Case Report

Journal Homepage: http://crcp.tums.ac.ir

Sarcoidosis in Close Family Members and Susceptibility to High Grade B-Cell Lymphoma: A Case Report Study

Hana Magrooni[1], Nina Javadian[1], Ghasem Farahmand[1], Sakineh Ranji-Burachaloo[2*]

1. Department of Neurology, Iranian Center of Neurological Research, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.

2. Department of Neurology, Iranian Center of Neurological Research, Neuroscience Institute, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.

Use your device to scan and read the article online

Citation Magrooni H, Javadian N, Farahmand Gh, Ranji-Burachaloo S. Sarcoidosis in Close Family Members and Susceptibility to High Grade B-Cell Lymphoma: A Case Report Study. Case Reports in Clinical Practice. 2022; 7(3): 117-119.

Running Title Case Report of Sarcoidosis and Lymphoma

Article info:
Received: 27 March 2022
Revised: 17 April 2022
Accepted: 10 May 2022

Keywords:
Sarcoidosis; Primary CNS lymphoma (Pcnsl); Lymphoma

ABSTRACT

The presented case is an 81- year-old woman who had experienced episodes of facial twitching without loss of consciousness and flu like symptoms for a few weeks prior to her admission. examinations were unremarkable except for left 3rd nerve and right 6th nerve palsy, right peripheral facial palsy and right -side hemiparesis. FH was positive for sarcoidosis. neuroimaging were in favor of PCNSL.

Sarcoidosis and malignancy maybe etiologically related in at least 25% of cases. Coexistence of sarcoidosis and lymphoma have been reported previously. Our patient had two daughters with sarcoidosis and her chest CT scan showed multiple lymph nodes in mediastinum. Unfortunately, due to the location and the technical restriction, biopsy of mediastinal lymph nodes was not performed for our patient and we could not differentiate whether it was reactive, paraneoplastic or granulomatous. We present this case as concurrence of lymphoma and sarcoidosis in a family, which could guide a new concern for the patient with granulomatous infiltrative disease for early diagnosis and familial screening.

Case Presentation

The presented case is an 81- year-old woman who had experienced episodes of facial twitching without loss of consciousness and flu like symptoms for a few weeks prior to her admission. Her symptoms deteriorated and progressed to generalized weakness, diplopia and confusion which lead to her admission. Neurological examinations were unremarkable except for left 3rd nerve and right 6th nerve palsy, right peripheral facial palsy and right-side hemiparesis. Family history of the patient is remarkable for sarcoidosis in her two daughters. Initial brain CT scan showed diffuse hyperdense lesions around lateral ventricles, 4th ventricle and brain stem with diffuse perivenrticular edema. MR imaging revealed subependymal

*** Corresponding Author:**
Sakineh Ranji-Burachaloo
Address: *Department of Neurology, Iranian Center of Neurological Research, Neuroscience Institute, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.*
E-mail: sranji@sina.tums.ac.ir

