Case Report

Cerebral Tuberculoma presented as Primary Malignant Brain Tumor: A Case Report

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A 62 year–old Thai man presented symptoms of chronic progressive headache for nearly one year and left side ataxia for two weeks. MRI brain suggested a primary malignant brain tumor with moderate hydrocephalus. Total removal of the lesion was performed. The histopathological report was caseating granulomatous inflammation involving cerebellar parenchyma; suggestive of tuberculoma, PCR for M. Tuberculosis complex, using brain tissue from formalin-fixed paraffin-embeded block, yields positive result for M. Tuberculosis complex. He was treated with antituberculous drugs.

Keywords: *Cerebral tuberculoma, CNSTs, Tubercular, Primary brain tumor*

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Central Nervvous System Tuberculoma (CNSTs) is the most dangerous form of tubercloma, only 1% of tuberculosis develope CNSTs. Between 1910 and 1931 in USA and Europe 34% of intracranial mass were tuberculomas. In later clinical sequence from the same regions the ratio fell to less than 4%[1,6]. Central nervous system tuberculomas (CNSTs), either multiple or single, usually presents as a diagnostic challenge because it has a similar appearance to many other non-infectious and infectious medical conditions specially in patient without evidence of tuberculosis elsewhere in the body[2-5]. The MRI was superior to the CT scan in showing not only the location and diagnostic features of tuberculomas, but also in detecting edema of the brain[6]. The treatment of CNSTs consists of four antituberculous antibiotics: -Rifapicin, Isoniazid, Ethambutol and Pyrazinamide.

Case Report

A 62 year-old Thai man who had a symptom of chronic progressive headache especially in the morning, no history of nausea or vomiting. He had gone to a provincial hospital and was treated as tension headache. About 2 weeks later, he had a symptom of ataxia to the left side. He went to the same hospital and had MRI brain (Fig. 1) after that he was referred to Rajavithi Hospital with diagnosis of primary malignant brain tumor in the left cerebellum. At our department the routine laboratory was performed including 1 blood CBC., electrolytes, BUN, Cr, Coagulogram 2 Chest X-ray 3 EKG, the results were in normal limit, and also negative for Anti-HIV.

Neurological examination optic fundi shows engorged retinal vein both sides, and cerebellar sign on the left. Other neurological examination was normal.

The operation was performed with provisional diagnosis of malignant primary cerebellar tumor. The indication for operation are obstructvie hydrocephalus

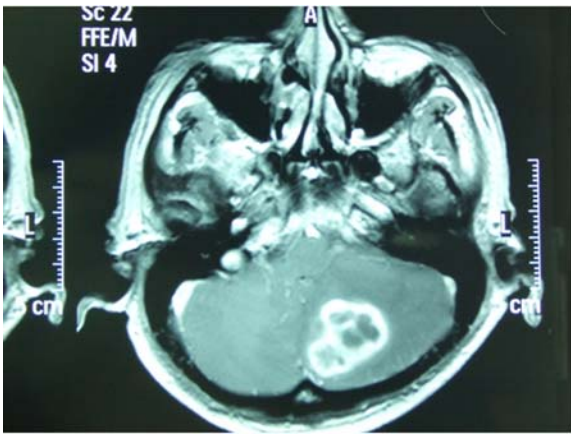

Fig. 1 MRI brain showed heterogenous signal enhancing mass with surrounging edema and compresses of the fourth ventricular outlet

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and cerebellar ataxia from brain tumor.

Operative technique

The patient was put on the prone position, the head was fixed with Sugita's head frame. Suboccitpital craniectomy was performed with a midline incision above external occipital 2 cm to just above the second cervical spinous process. The surgical microscope and controllable pressure suction (desired by the author) was utilized to minimal injury to normal brain and remove the mass totally. Operative finding was a intraparenchymal well circumscribed yellowish firm consistency mass about 3 cm in left cerebellum and moderate surrounding edema. The mass nearly obstructed the fourth ventrical outlet. After removal of the mass, the outlet of fourth ventricle was opened and cerebrospinal fluid flowed through the Foramen Magendie. The dura was closed and sealed with artificial dura to make water tight. Muscle, subcutaneous tissue and skin were closed without drain to prevent infection and cerebrospinal fluid leakage. The patient recovered well. The symptoms of headache and ataxia disappeared. MRI brain was done to confirm that the mass was removed totally and no contusion to the normal brain after operation (Fig. 2). The histopathological report is caseating granulomatous inflammation involving cerebellar parenchyma suggestive of tuberculoma but no AFB was found (Fig. 3). PCR for M.Tuberculosis complex, using brain tissue from formalin-fixed paraffin-embeded block, yields positive result for M. Tuberculosis complex. He received INH 300 mg Ethambuthol 1,200 mg and ofloxacin 600 mg per day. The patient was discharged and follows-up with Infectious Medicine.

