

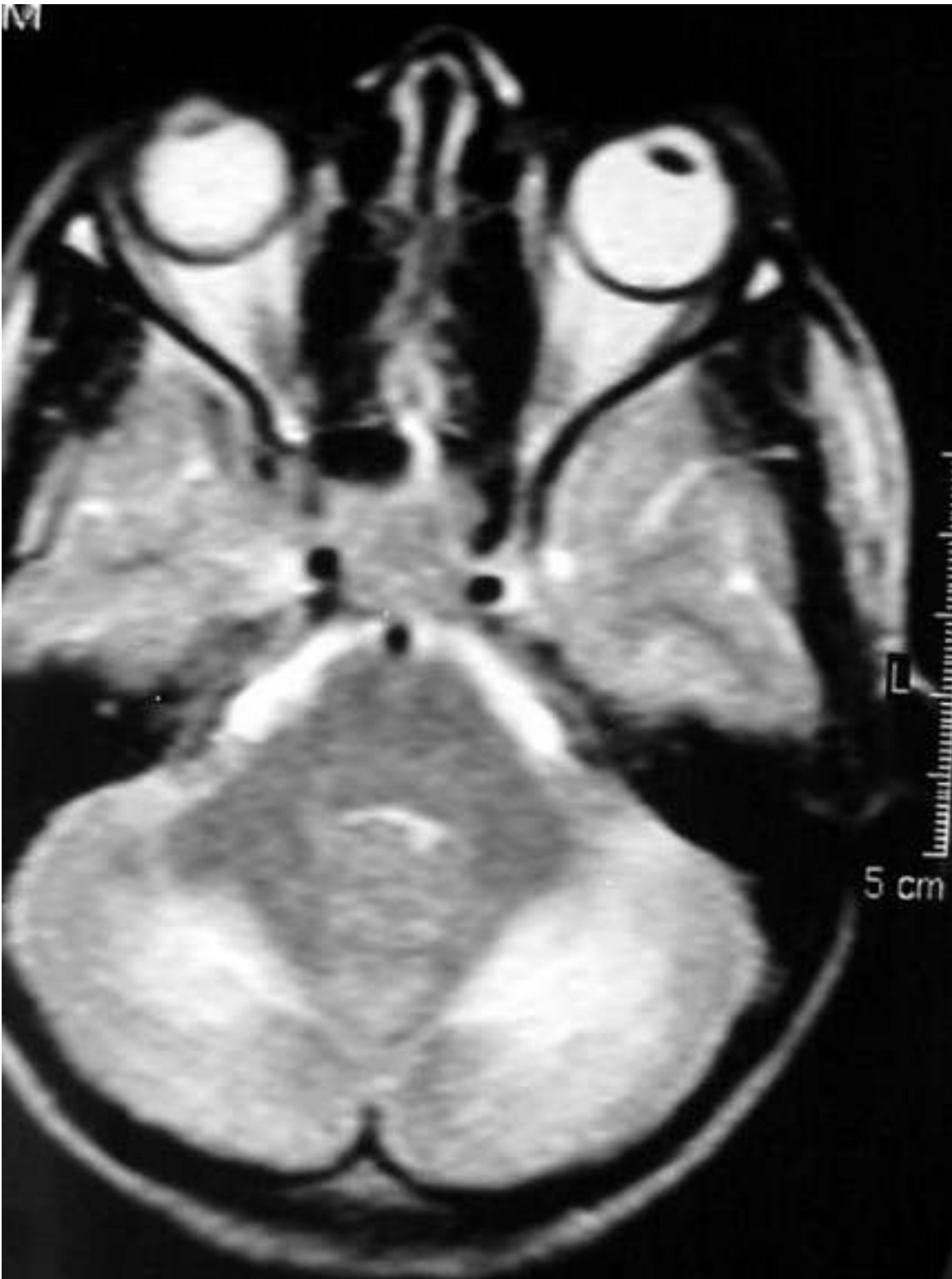
# Short case

Short case publication... version 1.17 | Edited by professor Yasser Metwally | April 2008

