Case Report

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Giant cerebral tuberculoma in pregnancy: review of literature discussion

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ABSTRACT

Tuberculosis is endemic in India and world-wide infects one third of population. We are presenting a case report of a pregnant patient with huge intra axial tuberculoma with excellent prognosis. A 29 year old primi gravida had an episode of seizure and fell unconscious during labor. Imaging was ordered immediately to rule out intracerebral space occupying lesion. CT Brain was suggestive of a huge intraparenchymal lesion with midline shift. Right temporo parietal craniotomy was done and whole mass excised completely. Histo pathological examination suggested of caseating granuloma, likely tuberculosis. Seizures are the commonest manifestation of cerebral tuberculosis however in pregnancy it is almost synonymous with eclampsia. MRI has revolutionized the diagnosis of tuberculomas especially MR Spectroscopy which can help us differentiate the lesions from neoplastic ones. The state of pregnancy itself is a double edged sword for the patient. It is considered a state of lower immunity and stress and along with poor nutritional status may lead to exaggerated form of tuberculosis, though more studies are needed to ascertain this. Management of tuberculosis has to be considered post-surgery with anti-tubercular treatment for 18 months. Pregnant tuberculous women generally tolerate primary chemotherapy well. In conclusion it may be said that tuberculomas are rare in pregnancy but have to consider as differential diagnosis.

Keywords: Cerebral tuberculoma, Pregnancy, Spectroscopy, Intracranial space occupying lesion

INTRODUCTION

Tuberculosis is endemic in India and world wide infects one third of population. It mainly involves the pulmonary system however extra pulmonary tuberculosis is becoming common in affluent class in our country. Intracranial elements are involved in 5-10% of cases mainly as meningitis or tuberculoma masses; however cerebral involvement in pregnancy is particularly rare and gains interest as we have to differenciate it from toxemia and neoplastic lesions. We are presenting a case report of a patient with huge intra axial lesion for which we had kept possibility of high grade neoplasm on basis of the MRI picture; however it turned to be a tuberculoma with excellent prognosis.

CASE REPORT

A 29 year-old primi gravida had an episode of seizure and fell unconscious during labor. She delivered a baby child but did not gain consciousness. She was having a high BP hence she was thought to be having toxemia and the protocol for the same followed and neurosurgery opinion was sought.

Clinically patient was drowsy with Left hemiparesis. Right pupil was dilated but reacting to light. Fundus examination revealed bilateral papilloedema. On questioning about antenatal history, the patient had visited antenatal clinic once 3 months back, when she had complained of visual difficulty and constant headaches.

The patient was prescribed analgesics for the same and advised to follow up regularly.



Figure 1: CT Brain plain showing isointense space occupying lesion in parietal lobe with mass effect.

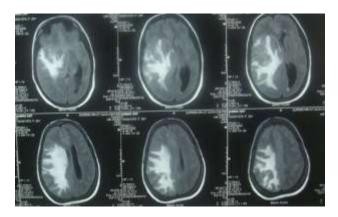


Figure 2: MRI brain: T1 weighted image showing heterogenous masss lesion with cerebral edema and midline shift.

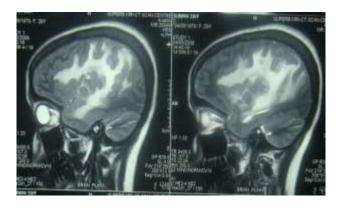


Figure 3: MRI Brain: T2 weighed image showing heterogenous mass with extensive cerebral edema.

Imaging was ordered immediately to rule out intracerebral space occupying lesion. CT Brain was suggestive of a huge intraparenchymal isodense lesion with perilesional cerebral oedema with midline shift (Figure 1). MRI suggested of a large space-occupying lesion with midline shift. On T1 weighted image the mass

appeared isointense with hyperintense surroundings suggestive of cerebral edema (Figure 2). T2 weighed images were suggestive of variegated appearance of mass with midline shift (Figure 3). The contrast images suggested defined capsule with variegated take up suggesting a malignancy (Figure 4).

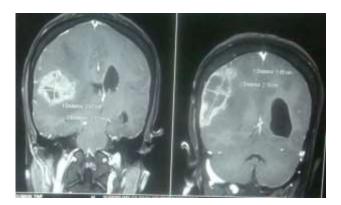


Figure 4: MRI Brain: Contrast enhanced images showing variegated mass with well-defined capsule and necrotic centre.

Patient was advised to undergo craniotomy and decompression urgently and was explained about the dismal prognosis due to appearance of high-grade neoplasia.

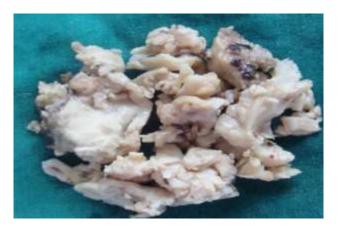


Figure 5: Photograph showing pieces of mass obtained after surgery. White cheesy, avascular material.

Right temporo parietal craniotomy was done and whole mass excised completely. Per operatively the mass was white, caseous with necrosis and capsulated (Figure 5). It was avascular and complete excision was possible.

Histopathological examination suggested of caseating granuloma, likely tuberculosis.

Patient was given a 5 drug regime of antitubercular drugs consisting of Rifampicin, Isoniazide, Pyrazinamide, Ethambutol and streptomycin. The drugs were given for a total period of 18 months and patient followed up for 2 years. She did well with no neurological deficits (Figure 6).

