



Extensive necrotizing lymphadenitis complicated by an aseptic meningeal reaction



Keywords:

Aseptic meningitis
Subacute necrotizing lymphadenitis (SNL)
Cerebrospinal fluid (CSF)
Meningeal reaction
Inflammation

Subacute necrotizing lymphadenitis (SNL), also known as Kikuchi disease (named after the finder of this syndrome [1]), is an inflammatory disease seen in adolescents and young adults. Masahiro Kikuchi established the clinical entity of SNL, which is pathologically characterized as histiocytic inflammatory lymphadenitis without the infiltration of neutrophils. A majority of the cases involve the cervical lymph nodes and occur in young female adults. SNL is well-known as a self-limiting pathogenesis which generally does not require any specific treatment. Although there is much speculation about the cause of SNL, a viral or autoimmune reaction has been proposed [2]. The disease etiology is thought to be associated with an HLA class II disparity (DPA1*01 and DPB1*0202), because the accumulation of this disease is apparent among Asian people including Japanese [3].

We encountered a 30-year-old male with left cervical lymphadenopathy and persisting (3 weeks) fever at 38 °C. We made the diagnosis of SNL by excision of a left cervical lymph node. His cerebrospinal fluid (CSF) contained 37/μL mononuclear cells (Fig. 1a), and other biochemical factors (Glu, Na, Cl, TP, LDH) were within normal range. The serological test for systemic lupus erythematosus (SLE) were negative (anti-nucleous antibody less than $\times 40$, anti-double strand DNA antibody negative, anti-Sm antibody negative) with normal complement level. He manifested headache a couple of days after the onset. His CSF was sterile and no other microorganisms (including acid-fast organisms, adenovirus and cytomegalovirus) were detected. The cytological diagnosis of the CSF was class II, manifesting lymphocytes with an inflammatory appearance.

Cranial MRI did not show any intracranial aberrant signal changes in his brain, excluding the possibility of encephalitis. His cervical CT demonstrated a deep cervical lymph node swelling and contiguous fluid signal intensity spread up to the anterior of the vertebrae (Fig. 1b). This imaging suggested that aseptic meningitis complicated with SNL had occurred as a result of the direct infiltration of inflammatory cells from lymphadenitis. This was supported by the evidence that the infiltrating cells to the patient's CSF were predominantly mononuclear cells, i.e., lymphocytes (Fig. 1a) [4]. In our patient, a repeated spinal tap detected only mononuclear cells in every examination of his clinical course.

Central nervous system (CNS) involvement occasionally manifests as aseptic meningitis in SNL. Although aseptic meningitis accompanying SNL has not been fully investigated, the frequency of concomitant

meningitis with SNL was reported as 9.8% in a small sequential cohort study [4]. The possibility of underdiagnoses would support the coexistence of meningitis or meningeal reaction with SNL is not uncommon. Differential diagnoses include SLE, disseminated tuberculosis, lymphoma, sarcoidosis, and viral lymphadenitis. Previous informative case report and literature review suggested the CSF infiltration comprise with a various type of cell involvement including mainly lymphocytes, granulocytes, and monocytes [4]. Those which are the same components infiltrating to lymph nodes in SNL patients. This is a one of the key points to distinguish whether the CNS involvement is due to SNL or SLE. SLE should be considerably distinguished, because aseptic meningitis is popular and characteristic complication with SLE [5–7]. The serological test for SLE were negative in our patient. The patient did not manifest any specific symptoms and signs characteristic to SLE. He received corticosteroid therapy and discontinued after 3 months of remission. If our hypothesis about the mechanism for the complication of meningitis/meningeal reaction with SNL is accurate, in such cases, CT scanning can demonstrate the direct infiltration of lymphadenitis in deep cervical lymph nodes. Therefore, CT would be helpful for a differential diagnosis with other types of illness that are likely to be comorbid with meningitis.

1. Ethics

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008.

2. Consent

Written informed consent was obtained from the patient for publication of this Case series and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

OI and MU managed the patient's case and wrote the manuscript. MO was involved in the drafting and supervision of the manuscript and took part in critical discussions; MU organized and managed this work. All authors read and approved the final version of the manuscript.

Conflict of interest

The authors have no conflicts of interest to disclose.

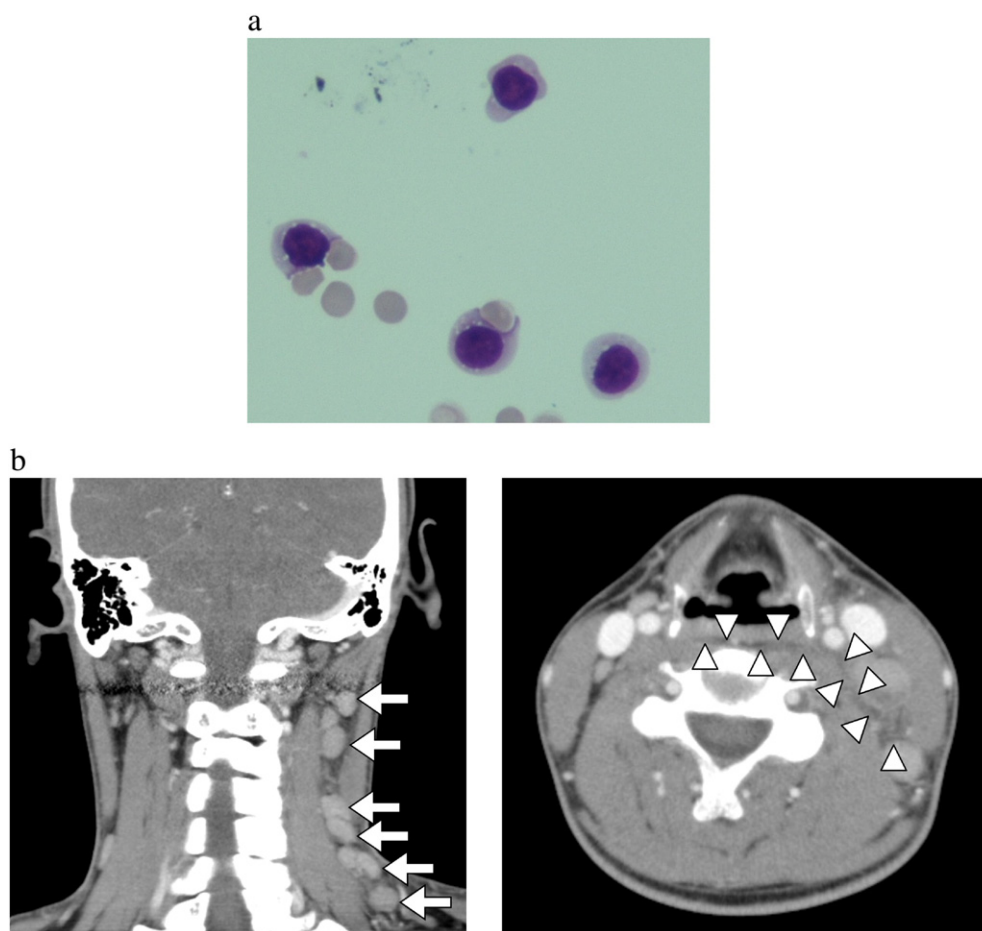


Fig. 1. (a) The patient's CSF tap showed a mononuclear cell infiltration which had no pathological atypical morphology. (b) CT scan depicting the swollen deep cervical lymph node (arrows) in the left image and the fluid signal intensity spread along the anterior side of the vertebrae (Δ) in the right image. The arrows indicate swollen lymph nodes, and the arrowheads indicate the spread involvement.

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