# **Cryptococcoma Diagnosis**

# **Radiographic features**

The spectrum of radiological findings includes dilated perivascular spaces, gelatinous pseudocysts, intraparenchymal cryptococcomas, miliary nodules, meningeal involvement, intraventricular/choroid plexus masses and hydrocephalus<sup>1)</sup>.

## MRI

T1: hypointense<sup>2)</sup>,<sup>3)</sup>.

T2: hyperintense, with or without vasogenic edema, depending on size <sup>4</sup>, <sup>5</sup>.

T1 C+ (Gd): contrast-enhancing rim may be seen.

Dilated Virchow Robin spaces (VR) in the basal ganglia are reported to be the most common imaging finding. As the infection spreads, mucoid gelatinous material produced by the capsule of the fungus gets enmeshed with budding cryptococci, distending and dilating the VR spaces and resulting in the formation of cysts, called gelatinous pseudocysts. These are thought to be an "unreactive" form of meningoencephalitis, preferentially located in the basal ganglia, thalamus, midbrain and dentate nuclei. Gelatinous peusdocysts are non-enhancing lesions and appear similar to CSF on all imaging sequences. Some cases appear as intermediate signal on T1 weighted images owing to the presence of mucin/mucoid material that shortens T1 relaxation time <sup>6) 7)</sup>.

The lesions extend occasionally to the parenchyma adjacent to the perivascular space, with formation of intraparenchymal cryptococcomas and miliary lesions. These lesions are microabscesses containing amorphous debris and cryptococcal organisms encased in an outer fibrous capsule, and are observed in the brain parenchyma, leptomeningeal and cisternal spaces. They are of low intensity on T1 weighted images and high intensity on T2 weighted images. Immunocompetent patients are more likely to present with cryptococcomas and, because gelatinous peusdocysts represent lesions associated with a disruption of the blood-brain barrier, they may enhance on contrast <sup>8) 9)</sup>.

Kuwahara et al <sup>10</sup> suggested that cerebral sulcal hyperintensity on FLAIR images is an early sign of an indolent process/recurrent inflammation, even when the CSF findings following lumbar puncture are normal. This finding implies a high protein concentration in the localised subarachnoid space.

Gelatinous pseudocysts and cryptococcomas in the choroid plexus are relatively specific for CNS cryptococcosis. A unilateral or bilateral enlargement of the choroid plexus that enhances on contrast is a relatively rare manifestation of cryptococcal infection. Choroid inflammation can progress to ependymitis, intraventricular synechiae, loculation or enlargement, and entrapment of the temporal horn owing to the obstruction of flow by cryptococci, as seen in our case. Contrast enhancement may not occur in the presence of impaired immunity <sup>11) 12</sup>.

Therefore, diagnosis frequently depends on the identification of cryptococci in CSF through the Indian

ink preparation or on the detection of cryptococcal antigen in CSF to complement the imaging findings. The former is useful when >10 colony forming units (CFU) ml-1 of yeast are present. Other than Indian ink, Alcian blue and mucicarmine are the stains used to detect the polysaccharide capsule of yeast in tissue <sup>13)</sup>.

### 1) 11)

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