Idiopathic facial nerve paralysis: analysis of three tesla MRI images and comparison to 1.5 tesla imaging

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Material and Methods

Introduction

The case logs for the 3T MRI scanner were reviewed for all patients undergoing studies listed as “SCN/Brain” or “temporal bone.” “SCN/Brain” included the sinuses, skull base, temporal lobe, and brainstem. “SCN/Temporal bone” included the parotid, middle ear, mastoid, and jugular foramen.

Methods

The case logs for the 3T MRI scanner were reviewed for all patients undergoing studies listed as “SCN/Brain” or “temporal bone.” “SCN/Brain” included the sinuses, skull base, temporal lobe, and brainstem. “SCN/Temporal bone” included the parotid, middle ear, mastoid, and jugular foramen.

Results

One hundred forty two patients underwent MRI on the 3T scanner for temporal bone pathology between 2005 and 2007. Only 4 patients underwent imaging for IFP. Three of these patients had positive information regarding patient prognosis for facial nerve recovery.

Discussion

The facial nerve takes a long course through the temporal bone before exiting the stylomastoid foramen.

• On 0.5 and 1.5T scanners the areas inflammation/enhancement are most notable at the fundus, geniculate ganglion and the descending portion of the nerve.

• In this series of patients on 1.5T scans the nerve was enhancing at in the labyrinthine segment, at the ganglion and in the descending segment. This is in line with other reports in the literature.

• On 3T images the normal facial nerve enhances at the root entry zone, within the IAC, at the ganglion and in the descending segment.

• These findings have not been previously reported.

• Furthermore, 3T imaging detected thickening of the facial nerve, particularly in the descending segment. This thickening has not been noted on 1.5T images.

• In this series a high number of patients with clinically normal facial nerve function demonstrated enhancement of the facial nerve on 3T imaging.

• This protocol may allow for determining any imaging characteristics that may be prognostic of prolonged or permanent facial weakness.

References


