Original Research Article

Assessment of clinical and pathological spectrum of necrotizing lymphadenitis

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Abstract

Background: The present study was conducted to assess the clinical and pathological spectrum of necrotizing lymphadenitis. **Materials & Methods:**64 cases of necrotizing lymphadenitis were involved. The lymph node biopsy tissues were formalin-fixed, paraffin-embedded, cut into 4-µm thick sections and stained with haematoxylin and eosin. **Results:** Out of 64 cases, 34 were seen in males and 30 in females. Common etiological subtypes were Kikuchi lymphadenitis in 36, Lupus lymphadenitis in 12 and Epstein Barr viral lymphadenitis in 16 cases. The difference was significant (P< 0.05).**Conclusion:**The most common cause of necrotizing sialadenitis was Kikuchi lymphadenitis followed by Lupus lymphadenitis and Epstein Barr viral lymphadenitis.

Keywords: Epstein Barr viral lymphadenitis, Kikuchi lymphadenitis, Lupus lymphadenitis.

Introduction

Necrotizing lymphadenitis represents a group of diseases characterized by non-granulomatous inflammation and necrosis of the lymph node[1]. This is caused by a variety of infective and inflammatory diseases, most common being Kikuchi-Fujimoto disease, acute Epstein-Barr viral (EBV) infection, and systemic lupus erythematosis (SLE/lupus lymphadenitis), and excludes Mycobacterial infections such as tuberculosis (TB). Clinically, patients present with features like fever and painful lymphadenitis which make them mimic the more common TB and lymphomas[2].Necrotizing lymphadenitis, is prevalent in Asia, and is being increasingly recognized in other areas of the world. It usually occurs in young women and is self-limited[3].The involvement of cervical lymph nodes with or without systemic manifest-tations is the most common presentation of Kikuchi disease. The initial clinicopathological appearance mimics lymphoma. It resolves spontaneously, usually over a period of several weeks to 6 months. It usually runs a benign course and recurrence is rare[4]. Kikuchi-Fujimoto disease is a self-limiting condition of unknown etiology. Acute EBV lymphadenitis is seen in the acute phase of viral infection, whereas lupus lymphadenitis occurs in patients with SLE. The differentiation of these entities is crucial as the treatment and long-term prognosis differ among them. Also, the exclusion of TB and lymphoma is also of clinical relevance as they necessitate specific therapy[5].The present study was conducted to assess theclinical and pathological spectrum of necrotizing lymphadenitis.

Materials & Methods

The present study was conducted in the Department of Pathology.It comprised of 64 cases of necrotizing lympha-denitis of both genders. Ethical approval for the study was obtained before starting the study. The lymph node biopsy tissues were formalin-fixed, paraffin-embedded, cut into 4-µm thick sections and stained with haematoxylin and eosin. Representative sections were also stained with histo chemical stains like Periodic acid Schiff's and reticulin stain. Morphologic features like the presence of vascular proliferation, periadenitis, and infiltration with foamy macrophages, neutrophils, and plasma cells were recorded and the association of each of these variables with the specific subtypes was assessed. Results were assessed statistically. P value less than 0.05 was considered significant (P< 0.05).

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Results

Table 1:Distribution of Patients

Total- 64		
Gender	Males	Females
Number	34	30

Table 1 shows that out of 64 cases, 34 were seen in males and 30 in females.

Table 2:Different etiological subtypes

Subtypes	Number	P value
Kikuchi lymphadenitis	36	0.01
Lupus lymphadenitis	12	
Epstein-Barr viral lymphadenitis	16	

Table 2,Fig 1 shows that common etiological subtypes was Kikuchi lymphadenitis in 36, Lupus lymphadenitis in 12 and Epstein Barr viral lymphadenitis in 16 cases. The difference was significant (P< 0.05).