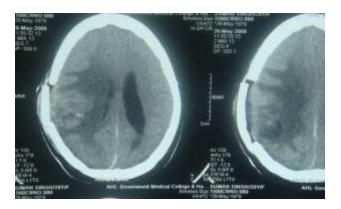


Figure 6: Postoperative CT Brain showing complete excision of mass.

DISCUSSION

In 2011, it was estimated that more than 200,000 cases of active tuberculosis occurred among pregnant women globally; the greatest burdens were in Africa and Southeast Asia. Clinically, tuberculosis can manifest either as meningitis or tuberculomas.²

The signs and symptoms in cerebral tuberculosis depend upon the location of the lesion. Tuberculomas have been located in fronto parietal region, pontine, pericallosal location and suprasellar locations. Though intraparenchymal tuberculomas are most common but dural based extracranial tuberculomas are reported. Cystic and en plaque meningioma mimics and those caused by *M. avium* have been mentioned in literature. In our case the tuberculoma was located in right parieto occipital region and resembled a high grade neoplastic lesion.

Seizures are the commonest manifestation of cerebral tuberculosis⁸ however in pregnancy it is almost synonymous with eclampsia. The constitutional symptoms of tuberculosis like fever, nausea, headache and weight loss are easily missed in pregnant females, hence the role of high suspicion in endemic regions and role of early imaging is there. In our patient there was history of headache and vision loss but these were ignored. The obstetricians need to be sensitized to this disease as starting of antitubercular treatment early can have excellent cure rates.

MRI has revolutionized the diagnosis of tuberculomas especially MR spectroscopy which can help us differentiate the lesions from neoplastic ones. Tuberculomas are characterized by a prominent decrease in NAA/Cr and slight decrease in NAA/Cho. Lipidlactate peaks are usually elevated (86% of tuberculomas). 11

The state of pregnancy itself is a double edged sword for the patient. It is considered a state of lower immunity and stress and along with poor nutritional status may lead to exaggerated form of tuberculosis, though more studies are needed to ascertain this. 12

Management of tuberculosis has to be continued postsurgery with anti tubercular treatment for 18 months. Isoniazid may cause cutaneous hypersensitivity, hepatitis, peripheral neuropathy. The risk of INH-induced hepatitis may be 2.5 times higher in pre-natal patients than the general population, although largely unconfirmed. Rifampicin may cause nausea; vomiting and hepatitis. Pyrazinamide may produce gastrointestinal upsets, arthralgia, hyperuricemia and hepatitis. Streptomycin may commonly cause vertigo in mother apart from ototoxicity and nephrotoxicity, related to speak serum concentration and total dose of administered drug. Pregnant tuberculous women generally tolerate primary chemotherapy well.¹² Use of Isoniazid, Rifampicin, Ethambutol, Pyrazinamide, Streptomycin, Kanamycin and Cycloserine has been considered safe for breastfeeding, but safety of PAS is unproven. 12

CONCLUSION

In conclusion it is to be considered said that tuberculomas are rare in pregnancy but have to consider as differential diagnosis. The clinical manifestations easily overlap with toxemia of pregnancy and neoplastic lesions, however imaging especially MRI spectroscopy can help differentiate these. The early diagnosis of tuberculoma can lead to better outcomes as these are responsive to antitubercular treatment.

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REFERENCES

- 1. Sugarman J, Colvin C, Moran AC, Oxlade O. Tuberculosis in pregnancy: an estimate of the global burden of disease. Lancet Glob Health. 2014:2:e710.
- 2. Ravenscroft A, Schoeman JF, Donald PR. Tuberculous granulomas in childhood tuberculous meningitis: radiological features and course. J Trop Pediatr. 2001;47:5-12.
- 3. Shindo A, Honda C, Baba Y. A case of an intracranial tuberculoma, mimicking meningioma that developed during treatment with antituberculous agents. No Shinkei Geka. 1999;27:837-41.
- Isenmann S, Zimmermann DR, Wichmann W. Tuberculoma mimicking meningioma of the falx cerebri. PCR diagnosis of mycobacterial DNA from formalin-fixed tissue. Clin Neuropathol. 1996:15:155-8.
- 5. Di Patre PL, Radziszewski W, Martin NA. A meningioma-mimicking tumor caused by mycobacterium avium complex in an

- immunocompromised patient. Am J Surg Pathol. 2000;24:136-9.
- 6. Adachi K, Yoshida K, Tomita H. Tuberculoma mimicking falx meningioma—case report. Neurol Med Chir (Tokyo). 2004;44:489-92.
- 7. Bauer J, Johnson RF, Levy JM. Tuberculoma presenting as an en plaque meningioma. Case report. J Neurosurg. 1996;85:685-8.
- 8. Thwaites G, Fisher M, Hemingway C, Scott G, Solomon T, Innes J. British Infection Society guidelines for the diagnosis and treatment of tuberculosis of the central nervous system in adults and children. J Infect. 2009;59:167-87.
- 9. Sibai BM. Eclampsia. VI. Maternal-perinatal outcome in 254 consecutive cases. Am J Obstet Gynecol. 1990;163:1049-54.

- Bulakbasi N, Kocaoglu M, Örs F. Combination of single-voxel proton MR spectroscopy and apparent diffusion coefficient calculation in the evaluation of common brain tumors. AJNR Am J Neuroradiol. 2003;24:225-33.
- 11. Pretell EJ, Martinot C, Garcia HH. Cysticercosis working group in Peru. Differential diagnosis between cerebral tuberculosis and neurocysticercosis by magnetic resonance spectroscopy. J Comput Assist Tomogr. 2005;29:112-4.
- 12. Arora VK, Gupta R. Tuberculosis and Pregnancy. Ind J Tub. 2003;50:13-7.

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