

Case Report

Head and Neck:
A typical case
of nodal parotid lymphoma



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Patient history

18 year-old patient with alteration of the general condition with left parotid mass, left lateral cervical multiple lymphadenopathy, associated with asthenia and low-grade fever.

Image findings

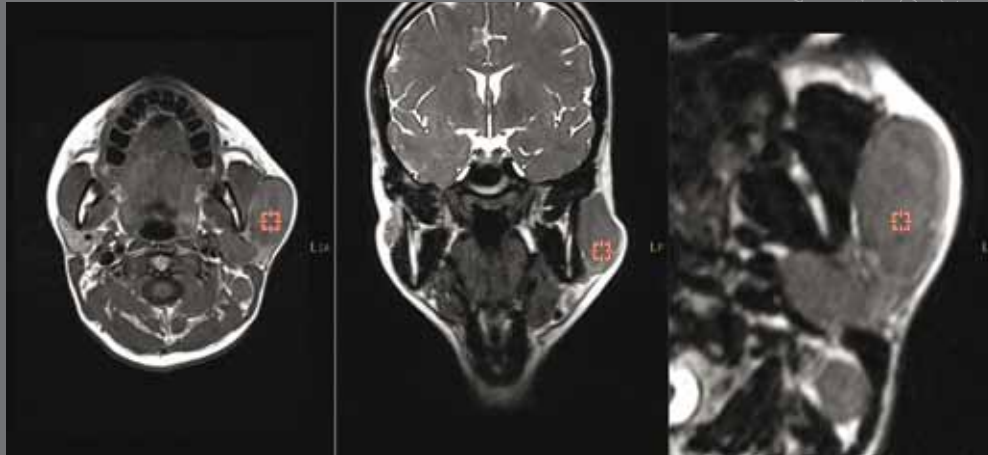
Conventional sequences used spin echo T1 (T1WI), 3D T2 space (T2WI) and 3D VIBE T1 after injection of gadolinium with FAT SAT (T1WI C+).

Conventional sequences showed a well-delineated bifocal lesion of the left parotid associated with left side lymphadenopathy arising from sector V and IIA. All lesions have identical characteristics: T1WI hypointense signal, T2WI isointense, T1WI C+ heterogeneously enhanced with gadolinium. These lesions are well delineated and repress harmoniously adjacent tissues without sign of multispatial or extracapsular spread.

Post treatment and analysis

Dynamic maps such as Peak Enhancement, Curve Wash-out, Wash-in, Ktrans and Diffusion maps as ADC (Apparent Diffusion Coefficient) were computed using the Extended Tofts Model available in the Automated Head & Neck Olea Sphere™ Application. (Olea Medical®, La Ciotat, France).

A multiparametric display (Permeability maps, T1, T2, ADC) available in Olea Sphere™ was used to draw regions of interest and to provide quantitative values of the tumor metrics.



■ Figure 1: Axial T1/Coronal T2/ Reconstructed Axial T2 (3D localizer is pointing out the same pixel on the tumor in the different planes)



■ Figure 2 & 3: Long axis measurement on the 3 lesions (41.08 mm, 22.32 mm, 12.76 mm)

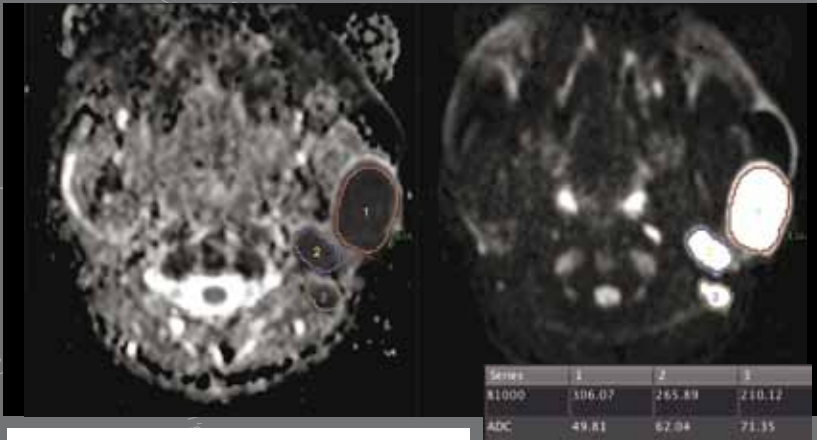


Figure 4 & 5: Quantitative values on the 3 lesions : ADC ranging from 0.49 to 0.71 10^{-3} mm²/s

Diffusion-Weighted Images (DWI) and Dynamic contrast enhancement (DCE) post processing using permeability models

In terms of Diffusion and DCE signal an identical behavior is noticed.