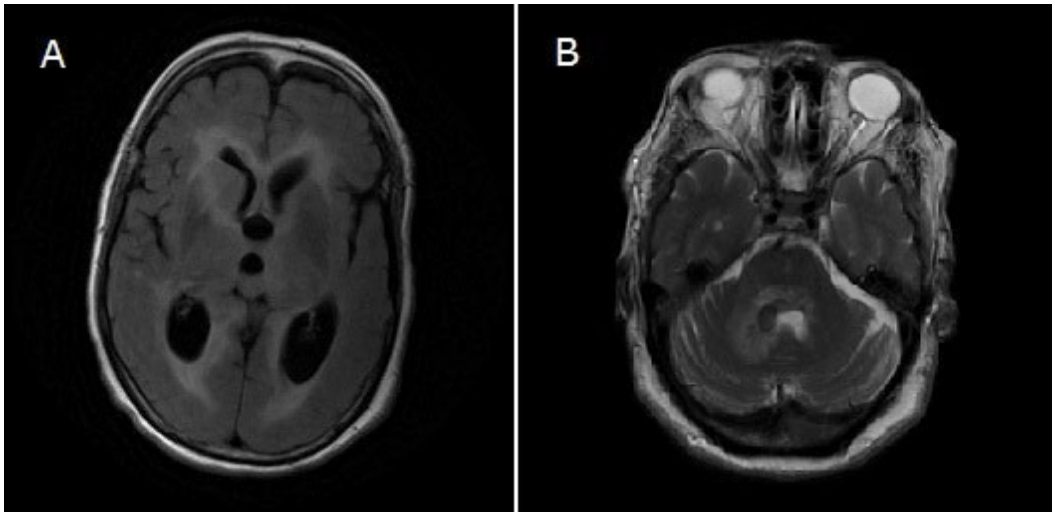

Fig. 1. MRI shows subependymal infiltrative mass around the both lateral ventricles extending to pineal gland, pons and midbrain with enhancement and restriction in favor of PCNSL

infiltrative mass around the both lateral ventricles extending to pineal gland, pons and midbrain with both enhancement and restriction which were in favor of primary CNS lymphoma (Fig. 1).

Major lab findings include normal ESR and CRP, and serum and CSF ACE. CSF analysis showed high protein and LDH with normal glucose and pleocytosis. CSF culture and PCR was only positive for EBV. Moreover, flow cytometery of CSF was non-diagnostic. Chest CT scan showed multiple lymph-nodes in mediastinal region. Patient underwent stereotactic brain biopsy and the findings were compatible with high grade B-cell lymphoma.

Discussion

Sarcoidosis is reported to be associated with a higher incidence of skin cancer, renal and non-thyroid endocrine tumors, and lymphoproliferative malignancies [1]. Sarcoidosis and malignancy may be etiologically related in at least 25% of cases [2]. Coexistence of sarcoidosis and lymphoma have been reported previously. Patients with sarcoidosis are up to 5.5-11 times more likely to develop lymphoma [3]. The different types of lymphoma reported to be associated with sarcoidosis include Hodgkin's disease, B cell lymphoma and large granular lymphocyte T-cell leukaemia [4].

Our patient had two daughters with sarcoidosis and her chest CT scan showed multiple lymph nodes in mediastinum. The aggregation of sarcoidosis in families has been described since the early 20th century. Reported prevalence of familial co-occurrence is 4.6 -16.1 % [5]. Some epidemiological studies support the idea that positive family history for immune disorders may be a genetically predisposing factor for non-Hodgkin lymphoma, although controversy exists [6].Besides, there is no report of family history of sarcoidosis predisposing a person to lymphoma [7].

One of the main proposed pathophysiological mechanisms describing the relation of the two diseases is the augmented immune inflammatory response in tissues. Sarcoidosis results in increased mitotic activity in lymphocytes, which in turn increases the likelihood of mutations leading to malignant transformation [8]. NOD2 is one of the candidate genes, which modulates inflammatory cytokines productions like interleukin-6 (IL-6) and nuclear factor-κB (NF-κB). NOD 2 is found to be connected to Balu-syndrome , a familial early-onset form of sarcoidosis with high susceptibility to neoplastic tumors in affected individuals [9].

There are several case reports about occurrence of lymphoma in patients with sarcoidosis. Casares et al. described a woman who developed diplopia 5 years after initial diagnosis of sarcoidosis. MR imaging depicted a mass in the right intraconal space and biopsy confirmed a large B-cell lymphoma [10]. Pandey et al. presented a known case of sarcoidosis with newly developed brain lesion and biopsy confirmed the diagnosed of a large B-cell lymphoma and Epstein Barr Virus (EBV) was positive in the brain tissue [11]. Whooley et al. presented a 70-year-old male with an advanced-stage large B-cell lymphoma. Follow up CT-PET showed diffuse hypermetabolic adenopathy. The patient underwent a trans-bronchial biopsy which revealed multiple non-necrotizing granulomas, favoring sarcoidosis [12]. Unfortunately, due to the location and the technical restriction, biopsy of

mediastinal lymph nodes was not performed for our patient and we could not differentiate whether it was reactive, paraneoplastic or granulomatous.