## Short case

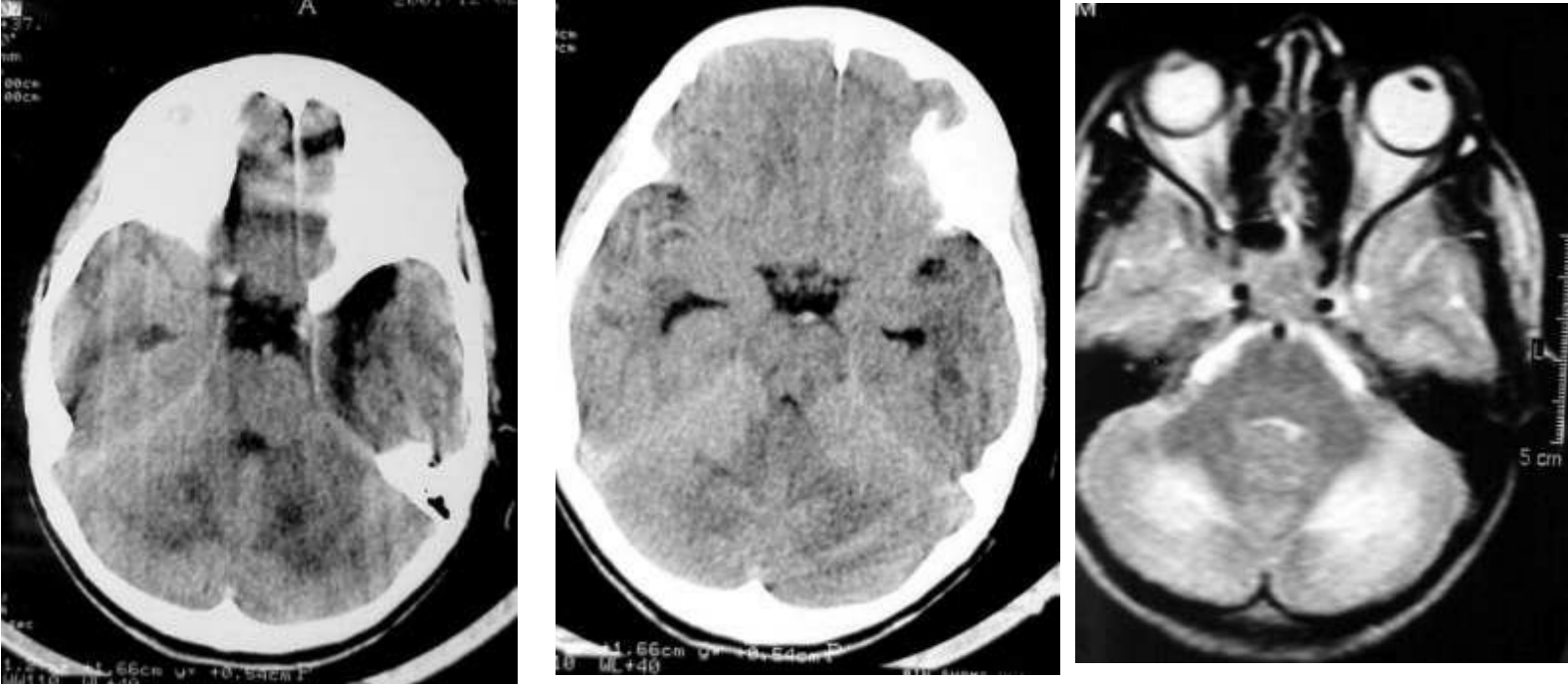
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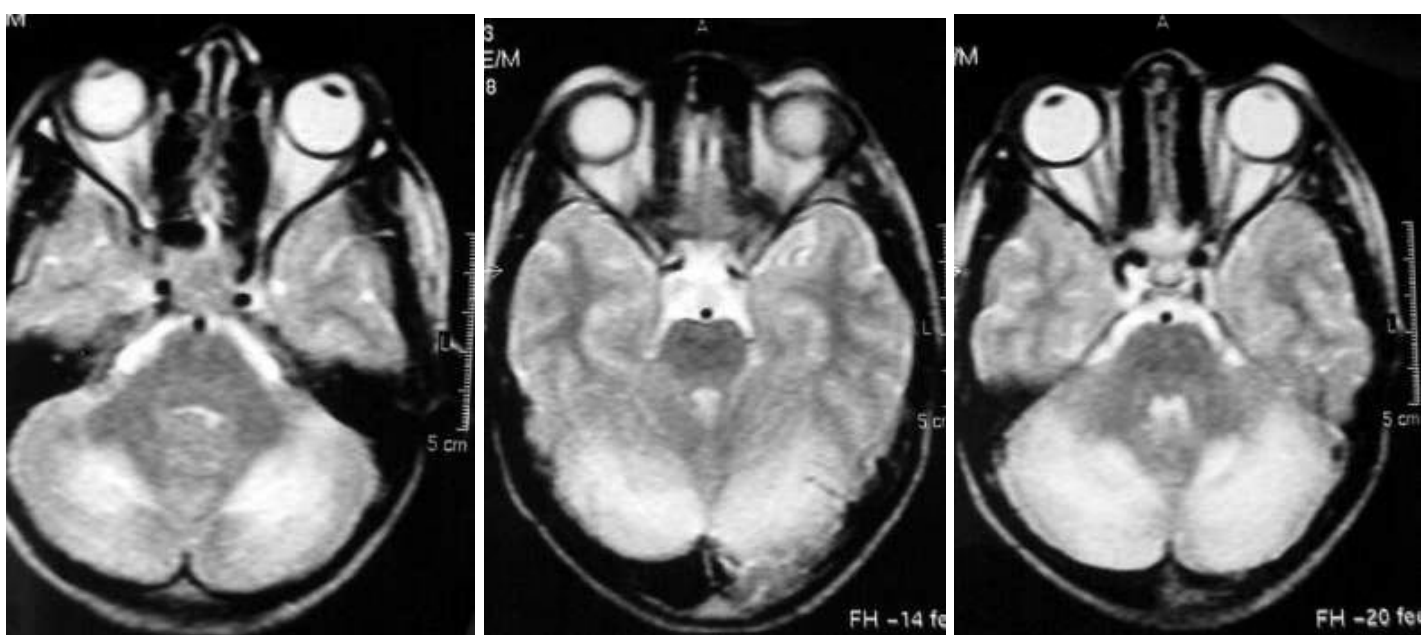


