Brain Abscess due to *Entamoeba histolytica*

C Sundaram*, BCM Prasad**, G Bhaskar*, V Lakshmi*, JMK Murthy**

**Abstract**

A patient of cerebral amoebiasis due to *Entamoeba histolytica* with no evidence of disease elsewhere is described. He made a complete recovery after surgical excision of the abscess along with metronidazole therapy.

Cerebral amoebiasis associated with *Entamoeba histolytica* is very rare. The first description was in 1849, and by 1962, only 96 cases have been reported. But parasite confirmation was established in only 27 of the cases. Of the 210 cases of amoebiasis studied at autopsy, brain involvement was reported in 8.1% of the cases. This report presents a patient of cerebral amoebic abscess with no evidence of disease elsewhere.

**case report**

A ten years old child presented with one month history of fever, severe headache and left side weakness. He had two episodes of generalized tonic-clonic seizures before admission. He suffered from dysenteric illness for seven days, two months before the onset of the present symptoms. There were no symptoms referable to respiratory and cardiac systems. He came from a very low socioeconomic status. On examination, he was febrile, poorly nourished and weighed only 10 kgs, probably due to malnutrition. Patient was conscious and ocular fundi showed bilateral papilloedema. He had left hemiplegia with reduced sensation, increased tone and extensor plantar response on the left side. Other systems examination was essentially normal.

His hemoglobin was 8.5 g/dl and leucocyte count was 14,000 per cumm with 80% polymorphs. Erythrocyte sedimentation rate was 66 mm during first hour. CT scan of brain revealed a large hypodense lesion in the right temporo-parietal area, which on contrast administration showed multiple ring enhancing areas. There was marked perilesional edema and effacement of right lateral ventricle with midline shift (Fig. 1).

Abscess was excised in toto by right temporo-parietal craniotomy. The abscess measured 5 x 4 x 2 cm and was filled with greenish yellow purulent material. The walls were irregular with ragged edges. Multiple sections studied from the cyst wall showed necrotic material with a diffuse infiltrate of polymorphs and lymphomononuclear cells, foamy histiocytes and an occasional eosinophil. There were proliferating blood vessels, fibroblasts and reactive astrocytes. Admist the necrotic material were seen polygonal structures measuring 20-25 microns with vacuolated cytoplasm eccentrically placed nucleus and 1-2 ingested RBC (Fig. 2). This morphology was consistent with *E. histolytica*. Postoperatively patient was investigated for any other organ involvement and all he investigations including X-ray chest, ultrasound abdomen, and 2D Echo were absolutely normal. Amoebic serology for antiamoebic antibodies by ELISA method showed a titer of 111 IU (titer > 40 IU is suggestive of invasive amoebiosis).

The patient was treated with metronidazole 250 mg twice a day intravenously for 14 days along with systemic antibiotics. There was improvement in headache and neurological status following surgery. Patient was discharged on 26th day of surgery. During follow up at three months he was left with...
residual weakness.

**DISCUSSION**

In the autopsy studies amoebic cerebral abscesses were multiple, and varied in size. They were more often located in the left hemisphere. Microscopically there was a striking predominance of necrosis over the inflammatory exudate. Isolated brain abscess due to infection with *Entamoeba histolytica* is a rare manifestation and is thought to be due to spread through Batson’s plexus of paravertebral veins.

Clinical symptoms of cerebral amoebiasis are usually preceded by gastrointestinal or hepatic or respiratory symptoms. History of amoebic dysentery may be absent in some patients. Headache or sensorial alteration is the most common initial presentations of cerebral amoebiasis. Symptoms and signs of meningitis can occur. Cranial nerve involvement is frequent.

Diagnosis is now facilitated by amoebic serology. The most sensitive test available is indirect hemagglutination assay (IHA). Others include latex agglutination, counter-current immunoelectrophoresis, indirect immunofluorescence, radioimmunossay and enzyme-linked immunosorbent assay (ELISA). An IHA titer of 1:128 or an ELISA ranging from 1:1000 to 1:50,000 is suggestive of extra-intestinal amoebiasis. Serum antibodies reflect amoebic invasion, but do not correlate with protective immunity. Hence, positive amoebic serology indicates extra-intestinal amoebiasis and helps in corroborating the diagnosis. CT findings of cerebral amoebiasis are nonspecific and indistinguishable from other inflammatory processes. The reported patterns include ring enhancing lesion with significant edema and poorly defined lesion without any zone of reactivity. Other pathologies that have similar neuroimaging findings include brain abscess, tuberculoma, and cerebral metastatic lesion.

There are very few documented cases of cure. Management involves combined surgical and medical approach. Intravenous metronidazole is essential and achieves adequate central nervous system penetration where the history of the illness is short. We suggest cerebral amoebiasis should be considered in patients with cerebral abscess with history of dysenteric illness more so in the geographical areas where amoebiasis is endemic and also in patients who had traveled to endemic areas as early diagnosis and aggressive management is likely to achieve cure.

**REFERENCES**


---

**Announcement**

A CME Medicine will be held at NLT RNT Medical College, Udaipur from 8.30 am on 27th and 28th March, 2004 under auspicious of APICON 86 RNT Medical College Trust and Department of Medicine.

Members interested in attending are requested to contact: Dr. RL Meena, Assistant Professor Medicine, 111/104, Govt. Quarters, A-Road, Bhupalpura, Udaipur.

Tel.: 0294-2425722; Mobile: 94141-64722

DR Shah