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Case Report

Unusual Presentation of Cerebral Tuberculoma Mimicking Brain Lesion. Case Report

Alaa Eldin Ali Salih Ahmed*, Hayel Amin Ali Salih, Ghaya Ibrahim k AL Rumaihi, Ghanem Salman Al Sulaiti

Senior Consultant Neurosurgery, Hamad Medical Corporation, Doha, Qatar

***Corresponding author**: Alaa Eldin Ali Salih Ahmed, Senior Consultant Neurosurgery, Hamad Medical Corporation, Doha, Qatar

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Abstract

Background: Central nervous system tuberculosis (CTB) is a serious form of tuberculosis (TB), due to haematogenous spread of Mycobacterium tuberculosis (MT). Manifesting as meningitis, cerebritis and tuberculous abscesses or tuberculoma and different presenting forms [1]. In Qatar, the incidence of TB has been increasing in last 10 years.

Case Presentation: 41 years old male with no significant past medical history presented with 7-month history of intermittent episodes of left arm and leg weakness and numbness which last for 10 minutes and subside, episodes are associated with headache and nausea, initially was diagnosed as case of Seizure with secondary paralysis, started on anti-seizure medication physical examination showed weakness mainly in left lower limb, CT head showed ill-defined hyper-dense lesion along the right high parafalcine region , in MRI appeared as Lobulated extra axial Dural based with differential diagnosis includes pachymeningeal/leptomeningeal carcinomatosis, lymphoproliferative disorders (CNS histiocytosis, neurosarcoidosis, Rosai Dorfman disease) and atypical meningiomatosis, patient subsequently underwent open biopsy to reach the final diagnosis.

Conclusion: This is an unusual presentation suggesting that cerebral TB can be misdiagnosed with other conditions as it has different presenting pictures. This necessitates keeping TB in the differential diagnose of the relevant cases, because early recognition and intervention is required to avoid neurological deterioration.

Introduction

According to the World Health Organization statistics A total of 1.4 million people died from TB in 2019 (including 208 000 people with HIV). Worldwide, TB is one of the top 10 causes of death and the leading cause from a single infectious agent (above HIV/AIDS). In 2019, the incidence of tuberculosis in Qatar was 35 cases per 100,000 people, Most of the TB patients are among male laborers from Asian, which is a high TB endemic area. In general, the size of labour force in Qatar has increased by fourfold during the last decade [2]. The most common anatomic sites affected by extra pulmonary TB are lymph nodes, pleura, bone and joints, urogenital tract, and meninges, TBM is a major cause of morbidity and mortality in adults and children's mainly due to late and unusual presentation of most cases and the absence of standardized diagnostic criteria which greatly impact the prognosis of the disease.

Case Presentation

41 years old Indian male, smoker with no significant past medical history presented with complain of intermittent episodes of spasm of left arm and leg followed by weakness and numbness which last for 10 minutes and subside but according to him never returned to normal status for 7 month duration ,the episodes are associated with headache and nausea but he denied any visual disturbances, dysarthria, alteration or loss of consciousness, ear pain, hearing difficulty, tinnitus, tongue biting or fecal/urinary incontinence, initially was diagnosed as case of Seizure with secondary paralysis, started on anti-seizure medication. On admission patient was afebrile (36.9 C). Clinical examination showed no palpable lymph nodes, no neck stiffness, signs of

meningeal irritation were not present, and the patient had positive pronator drift in left upper limb along with weakness mainly in left lower limb with power of 3/5 and hypertonia. Reflexes were brisk with equivocal Babinski reflex, no sensory deficit, laboratory results revealed normal inflammatory parameters. Chest X-ray showed only prominent broncho-vascular markings (Figure 1), CT head showed Ill-defined hyper-density lesion along the right high parafalcine region (Figure 2), in MRI appeared as Lobulated extra axial dural based differential diagnosis includes pachymeningeal/ leptomeningeal carcinomatosis, lymphoproliferative disorders (CNS histiocytosis, neurosarcoidosis, Rosai Dorfman disease) and atypical meningiomatosis (Figure 3). Subsequently the patient underwent open biopsy to reach the final diagnosis; to reach the final diagnosis a biopsy from the lesion was needed. Intraoperatively there were a finding of firm greyish pinkish mass lesion extra-axial clear margin from brain (Figure 4) frozen sample result came as (necrotizing granulomatous inflammation), following the operation TB QuantiFERON came positive along with TB culture (Mycobacterium tuberculosis complex). Immuno-profile was unremarkable. For which the patient was empirically started on anti-TB (Rifafour 4 tablet /pyrazinamide 500mg daily+B6+dexamethasone), the final Histopathology examination reported as (Necrotizing granulomatous inflammation with positive Ziehl-Neelsen stain compatible with Tuberculosis)

