

Did You Know? The Parotid Gland Cancer

Take-home message

- The parotid tumors may be of varying sizes, usually painless, and accidentally discovered by the patient himself.
- The parotid malignant tumors are very rare.
- MRI is the reference exam for tumor exploration.

• The parotid glands are the largest of the **three pairs of salivary glands** (sublingual and **submandibular glands** are the other two); these glands ensure the **production** of saliva.

The parotid glands are located on each side of the face between the ear and the angle of the jaw.

The parotid tumors are rare and often benign, but they may be malignant. The annual incidence of salivary gland cancers is 0.4 to 2.6 cases per 100,000 people.

Salivary gland tumors do not have known predisposing factors, but there are risk factors such as smoking, exposure to radiation (radiotherapy) of the face and neck, Epstein-Barr virus. **The cancer occurs late, by the age of 50 to 60** and is growing rapidly. It is poorly defined, sometimes painful.

Tumors are detected by palpation. MRI is the reference exam because it allows to perfectly visualize the tumor borders. A fine needle cytology can be performed to analyze the mass and its nature.



Complications

- Loss of sensitivity of the affected face side.
- A significant swelling of the neck.
- Paralysis of one or more facial nerve branches.
- A change in taste.
- Dysphagia (difficult swallowing).

Possible treatment

- Surgical treatment associated with chemotherapy or radiotherapy.
- In the case of highly advanced and invasive malignant tumors, parotidectomy (total or partial removal of the parotid gland) is performed and it sometimes has to be broadened to the skin, the auricle, the muscles.

In Olea Sphere®?

Olea Sphere® 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 (ROI) at the center of the tumor, one can thus obtain quantitative values that characterize the tumor. The carcinoma shows hypersignal on B1000 and hyposignal on ADC map (**pic 1, 2**). The volume of the right parotid mass can also be computed thanks to the semi-automatic segmentation in 3D of the B1000 hypersignal.

Analysis of the contrast enhancement (Kinetics) from T1 weighted perfusion and Olea Sphere derived maps (Peak Enhancement and Curve Washout) completes the examination and confirms the malignant nature of the lesion. The perfusion curve pattern indicates tumor infiltration. The Permeability curve shows a descending plateau in favor of an intermediate malignancy tumor (**Ref.1**) (**Pic. 3**).



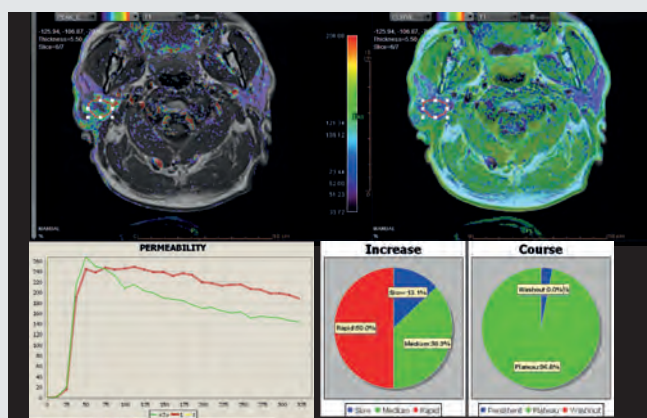
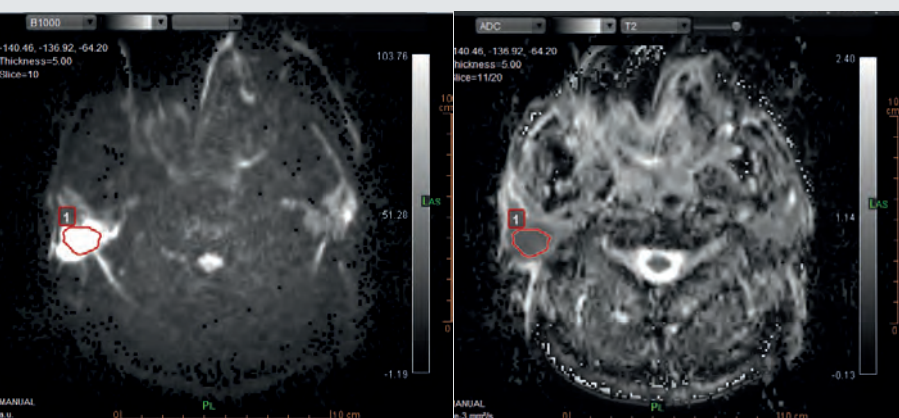
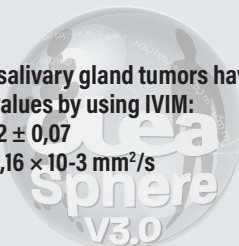
Malignant salivary gland tumors have the following values by using IVIM:

PP(F) = 0,22 ± 0,07

D = 1,03 ± 0,16 × 10⁻³ mm²/s

(Ref. 2)

PP= perfusion-related parameter - D= diffusion coefficient



Sources: Ref. [1] Espinoza S.; Halimi P. Interpretation pearls for MR imaging of parotid gland. Eur Ann Otorhinolaryngol Head Neck Dis. 2013 Feb; 130(1):30-5. doi: 10.1016/j.anorl.2011.12.006. Epub 2012 Jul 20. Ref. [2] Sumi M, Nakamura T. AJNR Am J Neuroradiol 2013 Feb; 34(2):410-6. doi: 10.3174/ajnr.A3227. Epub 2012 Aug 2. <https://www.chimio-pratique.com/tumeur-parotide-cancer-ori-glande-salivaire/> ■ <http://www.arcagy.org/info/cancer/localisations/voies-aeriennes/autres-cancers-ori/le-cancer-de-la-parotide.html> ■ <https://www.chimio-pratique.com/tumeur-parotide-cancer-ori-glande-salivaire/> ■ <https://cancer-de-la-gorge.ooreka.fr/astuce/voir/624719/tumeur-de-la-parotide> ■ <http://www.ori-hospital-pariboisiere.com/parotide-conduite-devant-tumeur.html> ■ <http://orl.quebec.org/maladies/bouche/pathologies-des-glandes-salivaires/> ■ <http://fr.healthline.com/health/infections-des-glandes-salivaires#Diagnosis> ■ <http://www.futura-sciences.com/sante/definitions/medecine-glande-salivaire-6954/> ■ <http://www.orfrance.org/collège/DCEMItems/DCEMItems270.html> ■ <http://presse.inserm.fr/infection-par-le-virus-depstein-barr-un-nouveau-mode-de-transformation-cancereuse/27285/> ■ V.A. // B.T. // J.S.F. // A.V.