A 6 years old male patient presented clinically with cerebellar ataxia and headache characteristic of increased intracranial pressure of acute onset 3 weeks following non-specific viral infection from which he fully recovered. Clinical examination revealed trunk, gait, limb ataxia and nystagmus. Fundus examination revealed bilateral papilledema. Within one week of hospitalization and non-specific supportive treatment the patient fully recovered and was discharged.

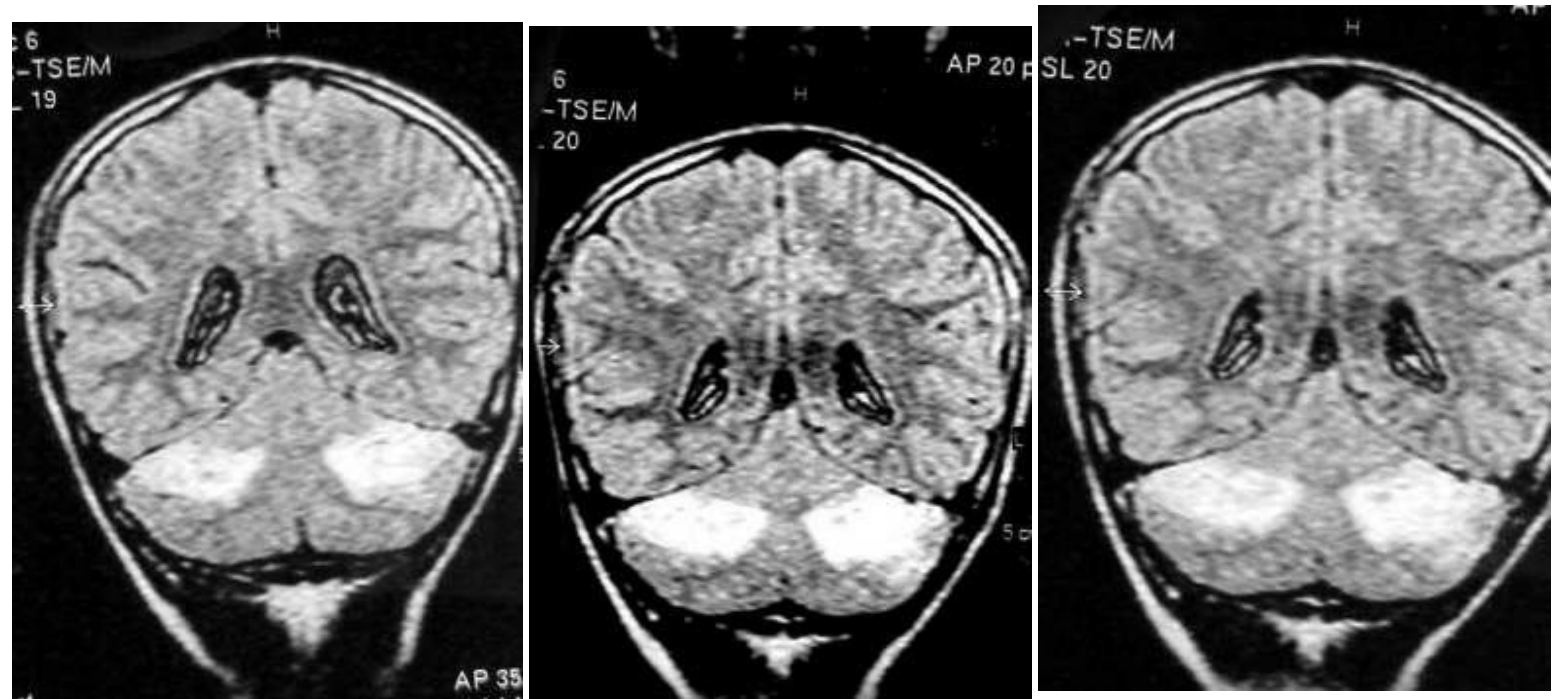
