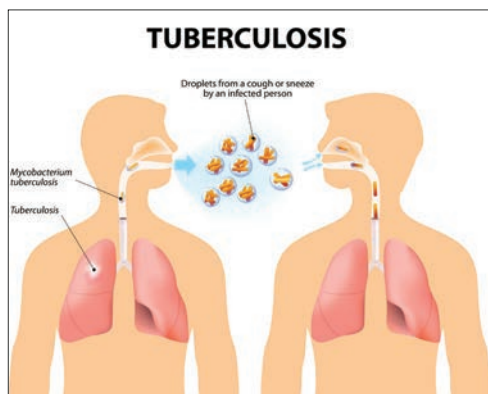


Did You Know? Tuberculous meningitis

Take-home message

- Cerebro-meningeal involvement is one of the serious forms of tuberculosis
- Cerebro-meningeal tuberculosis is rare in developed countries
- MRI allows detection of small lesions and their location



- Tuberculosis remains a common disease worldwide. After a period of decline, its incidence is growing again, and resistant forms develop. It usually occurs in the young adult, with a majority of cases before the age of 30. It is rare in developed countries but accounts from 10 to 30% of intracranial mass lesions in developing countries. **Only 2-5% of tuberculous patients have central nervous system damage.**

The involvement of the central nervous system is always secondary, the primary focus remains latent (pulmonary, but also abdominal or genitourinary). The lesions begin as a conglomerate of micro-granulomas in an encephalitis zone, and they tend to form mature tuberculoma, first non-inflammatory, followed by central caseous necrosis (a form of necrosis specific to tuberculosis, characterized by the transformation of the cells that are at the center of the tuber).

MRI is a sensitive tool for the detection of early small lesions, as well as possible encephalitic foci and allows a better detection of lesions thanks to its multiplanar imaging.

Possible complication

- Tuberculous meningitis
- Hydrocephalus (neurological pathology)
- Hemiplegia (paralysis)
- Consciousness disorders
- Dysarthria (motor speech disorder caused by brain damage)

Possible treatment

- Anti-bacillary treatment associated with corticosteroid therapy with a good clinical and radiological outcome
- Anti-inflammatory treatment
- Symptomatic treatment

In Olea Sphere®?

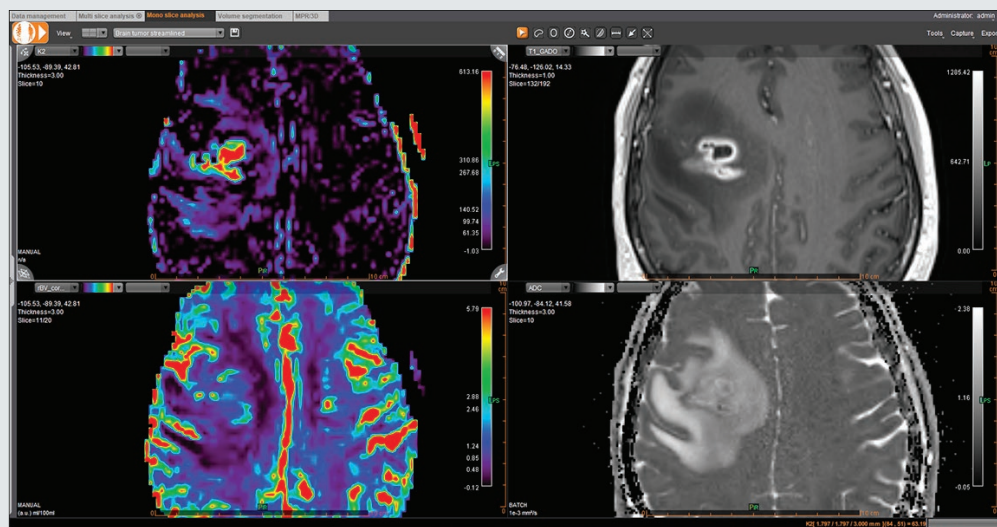
Brain Tumor module within Olea Sphere® provides quick access to all perfusion maps, ADC and anatomical exam sequences. **Perfusion images with contrast agent injection (Perfusion module) or without (ASL module) can be very useful for detecting abnormalities.** The combined analysis of the rBV, ADC and K2 (pic.1) of the enhanced part and the remote portion of the suspect zone makes it possible to rule out the differential diagnosis of glial tumor.

The fusion of anatomical images and calculated maps improves the visualization and the relevance of the analysis of the pathological zone. **Olea Vision™ module provides good visualization and analysis of small lesions (pic.2).**

The automatic display of the mid-sagittal plane makes it easier to compare with the contralateral side as well as to assess the subfalcine herniation.



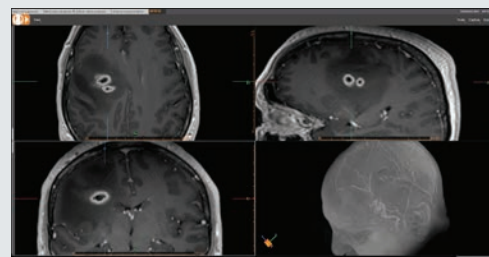
- DTI analysis to investigate the impact on nerve fibers
- Spectroscopy for choline peak, creatinine and lipid indicators of necrosis evaluation



Series	1	2	3	4	5
T1_GADO					
ADC	0.47	0.7	1.3	0.77	1.54
rBV_corre	0.85	2.43	0.8	2.38	1.4
cted					
K2	44.24	-0.15	4.94	0.16	1018.0

◀ Picture 1 ▲

▼ Picture 2



Sources: Imagerie Par Résonance Magnétique De La Tuberculose Cérébro-Méningée Fz Gueddani*, F Bouyacoub*, R Daffi*, A Khamilchi*, F Imami*/ Tuberculose Du Systeme Nerveux Central O Kallel, I Hamdi, I Bellara, I Ridene, L Harzallah, L Ben Chénifa, H Amara, D Bakir, F Bahri*, A Letaf Omezzine*, CH Kraiem