( $p = 0.002$ ).

### Conclusion:

DTI effectively predicted the location of the facial nerve in relation to tumor which help in its preservation during surgery. This establishes the role of preoperative DTI tractography for better facial nerve preservation in surgery for large vestibular schwannomas (> 3 cm).