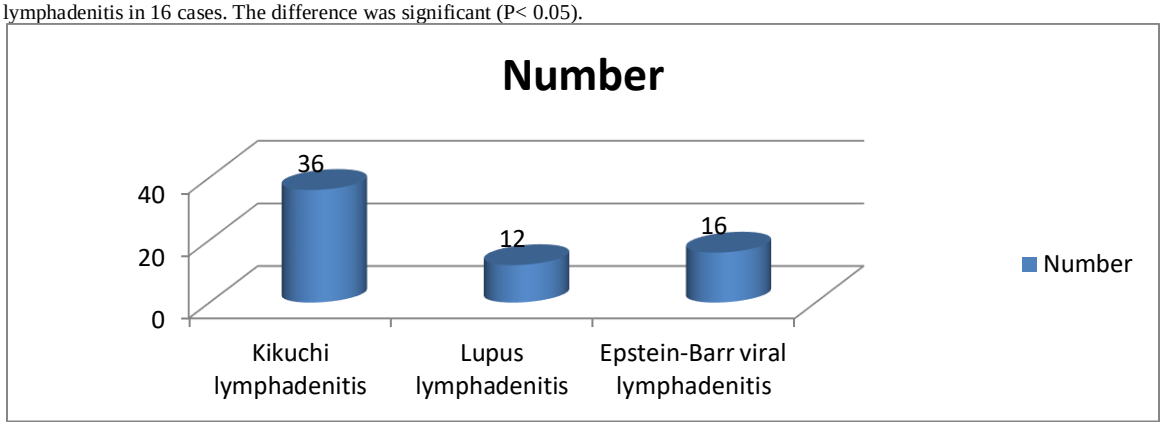

Fig 1: Different etiological subtypes

Table 3: Morphologic variables in different etiological subtypes

Subtypes	Plasma cell	Vascular proliferation	Foamy macrophages	Neutrophils	Periadenitis	Fibrinoid vascular necrosis
Kikuchi lymphadenitis	6	4	20	3	2	1
Lupus lymphadenitis	2	3	6	1	0	0
Epstein-Barr viral lymphadenitis	4	1	8	2	1	0

Table 3 shows that in Kikuchi lymphadenitis, foamy macrophages were involved in 20 and plasma cell in 6 cases. In Lupus lymphadenitis, foamy macrophages were involved in 6, vascular proliferation in 3 and plasma cells in 2. In epstein-barr viral lymphadenitis, foamy macrophages were involved in 8, plasma cells in 4 and neutrophils in 2.

Discussion

Necrosis in lymph nodes can be seen in a variety of neoplastic and non-neoplastic conditions. The most common non-neoplastic cause is TB, where granulomas with caseation type necrosis is seen[6]. Neoplastic nodes can also undergo necrosis, for example, Hodgkin's lymphoma, nodular sclerosis subtype. Necrotizing lymphadenitis is characterized by nongranulomatous, noncaseating necrosis along with mixed inflammatory infiltrate composed of variable number of plasma cells, histiocytes, and neutrophils[7].Histiocytic necrotizing lymphadenitis also known as Kikuchi disease was originally reported in young Japanese females in 1972 by Kikuchi and Fujimoto et al**.** The classic finding is cervical lymphadenopathy and fever. Very few cases have been reported in India, and the first case was reported in 1998 by Mathew et al**.**Most patients are young females below 40 years.The onset of disease is with fever and lympha-denopathy which is mostly cervical, in a previously healthy adult[8].The onset of disease could be acute or subacute, evolving over 2–3 weeks. The main clinical feature is unilateral lymphadenopathy, with cervical involvement in 70%–98% of cases. The jugular lymph nodes and posterior cervical chain are most commonly involved. Enlarged lymph nodes may vary in size and are tender. The involvement of mediastinal, peritoneal, and retroperitoneal regions are uncommon. Extranodal involvement of Kikuchi disease is rare and has been documented in the skin, bone marrow, myocardium, and central nervous system[9].The present study was conducted to assess theclinical and pathological spectrum of necrotizing lymphadenitis.In present study, out of 64 cases, 34 were seen in males and 30 in females. Nair et al[10] studied the morphological features in lymph nodes in cases of necrotizing lymphadenitis, to correlate them with specific etiological conditions. 58 cases of necrotizing lymphadenitis were reviewed and categorized into different etiological sub types, i.e. acute EBV lymphadenitis, lupus lymphadenitis and the rest as Kikuchis lymphadenitis. Morphological features studied were presence of vascular proliferation, periadenitis, foamy macrophage, neutrophil and plasma cell infiltrate. Clinical follow up was done. Results: 62.2% of cases were Kikuchis lymphadenitis. Both lupus and Kikuchis had a female preponderance (78% and 62% respectively). Among the morphological parameters, plasma cell infiltration and vascular proliferation showed significant association with lupus lymphadenitis. Kikuchis and EBV lymphadenitis showed self-limiting course, with only 2 cases of Kikuchis developing recurrence.4 cases developed complications. All cases of lupus lymphadenitis needed long term therapy.We found that common etiological subtypes was Kikuchi lymphadenitis in 36, Lupus lymphadenitis in 12 and Epstein Barr viral lymphadenitis in 16 cases.Necrosis in the lymph node is caused by different mechanisms in all these conditions. In Kikuchi lymphadenitis, plasmacytoid dendritic cells secrete interferon, which activates cytotoxic T cells and induces necrosis. In EBV lymphadenitis, rapid destruction of virus-infected cells by T cells is considered to be the causative factor[11]. Lupus lymphadenitis being an immune-mediated disease, necrotizing vasculitis, and autoantibodies induces the cell necrosis. Plasma cells are seen more in lupus cases, as it is an immune-mediated disorder. Whereas, another significant finding,

vascular proliferation is considered to be initiated by fibroblastic reticulum cells in the stroma which stimulate secretion of vascular endothelial growth factor (VEGF)[12]
The limitation of the study is small sample size.

Conclusion

Authors found that most common cause of necrotizing sialadenitis was Kikuchi lymphadenitis followed by Lupus lymphadenitis and Epstein Barr viral lymphadenitis.

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