



CLINICAL IMAGES

Marchiafava-Bignami Disease

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Fig 1 & 2 Hypo-density Involving Genu of Corpus Callosum on Non contrast CT scan Fig 3 & 4 Hypo & Hyper-intense on T1W & T2 W images on MRI

50 year old male, chronic smoker and alcoholic was brought in emergency with history of altered consciousness for the last one day. Clinical examination revealed altered consciousness and pallor. Rest was unremarkable. Laboratory investigations revealed decreased Hb(8gm%). RFT's and LFT's were within normal limits. Radiological investigations revealed hypo-density involving genu of corpus callosum on non contrast CT scan (Fig 1&2). MRI showed abnormal signal intensity in genu and body of corpus callosum. The involved areas were hypo-intense on T1W images (Fig.3) and hyper-intense on T2W images with cystic changes (Fig.4). MBD is a rare disorder that results in progressive demyelination and necrosis of the corpus callosum. MBD is generally associated with chronic alcohol abuse but is occasionally seen in nonalcoholic patients. Nutritional factors have been suspected in MBD, but no specific nutrient has been identified. Electrolyte disturbances may be important(1).The disease may present in two major clinical forms: acute and chronic (2). In the acute form, patients present with severe impairment of consciousness, seizures, and muscle rigidity The chronic form of the disease may last for several months or years and is characterized by variable degrees of mental confusion, dementia, and impairment of gait. MBD may be found in association with other alcohol-related diseases, including Korsakoff syndrome, central pontine myelinolysis (CPM), and Morel laminar necrosis. The main pathologic change associated with MBD is degeneration of the corpus callosum, which may vary from demyelination to frank necrosis. Demyelination is accompanied by infiltration of macrophages and, ultimately, thinning of the corpus callosum. Necrosis produces cystic cavities within the

corpus callosum, mainly in the genu and splenium (3).CT of MBD patients shows diffuse periventricular low density and focal areas of low density in the genu and splenium of the corpus callosum. On MRI, patients with MBD show areas of low signal intensity on T1-weighted images. There is high signal intensity on T2 and fluid-attenuated inversion recovery (FLAIR) images in the body of the corpus callosum, genu, splenium, and adjacent white matter (4). During the acute phase, the lesions may show peripheral contrast enhancement. As the disease progresses, signal alterations become less evident, but residual atrophy of the involved structure is usually observed.No specific, proven treatment is available for Marchiafava-Bignami disease (MBD). Various treatments similar to those commonly administered for Wernicke-Korsakoff syndrome or for alcoholism in general have been given to patients with MBD. Some patients have improved and some have not. The most common treatments are thiamine, folate, and other B vitamins (especially vitamin B-12). Folate is commonly given with B-12.

References

1. Ropper AH, Brown RH. Chapter 41 Diseases of the Nervous System due to Nutritional Deficiency.Marchiafava-Bignami Disease(Primary Degeneration of theCorpus Callosum). In: Principles of Neurology. 2005.pp.998-99.
2. Heinrich A, Runge U, Khaw AV. Clinicoradiologic subtypes of Marchiafava-Bignami disease. *J Neurol* 2004;251(9):1050-59.
3. Gambini A, Falini A, Moiola L, Comi G, Scotti G. Marchiafava-Bignami disease: longitudinal MR imaging and MR spectroscopy study. *AJNR* 2003;24:249-53
4. Spampinato MV, Castillo M, Rojas R, Palacios E, Frascheri L, Descartes F. Magnetic resonance imaging findings in substance abuse: alcohol and alcoholism and syndromes associated with alcohol abuse. *Top Magn Reson Imaging* 2005; 16:223 -30

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