

Answer to Medical Quiz: Images

Radiological Findings:

MRI of brain shows multiple enhancing nodular mass lesions of different sizes, noted in both cerebral hemispheres. Perilesional disproportionate white matter edema is evident. Mass effect & midline shifting is present. Left lateral ventricle is effaced. Extra-axial CSF spaces are prominent. MRI finding is consistent with secondary metastasis.

MRS (Magnetic Resonance Spectroscopy) from left frontal lobe lesion shows reduced NAA (N Acetyl Aspartate) peak with abnormal lipid lactate peaks with increased choline peak suggestive of neoplastic origin of lesion probably metastasis.

Diagnosis: Multiple Secondary Metastases.

Review: Magnetic Resonance Imaging of Brain Metastasis:

Multiple lesions with marked vasogenic edema and mass effect are typically seen in patients with brain metastases. Lesions are isointense to mildly hypointense on T1-weighted images; they are hyperintense on T2-weighted images or with fluid attenuation inversion recovery. Surrounding edema is relatively hypointense on fluid attenuation inversion recovery and on T1-weighted

images; they are hyperintense on T2-weighted images. Contrast-enhanced MRI is the best method for detection of meningeal tumor seeding, which appears as abnormal dural enhancement. This is a nonspecific finding; however, in the correct clinical setting, it correlates with the presence of sheets of tumor cells affecting the meninges. High-resolution stereotactic MRI at the time of Gamma Knife surgery may detect additional brain metastases, decreasing the incidence of and lengthening the time to distant recurrences.

On imaging, dural-based metastases may resemble meningioma. Leptomeningeal carcinomatosis may resemble chronic meningitis; however, an appropriate history or detection of primary cancer may be sufficient for establishing the diagnosis. Leptomeningeal enhancement may occur after the administration of radiation or following extra-axial hemorrhage; it may also occur below a craniotomy site. Single or multiple ring-enhancing lesions with edema may resemble infectious processes. Solitary lesions resemble primary brain tumors.

Reference: <http://emedicine.medscape.com/article/338239-overview#a21>

Medical Quiz: SBA – Answers

Answer 01: Correct answer - D

Although it is recognized that MRI has a greater sensitivity and specificity in detecting bone metastases than a bone scan SPECT, using ^{99m}Tc remains the first choice for initial screening because of its availability and ease of access to the whole body.

Answer 02: Correct answer - A

Pyogenic liver abscesses are more often multiple and blood culture is positive in up to half. Nonetheless percutaneous drainage, alongside broad spectrum antibiotics, is the treatment of choice and is not undertaken purely for diagnosis. In view of the various underlying causes and co-morbidities, including age, mortality is higher in pyogenic than amoebic abscess (10% vs 2-3%). The disproportionately greater incidence of amoebic abscess in young males has been attributed to alcoholic liver damage. Presentation can be many months or even years after leaving the endemic area.

Answer 03: Correct answer -B

The wide differential diagnosis of chronic diarrhoea must, in this case, take cognisance of its onset whilst in a tropical country. Nonetheless non-infective causes such as coeliac disease or inflammatory bowel disease (IBD) may be unmasked and the iatrogenic AAC considered. Furthermore up to 10% with no pre-morbid symptoms may, following traveller's diarrhoea, develop IBS; in this context IBS can be thought of as *irritated* rather than *irritable* bowel syndrome! To confirm the likely diagnosis of IBS it may be necessary in this situation to request a full battery of tests to exclude the aforementioned infective and non-infective causes. These should all be done together, rather than sequentially, and the patient told that the expectation is that all findings will be negative thereby giving strong support to the diagnosis of IBS.

Answer 04: Correct answer - D

The odds ratio for developing diabetes on glucocorticoid treatment rises with dosage (varying from 1.3 to 2.3). Atypical antipsychotic drugs carry an increased risk of diabetes compared to other agents which also carry an increased risk of diabetes compared to other agents as it occurs before the weight gain accompanying the latter suggesting they impair beta cell function. Pheochromocytoma can precipitate or unmask an underlying predisposition to T2DM thought to be caused by overstimulation of adrenergic receptors on the pancreatic islets leading to impaired insulin secretion. As catecholamine levels fall precipitously after tumour removal the rebound hypersecretion of insulin may lead to post-operative hypoglycaemia. Protease inhibitors have been shown in prospective studies of HIV patients, before and after treatment, to impair beta cell function and thereby the suppression of lipolysis by insulin. Tacrolimus and sirolimus have been shown to damage beta cells and their function to a greater extent than other forms of immunosuppression following kidney transplantation (70% higher incidence of T2DM at 2 years).

Answer 05: Correct answer - A

The haematological picture in folate deficiency is identical to that of B12 deficiency. B12 deficiency is a hazard of following a vegan diet. Functional folate deficiency in antimetabolite treatment is prevented by folinic acid supplementation. GPC antibodies reduce IF synthesis in the gastric mucosa. The blood film and measurement of vitamin B12 and folate stores are all that is usually required in the investigation of megaloblastic anaemia avoiding a bone marrow test in most cases.