**DIAGNOSIS:** ACUTE POSTINFECTIOUS CEREBELLITIS



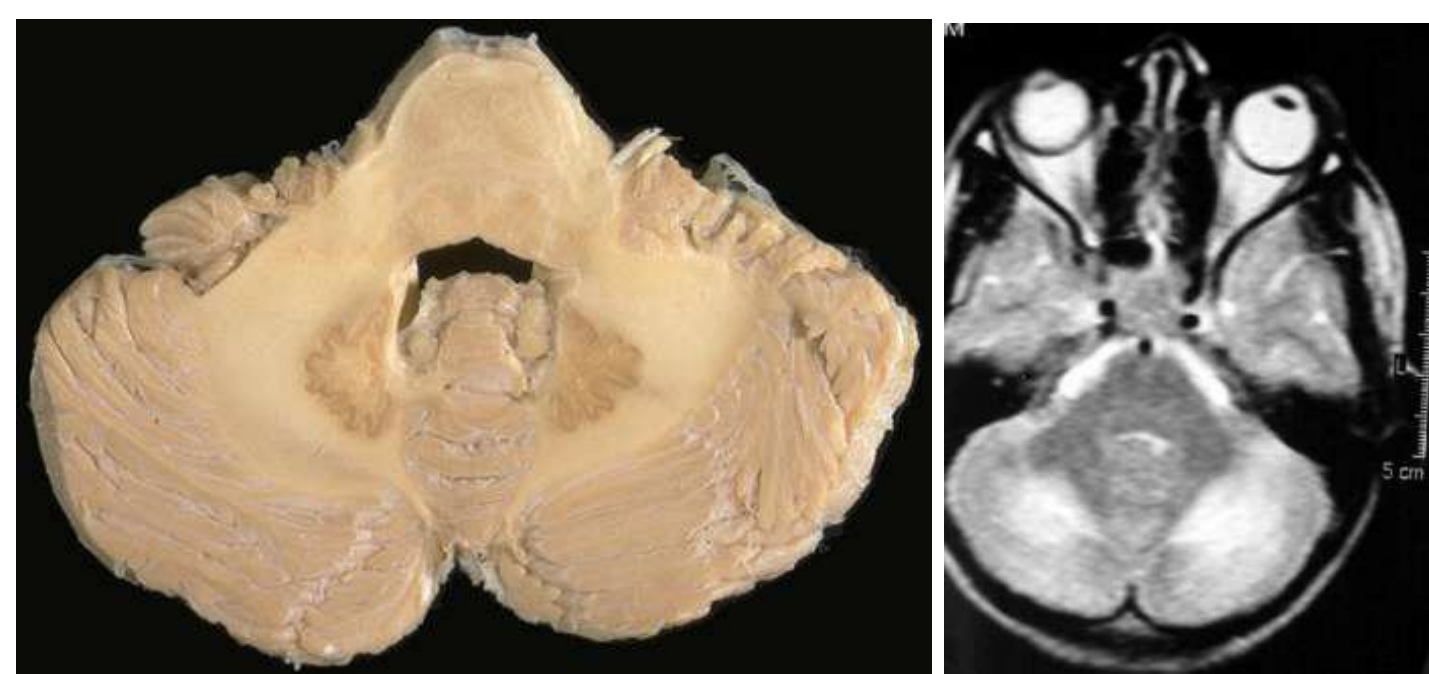
**Figure 1. A,B postcontrast CT scan and C, MRI T2 image showing bilateral more or less symmetrical C-shaped CT hypodensity and MRI T2 hyperintensity involving the cerebellar white matter. The 4th ventricle is compressed and anteriorly displaced. Mild hydrocephalic changes can also be demonstrated in the form of mildly dilated temporal horns of the lateral ventricles. The obstructive hydrocephalic changes are mainly due to cerebellar swelling by the effect of vasogenic edema.**