Discussion

Cerebral parenchymal involvement along with meningitis are either due to direct involvement or secondary to vascular changes, is often seen [3]. Usually, cerebral TB manifests as meningitis, it is rare to infect the brain parenchyma in immunocompetent individuals. Typically brain tuberculoma present with signs and symptoms of meningitis; however, it can be clinically silent when they do not cause any irritation to the meninges [4]. In such cases patient can present with, headache, newly onset seizure or signs of raised ICP which can be misdiagnosed with other space occupying lesion. CSF studies are helpful in diagnosing cerebral TB in which analysis appear as lymphocytic-predominant pleocytosis, elevated protein levels, and low amounts of glucose [5]. however, CSF was not tested in this patient because his presentation was not suggesting of TBM as there was no signs or meningeal irritation. Imaging is cornerstone in reaching the diagnosis of cerebral tuberculoma, in CT usually appear as round or lobulated nodule with moderate to marked edema, and ring enhancement in post contrast studies [6]. In MRI Tuberculomas, typically isointense to brain on T1WI, usually they have central hyperactive intensity and a hypo intense rim On T2WI that is associated with increased fibrosis, gliosis and macrophage infiltration [3]. On administration of contrast, based on the pattern of enhancement, tuberculomas fall into 3 distinct categories: (I) solid enhancing lesions, (II) ring enhancing lesions, and (III) mixed or combined forms of lesions [7]. Typically, cerebral tuberculoma treated pharmacologically, with the standard 4-drug anti-TB drug regimen therapy, which should be initiated immediately for strong clinical suspicion, surgical intervention usually not indicated as it may result in seeding of the infection; however, it could be considered if the lesions are at risk of causing obstructive hydrocephalus [8]. In our case the presentation and radiological appearance was unusual, however diagnosis was mainly by taking a biopsy from brain lesion and the final pathology report, which confirmed the diagnosis.

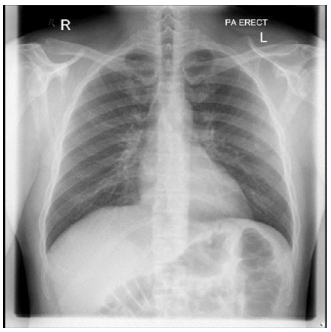

Figure 1: Chest XR showed prominent Broncho vascular markings.

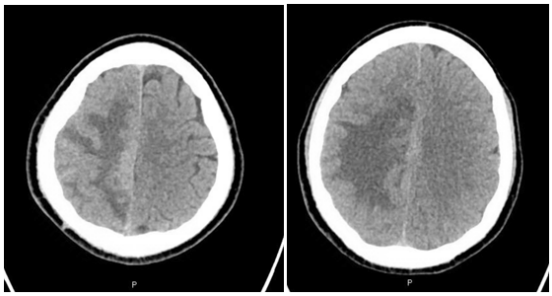

Figure 2: CT head showed Ill-defined hyper-density lesion along the right high parafalcine region.

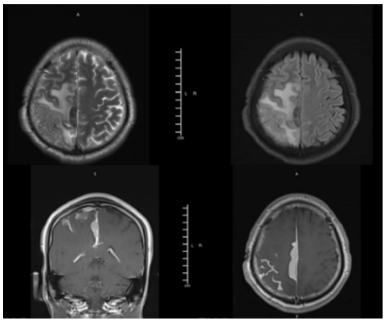

Figure 3: MRI head: Lobulated extra axial Dural based intensely enhancing lesion seen in the interhemispheric flax extending to the right parietal region.

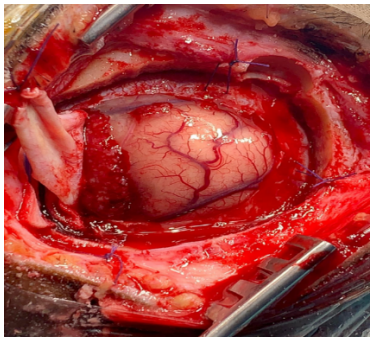

Figure 4: Intraoperative image of firm pinkish grey mass lesion extra-axial with clear margin from brain (black arrow).

Conclusion

This unusual presentation suggesting that cerebral TB can be misdiagnosed with other conditions as it has different presenting pictures, early recognition and managing is required to avoid neurological deterioration

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