

Facial Nerve Schwannoma

Abstract

Facial nerve neuroma (Figure 1) is a rare benign tumor (0.2 to 1.5% of cases)¹.

The compression of the facial nerve is at the origin of progressive peripheral facial paralysis.

The symptomatology of the facial nerve neuroma depends essentially on its location.

This kind of tumor originate along the facial nerve and can be mistaken for tumors growing on the acoustic nerve called vestibular schwannoma. How to recognize facial neuroma and how to visualize the difference between these two different tumors?

The facial nerve is the seventh cranial nerve. It is a mixed nerve, and is therefore composed of motor, sensory, special sensory and vegetative nerve fibers. The main clinical feature of schwannoma is its slow evolution, 8.4 years on average between the onset of symptoms and the diagnosis².

The main neighboring tumor is the cochlear, vestibular nerve neuroma, frequently leading to compression of the facial nerve. Significant clinical signs include progressive facial palsy and abrupt onset, regressive and recurrent paralysis, deafness, vertigo, and parotid mass.

The clinical assessment starts with a clinical examination to identify and evaluate the symptoms perceived by the

patient. In order to evaluate the attacks of the facial nerve, a brain CT or a brain MRI can be performed. MRI becomes necessary for the topographic location as well as an adequate diagnostic approach to adapt the treatment.

Complications

- Facial tics
- Slow development of face weakness
- Hearing loss may be present
- Dizziness or balance deficit
- Paralysis of the affected side of the face

Possible treatments

- Surgical removal of the tumor
- Radiotherapy treatments (stereotactic radiotherapy may be considered for small lesions)

In Vitrea

Vitrea offers a multiparametric analysis and display (Permeability maps, T1, T2, ADC) which makes the simultaneous analysis of the information provided by MRI easier. By placing a region of interest at the center of the tumor, one can thus obtain quantitative values that characterize the tumor.

The schwannoma is in hyposignal at B2000 and hypersignal ADC (Figures 2, 3). The volume of the enhanced part of the schwannoma can also be computed through the semi-automatic 3D segmentation of the T1 gadolinium FatSat map (the calculated volume is about 17.33 cc) (Figure 4).

The user can easily do the 3D rendering of the segmented lesion (Figure 5). Morphological images could be analyzed using multiplanar view (MPVR) in a viewer on enterprise platform. Users can also do an image reconstruction to better see the nerve (Figure 6).

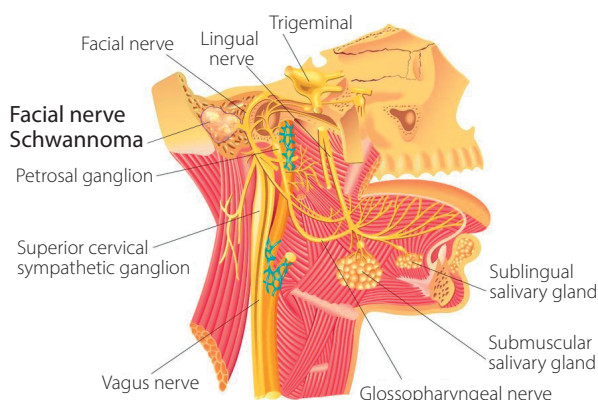


Figure 1

Addition

Specific applications for texture analysis and radiomics in head and neck tumors: tumor segmentation and pathologic classification; prognostic and/or predictive biomarker(s).

References

1. Vellin JF, Mom T, Kemeny JL, Essamet W, Gilain L. Schwannome du nerf facial intraparotidien : à propos d'une observation. Ann Otolaryngol Chir Cervicofac 2003
2. Caughey RJ, May M, Schaitkin B. Intraparotid facial nerve schwannoma: diagnosis and management. Otolaryngol Head Neck Surg 2004

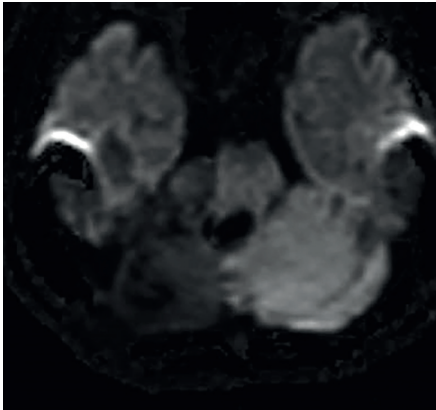


Figure 2

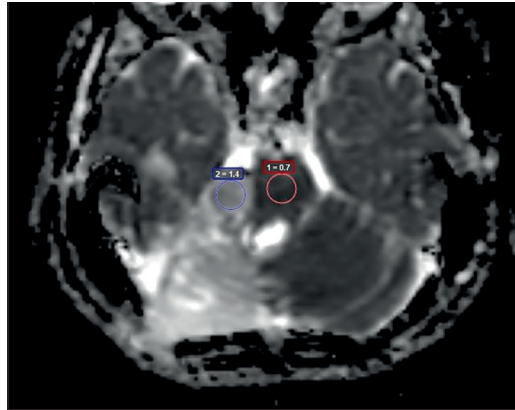


Figure 3

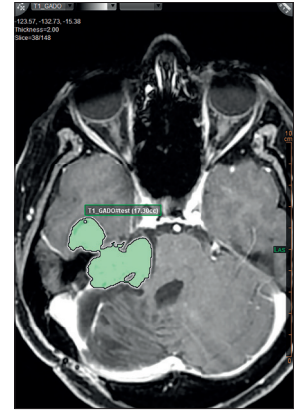


Figure 4

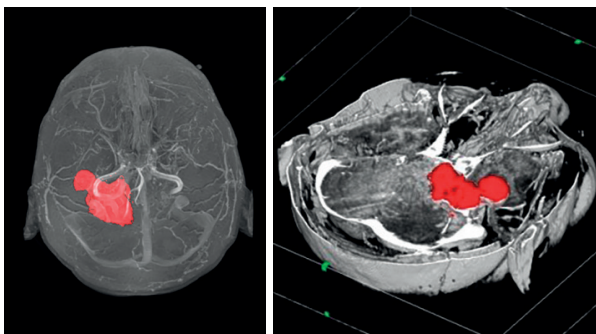


Figure 5

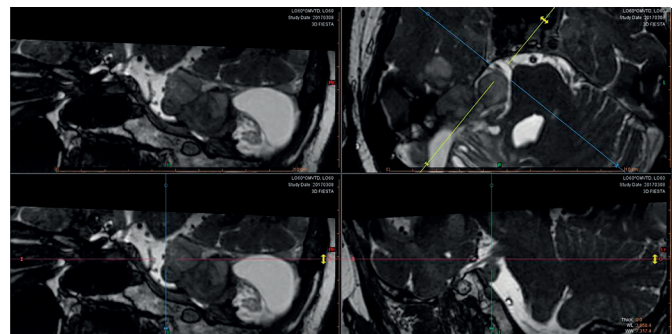


Figure 6

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