CASE REPORT

An intracerebral mass: tuberculosis or sarcoidosis?

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ozkayasevket@yahoo.com**SUMMARY**

Sarcoidosis is an idiopathic, chronic granulomatous disease and it can affect almost any organ. In autopsy series, it has been reported that the central nervous system involvement has occurred in 5–16% of the patients with sarcoidosis, while the neurological symptoms have occurred only in 3–9% of them. A 40-year-old female patient was admitted to the hospital with complaints of aphasia, balance disorder and drowsiness. An intracerebral mass was detected on cranial CT scans and neurosarcoidosis was diagnosed with clinical, radiological and histopathological findings.

BACKGROUND

Sarcoidosis is a multisystem granulomatous disease, the aetiology of which has not been fully understood. Central nervous system involvement in patients with sarcoidosis has been reported to be 5–16% in autopsy series, although the neurological symptoms occur only in 3–9% of the patients.^{1–3} We aimed to present a case with neurosarcoidosis.

CASE PRESENTATION

A 40-year-old female patient was admitted to the hospital with aphasia, balance disorder and drowsiness. The cranial CT revealed a hyperdense mass lesion greater than 2 cm diameter in the posterior of the dorsum sellae (figure 1). A craniotomy and biopsy of the mass were performed by a neurosurgeon and ‘tuberculous granuloma’ had been reported with histopathological examination (figure 2). The medical history of the patient was very interesting; in 2001, she was admitted to the hospital with a swelling in her neck, and a cervical lymphadenopathy was defined. The lymph node biopsy was performed and histopathological examination revealed ‘tuberculous lymphadenitis’. Antituberculous treatment was administered along with HRZE (isoniazid + rifampicin + pyrazinamide + ethambutol) treatment for 8 months, but no change was observed in the lymph nodes. Seven months after the treatment, an inguinal lymphadenopathy grew and the antituberculosis treatment was re-started with the same medication. No change in the lymph nodes was observed over the 9-month treatment period. Owing to the lack of change in the lymph nodes, cervical lymph node biopsy was re-performed in 2004 and ‘granulomatous lymphadenitis’ was confirmed. The third antituberculous treatment was re-started, and in the second month of the treatment the patient had complaints of aphasia, drowsiness, dizziness, blackouts and imbalance. A CT scan of the head revealed a 2 cm diameter hyperdense mass in the posterior to the dorsum sella (figure 1). We evaluated all the findings and

Figure 1 The cranial CT showed a hyperdense mass lesion greater than 2 cm diameter in the posterior of the dorsum sellae.

features of the patient. The physical examination revealed multiple lymphadenopathy with a diameter of 15–20 mm in bilateral cervical regions and inguinal region. Three years before, the thorax CT scans showed the multiple mediastinal lymphadenopathy. The current thorax CT scans revealed the mediastinal and hilar lymphadenopathy with cavitary lesions in the right lung upper lobe and millimetric nodular opacities in both lungs (figure 3).

Also, splenomegaly with millimetric hypodense areas in spleen and intra-abdominal multiple lymphadenopathy were observed in the abdominal CT scans. The laboratory values were as follows: erythrocyte sedimentation rate was 58 mm/h PPD (purified protein derivative) test was negative and p-ANCA (perinuclear anti-neutrophil cytoplasmic

Figure 2 Histopathological images of biopsy from intracerebral mass reported as ‘tuberculous granuloma’.

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Figure 3 The current thorax CT scans showed the mediastinal and hilar lymphadenopathy with cavitary lesions in the right lung upper lobe and millimetric nodular opacities in both lungs.

antibodies) and c-ANCA (Cytoplasmic Anti-Neutrophil Cytoplasmic Antibodies) were negative..

OUTCOME AND FOLLOW-UP

We considered the diagnosis of tuberculosis doubtful and decided to perform bronchoscopy which had not been done before. In fiberoptic bronchoscopy (FB), no tuberculosis bacilli was found through the bronchial lavage of the segment where the cavitary lesion was, and no bacteria reproduced in the mycobacterium culture. The transbronchial lung biopsy was performed with FB, and 'granulomatous inflammation' was reported with histopathological examination. We thought that this clinical and radiologic course was supported the multisystemic involvement of sarcoidosis with neurosarcoidosis and oral 1 mg/kg daily methylprednisolone treatment was initiated. After 3 months of methylprednisolone treatment, there was an improvement in the pulmonary lesions and lymphadenopathies. Also, the intracerebral mass completely disappeared (figure 4).