**Figure 2. MRI T2 images showing bilateral more or less symmetrical C- shaped MRI T2 hyperintensity involving the cerebellar white matter. The 4th ventricle is compressed and anteriorly displaced.**



**Figure 3. MRI FLAIR images showing the bilateral, symmetrical hyperintense C- shaped white matter cerebellar lesions and the mild hydrocephalic changes.**



**Figure 4. A, Postmortem section through the cerebellum and the brain stem at the level of the 4th ventricle., B, MRI T2 image at the same level of the postmortem cut. Notice that the MRI T2 hyperintensity is taking the characteristic C- shaped because it is exactly mapping the cerebellar white matter and taking its shape. The MRI T2 C- shaped hyperintensity most probably representing vasogenic white matter edema that is spreading along the white matter tracts and association fibers of the cerebellum.**



**Figure 5. Same as in figure 4, however the cerebellar white matter color is changes into white to show that the MRI T2 hyperintensity is predominately white matter in location and taking the shape of the cerebellar white matter (C-shaped) and represents vasogenic edema along the cerebellar white matte myelinated axons.**

## Summary and final comment

In general the characteristic MRI T2 and FLAIR picture of postinfectious cerebellitis is bilateral, symmetrical hyperintensities involving the cerebellar white matter and taking exactly the shape of the cerebellar white matter and mapping it (C-shaped hyperintensity). The C-shape hyperintensity is due to cerebellar white matter vasogenic edema that develops secondary to the immune mediated inflammatory demyelination of the white matter of the cerebellum which results in breakdown of the blood brain barrier with subsequent development of vasogenic edema that follows the myelinated axons of white matter tracts and association fibers of the cerebellum, spreading them apart and extending alongside them resulting in the characteristic C-shape of the MRI T2 and FLAIR hyperintensities.

On precontrast CT scan images the bilateral white matter cerebellar lesions appear as a bilateral symmetrical C- shaped hypodensity and on precontrast MRI T1 images the cerebellar white matter lesions appear as a bilateral symmetrical C- shaped hypointensity. Due to breakdown of blood brain barrier, (which is responsible for the formation of vasogenic edema) some degree of contrast enhancement should be expected. Contrast enhancement in the current case appeared linear.

Cerebellar swelling (which results from inflammation and edema) might induce compression of the 4th ventricle and variable degrees of obstructive hydrocephalus.

Full functional recovery occurred within a week of supportive treatment and MRI examination was normal following recovery and this simply means that the MRI signal changes demonstrated during the acute illness was due to reversible vasogenic edema rather that irreversible structural cerebellar lesions.

## References

1. Metwally, MYM: Textbook of neurimaging, A CD-ROM publication, (Metwally, MYM editor) WEB-CD agency for electronic publishing, version 9.1a January 2008

## Addendum

- ◆ A new version of short case is uploaded in my web site every week (every Saturday and remains available till Friday.)
- ◆ To download the current version follow the link "<http://pdf.yassermetwally.com/short.pdf>".
- ◆ You can download the long case version of this short case during the same week from: <http://pdf.yassermetwally.com/case.pdf> or visit web site: <http://pdf.yassermetwally.com>
- ◆ To download the software version of the publication (crow.exe) follow the link: <http://neurology.yassermetwally.com/crow.zip>
- ◆ At the end of each year, all the publications are compiled on a single CD-ROM, please contact the author to know more details.
- ◆ Screen resolution is better set at 1024\*768 pixel screen area for optimum display
- ◆ For an archive of the previously reported cases go to [www.yassermetwally.net](http://www.yassermetwally.net), then under pages in the right panel, scroll down and click on the text entry "downloadable short cases in PDF format"