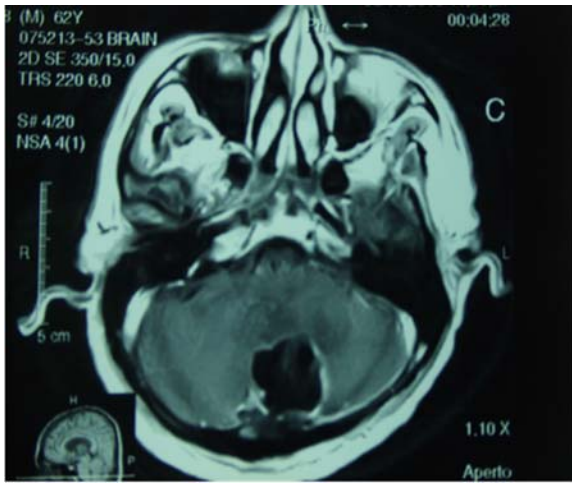

Fig. 2 MRI brain showed total removal of mass with mark decreased surrounding edema

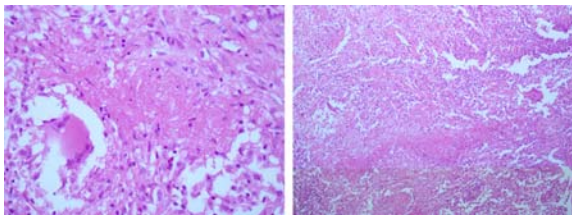

Fig. 3 Caseating granulomatous inflammation involving cerebellar parenchyma

Discussion

CNSTs are rare and severe complication of tuberculosis. CNSTs are commonly seen in the cerebrum, cerebellum, and pons in that order frequency. It is always secondary to an extra neural and in many cases may be from the primary lesion in the lung. The clinical symptom of CNSTs are not specific. It can present as intracranial infection such as meningeal irritation, headache, fever or increased lethargy. Their location cause different clinical manifestations such as confusion, cranial nerve palsy, hemiparesis or seizure.

However, CNSTs results from hematogenous spread of a distant focus Mycobacterium tuberculous infection. Tuberculomas are usually a solitary lesion, although 15.0%-34.0% are multiple. Possibly the expansion of the CNSTs has an immunological basis. Infected hosts develop hypersentivity to an array of mycobacterium protein, these provoke a delayed hypersentivity reaction. The intracranial microtuberculous grow slowly and become encapsulated after a latent period.

The radiological features of tuberculomas on MRI scan vary according to its stage. They can mimic bacterial abscess, meningioma, cystic astrocytoma or cysticercus granuloma[7].

The stereotactic biopsy although, they are slightly invasion and associated with insignificant risk are often not resulting in a final conclusion. It could dependably diagnose tuberculous in only 28% of cases[8]. However, many studies found that paraffin sectioning and histopathological examination had an overall diagnostic efficacy of 85%[9].

The treatment of CNSTs consisted of four antituberculous drugs:-

- Rifampicin 10-20 mg/kg 12 months
- Isoniazid 10-15 mg/kg 12 months
- Ethambutol 15-20 mg/kg 2 months

-Pyrazinamide 15-20 mg/kg 2 months

The addition of fluoroquinolones may be of interest, the efficacy of steroid in reducing the sounding lesion edema and threatening intracranial hypertension was observed.

Surgical treatment should be considered for patients life- threatening neurological involvement and for patients with lesion that fail medical treatment.

Conclusion

CNSTs is uncommon, therefore diagnosis should be kept in mind when confronted with intracranial masses. Prompt diagnosis of CNSTs result in early treatment and better outcome.

Potential conflicts of interest

None.

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รายงานผู้ป่วย Cerebral Tuberculoma โดยมีอาการคล้าย Primary Malignant Brain Tumor

ประวิทย์ ประชาศิลป์ชัย

รายงานนี้นำเสนอผู้ป่วยชาย อายุ 62 ปี มาด้วยอาการแสดงของความดันในสมองสูง เดินเซไปทางด้านซ้าย จากการตรวจคลื่นแม่เหล็กไฟฟ้าของสมอง พบเป็น enhancing heterogeous signal mass บริเวณสมองน้อย การวินิจฉัยเบื้องต้น คิดว่าเป็น primary malignant tumor ผู้ป่วยได้รับการผ่าตัด total removal of mass ด้วยกล้องจุลทรรศน์ผลการตรวจทางพยาธิวิทยาพบเป็น caseating granulomatous inflammation involving cerebellar parenchyma และ PCR สำหรับ M.Tuberculosis complex, using brain tissue from formalin-fixed paraffin-embedded block, yields positive result for M. Tuberculosis complex หลังผ่าตัดอาการปวดหัวและเดินเซหายไปและผู้ป่วยได้รับยาฆ่าเชื้อวัณโรค