We present this case as concurrence of lymphoma and sarcoidosis in a family, which could guide a new concern for the patient with granulomatous infiltrative disease for early diagnosis and familial screening.

Competing interests: All authors declare no conflict of interest. This research did not receive any specific grant from any funding agencies in the public, commercial or not-for-profit sectors.

References

[1] Ji J, Shu X, Li X, Sundquist K, Sundquist J, Hemminki K. Cancer risk in hospitalized sarcoidosis patients: a follow-up study in Sweden. Annals of oncology. 2009;20(6):1121-6. https://doi.org/10.1093/annonc/mdn767

[2] Askling J, Grunewald J, Eklund A, Hillerdal G, Ekbom A. Increased risk for cancer following sarcoidosis. American Journal of Respiratory and Critical Care Medicine. 1999;160(5):1668-72. https://doi.org/10.1164/ajrccm.160.5.9904045

[3] Oskuei A, Hicks L, Ghaffar H, Hoffstein V. Sarcoidosis–lymphoma syndrome: a diagnostic dilemma. BMJ case reports. 2017;2017:bcr-2017-220065. https://doi.org/10.1136/bcr-2017-220065

[4] Karakantza M, Matutes E, MacLennan K, O'Connor N, Srivastava P, Catovsky D. Association between sarcoidosis and lymphoma revisited. Journal of clinical pathology. 1996;49(3):208-12. https://doi.org/10.1136/jcp.49.3.208

[5] Long R, Zhu Y, Zhou S. Therapeutic role of melatonin in migraine prophylaxis: A systematic review. Medicine. 2019;98(3):e14099. https://doi.org/10.1097/MD.0000000000014099

[6] Engels EA, Cerhan JR, Linet MS, Cozen W, Colt JS, Davis S, et al. Immune-related conditions and immune-modulating medications as risk factors for non-Hodgkin's lymphoma: a case-control study. American journal of epidemiology. 2005;162(12):1153-61. https://doi.org/10.1093/aje/kwi341

[7] Mellemkjaer L, Pfeiffer RM, Engels EA, Gridley G, Wheeler W, Hemminki K, et al. Autoimmune disease in individuals and close family members and susceptibility to non-Hodgkin's lymphoma. Arthritis & Rheumatism: Official Journal of the American College of Rheumatology. 2008;58(3):657-66. https://doi.org/10.1002/art.23267

[8] Afacan Öztürk HB, Albayrak M, Pala Öztürk Ç, Yıldız A, Maral S, Önder E. A first time report on the coocurrence of sarcoidosis and ALK (−) CD30 (+) anaplastic large cell lymphoma that is highly responsive to brentuximab vedotin treatment. Journal of Oncology Pharmacy Practice. 2019:1078155219837331. https://doi.org/10.1177/1078155219837331

[9] Yamaguchi N, Suzuki Y, Mahbub M, Takahashi H, Hase R, Ishimaru Y, et al. The different roles of innate immune receptors in inflammation and carcinogenesis between races. Environmental health and preventive medicine. 2017;22(1):70. https://doi.org/10.1186/s12199-017-0678-8

[10] Casares EG, Soria LM, Melchor EG, Blasco SM, Calmet FV-L, Oliver GC, et al. Síndrome sarcoidosis-linfoma. Reumatología clínica. 2009;5(1):31-3. https://doi.org/10.1016/S1699-258X(09)70202-5

[11] Pandey S, Mukhopadhyay S, IannuzziMC, Sah B. New brain lesions in a patient with sarcoidosis: is it neurosarcoidosis? Sarcoidosis Vasc DiffuseLung Dis. 2014;31(1):62-6. PMID:24751455

[12] Whooley PD, Dorer RK, Aboulafia DM. The fear of lymphadenopathy: A cautionary case of sarcoidosis masquerading as recurrent diffuse large b-cell lymphoma (DLBCL). Leukemia research reports. 2018;9:48-53. https://doi.org/10.1016/j.lrr.2018.04.003