DISCUSSION

Sarcoidosis is a multisystem, granulomatous disease, the aetiology of which has not been fully understood. We know that the granulomas in the sarcoidosis are not including the caseification necrosis in the involved tissues, in contrast to the tuberculosis. However, we should remember that small ischaemic necrosis can be found in granulomatous inflammation due to vascular response to perivascular inflammation in patients with sarcoidosis.² This ischaemic necrosis may be confused with the caseification necrosis, as seen in our patient. Primary and metastatic malignancies are the most common causes of intracerebral mass. Intracranial mass due to sarcoidosis may easily be mistaken for a primary intracranial tumour, particularly if no evidence of systemic sarcoidosis is present.⁴ Aggressive diagnostic testing and biopsy are necessary to exclude other aetiology and when the diagnosis is in doubt. Although central nervous system

involvement in patients with sarcoidosis has been reported to be 5–16% in autopsy series, neurological symptoms are seen in only 3–9% of the patients.⁴ The most common clinical symptoms in these patients are cranial neuropathies (50–75%), specifically the involvement of the seventh cranial nerve. The other symptoms can be listed as facial paralysis, aseptic meningitis, hydrocephaly, endocrinopathy, encephalopathy, intracranial mass effect and myopathy. Several cases with intracranial mass lesion due to sarcoidosis have been reported in the literature. Ortega *et al* reported four cases as the initial manifestation of intracranial involvement in neurosarcoidosis. MRI findings of these patients, hypothalamic infiltrating lesion, brain parenchyma enhanced masses, leptomeningeal enhancement and focal white-matter lesions were noted.⁵ Liliana *et al* identified five patients with intracranial tumours related to sarcoidosis after reviewing 2894 patients with a diagnosis of sarcoidosis and MRI or CT scan examination of the head just like our case did.⁵ One of them, a 45-year-old patient with paranoid symptoms and disorientation complaint, had revealed a 2 cm diameter intracerebral mass detected from the CT of head. Veres *et al* identified five patients with intracranial tumours related to sarcoidosis after reviewing 2894 patients with a diagnosis of sarcoidosis and MRI or CT scan examination of the head, as seen in our case. That patient also had mediastinal LAP (Lymphadenopathy), and granulomatous lesion had been detected with mediastinoscopy. He had undergone methylprednisolone therapy and his cranial CT in the sixth month had revealed a regression in the lesion. Other cases of them were response to corticosteroid treatment. In our case, the intracranial mass disappeared in the third month. In these series, the incidence of intracranial mass in patients with neurosarcoidosis has been reported as 5%.⁵ According to reported cases, the intracranial sarcoid mass lesions tend to be corticosteroid-responsive.^{4 6 7}

In our case, the histopathological examinations of cervical lymph node biopsies and intracranial mass biopsies revealed

Figure 4 After 3 months of the methylprednisolone treatment, there was an improvement in the pulmonary lesions and lymphadenopathies. Also, the intracerebral mass had completely disappeared.

necrosis in the granulomatous inflammation, and this led to the diagnosis of tuberculosis over the 5-year period. Despite antituberculosis treatment administered 3 times over the 5-year period, no recovery was observed and the multisystemic course of the disease indicated the natural course of sarcoidosis. Furthermore, a complete recovery in the third month of the methylprednisolone treatment supported the diagnosis.

Learning points

- ▶ This is the first case report of systemic sarcoidosis having both necrosis and intracranial mass.
- ▶ The small ischaemic necrosis can be found in granulomatous inflammation due to vascular response to perivascular inflammation in patients with sarcoidosis.
- ▶ Sarcoidosis may present with neurosarcoidosis including intracerebral mass.
- ▶ The clinical suspicion and good anamnesis are very important for diagnosis in such patients.

Contributors All the authors contributed to the diagnosis and presentation of the case.

Competing interests None.

Patient consent Obtained.

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