DWI shows hypercellularity with high B1000 in all 3 lesions and low ADC ranging from 0.45 to 0.71 10^{-3} mm²/s. DCE shows identical time intensity curve and perfusion parameters in all 3 lesions.

Histopathology diagnosis

Nodules biopsy confirms the diagnosis of head and neck lymphoma.

Conclusion

Multiparametric DWI/DCE imaging confirms the nodal nature of the parotid mass. High cellularity using DWI (under 0.71 10^{-3} mm²/s) and DCE parameters (perfusion curve showing early uptake with wash-out less than 30%) are highly suggestive of lymphoma.

(Thony H. ; De Keyser F. Diffusion-weighted MR imaging of native and transplanted kidneys Radiology: Volume 259: Number 1. April 2011)

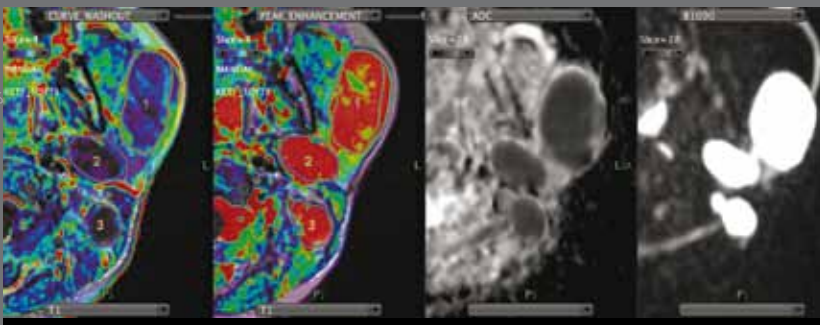


Figure 6: Multiparametric display: Fusion Curve-Washout/T1; Peak Enhancement/T1; ADC ; B1000 : DCE and DWI show the same behavior

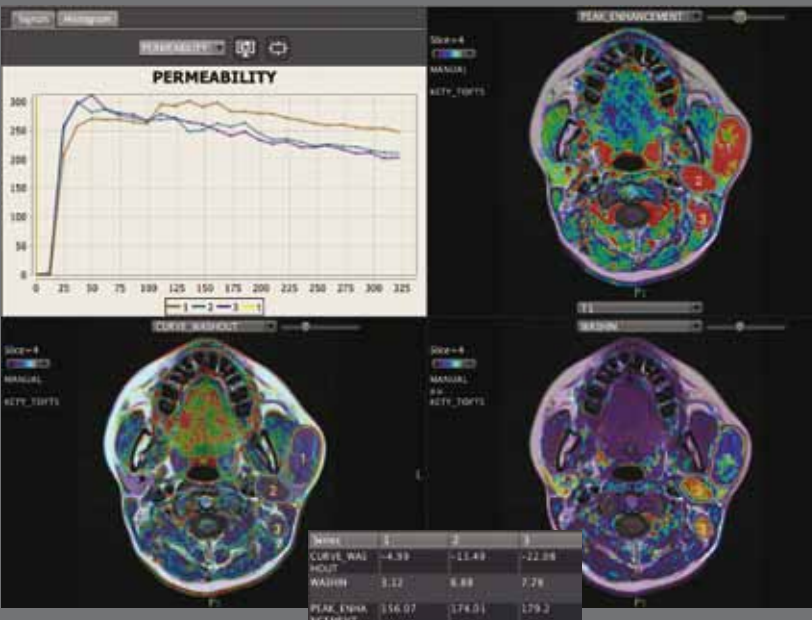


Figure 7 & 8: Multiparametric display : T1, T2, Peak enhancement (%), Curve Wash-out (%), Wash-in (slope of the permeability curve) and Permeability curves (Mean curves of ROI 1, 2, 3 confirming the same behavior for the 3 lesions).



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