

Frontal Lobe Syndrome due to “A Bunch of Grapes”

A 36-year-old female office clerk was admitted with a 6-week history of headache, abnormal behaviour (poor work performance, deteriorating table manners, and lack of social inhibition and frequent repetition of words or phrases) as well as unsteady gait. She also had episodes of urinary incontinence. On examination, she was found to be confused and disoriented. She had positive primitive reflexes (grasp, rooting and palmo-mental reflex) as well as upper motor neuron type of paraparesis. Routine laboratory investigations were unremarkable and her chest x-ray was normal. MRI brain showed multiple contrast enhancing lesions like “a bunch of grapes” related to the falx cerebri with significant surrounding vasogenic edema (Fig. 1).

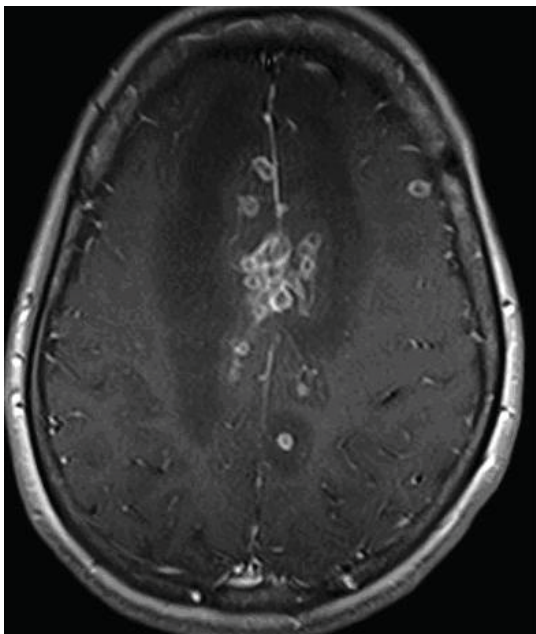


Fig. 1. T1-weighted MRI with contrast showing multiple ring-enhancing lesions with significant surrounding vasogenic edema.

What is the most likely diagnosis for the above MRI changes?

- A) Cystic metastasis
- B) Bacterial or fungal abscess
- C) Neurocysticercosis
- D) Tuberculosis
- E) Toxoplasmosis

On further examination, this patient also had several enlarged, matted cervical lymph nodes. Fine needle aspiration of the cervical lymph node showed evidence of caseating granuloma. The acid-fast bacilli (AFB) staining was negative however the follow-on culture was positive for *Mycobacterium tuberculosis*. A lumbar puncture for cerebrospinal fluid (CSF) examination was not done in view of the significant cerebral edema and the risk of herniation. A brain biopsy was declined by the patient. She was treated with anti-tubercular drugs and a short course of steroids. She had gradual improvement of headache, cognition and gait. She was able to resume her duties after 6th months.

Discussion

The clinical spectrum of patients with intracranial tuberculoma varies according to the location of the lesions. Essentially these patients fall into 2 groups, i.e. those presenting as a space occupying lesion and those presenting with focal seizures, with or without evidence of raised pressure.¹ Intracranial tuberculoma presenting as frontal lobe syndrome (FLS) is not commonly reported. Typically, the syndrome (which was defined in 1868 by Harlow) involves general impairment of planning functions, lack of inhibition, hypomanic episodes, impulsiveness, anti-social behaviour, depression, apathy and perseveration (defined as uncontrollable repetition of a particular response, such as a word, phrase, or gesture).² Our patient's clinical presentation resembled FLS with paraparesis.

The MRI of the brain with gadolinium showed evidence of parafalcine ring-enhancing lesions resembling “a bunch of grapes” closely related the falx cerebri with severe surrounding frontal lobe vasogenic edema. Such MR images have been reported to be related to granulomatous infections such as tuberculosis. These ring-enhancing lesions represent the conglomeration of multiple small “immature” tubercles into a more identifiable tuberculomatous mass, surrounded by massive oedema.³ The margins of the ring-enhancing lesions correspond to layers of both collagenous and inflammatory cells encircling the multiple granulomatous foci.³ Apart from intracranial tuberculomas, other condition that may have similar ring-enhancing lesions includes metastasis, pyogenic abscess, neurotoxoplasmosis and neurocysticercosis.³ In this patient, however, tuberculosis is much more likely given the presence of extracranial infection, and a trial of therapy followed by repeat imaging

Answer: D

would be a reasonable management plan.”

While the definitive diagnosis of CNS tuberculosis is made by demonstration of positive AFB bacilli staining or culture of CNS tissue, this was not possible in our patient due to reasons described earlier. However, she had extra cranial source of infection in the form of tubercular lymphadenitis which was helpful in making a most likely diagnosis of intracranial tuberculoma and hence, she was treated appropriately. She responded to the anti-tubercular drugs and continued to remain well after completion of treatment.

In conclusion, this is a rare case of FLS due to intracranial tuberculoma which resembled “a bunch of grapes” related to the falx cerebri on MR imaging. A systematic examination and investigation for extra cranial source of tubercular infection may be helpful for the diagnosis, especially in cases where CNS tissue is unobtainable for histopathological confirmation. Empirical trial of anti-tubercular drugs should be started even if diagnosis is only presumptive, especially if the patient lives in an area where the infection is endemic.

REFERENCES

1. Bhargava S, Tandon PN. Intracranial tuberculomas: a CT study. *Br J Radiol* 1980;53:935-45.
2. Espay AJ, DH Jacobs. Frontal lobe syndromes. *Medscape J* 2008;1:1-11.
3. Gupta RK, Pandey P, Khan EM, Mittal P, Gujral RB, Chhabra DK. Intracranial tuberculomas: MRI signal intensity correlation with histopathology and localized proton spectroscopy. *Magn Reson Imag* 1993;11:443-9.

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