

Hodgkin Lymphoma Misdiagnosed as a Reactive Lymphoid Hyperplasia

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Abstract

Background: Hodgkin lymphoma (HL) is a lymphoid malignancy that can be misdiagnosed as reactive lymphoid hyperplasia (RLH) due to overlapping histopathological features. Misdiagnosis may delay appropriate treatment and affect prognosis.**Objective:** To analyze clinical and pathological features in cases initially diagnosed as RLH but subsequently confirmed as HL, emphasizing diagnostic challenges.**Materials and Methods:** A retrospective study was conducted over a two-year period at Narayan Medical College and Hospital, Sasaram, involving three patients initially diagnosed with RLH. Clinical records, histopathology, and immunohistochemistry (IHC) findings were reviewed and re-evaluated.**Results:** All three patients presented with cervical lymphadenopathy; two had systemic symptoms. Initial biopsies showed reactive features, but re-examination revealed the presence of Reed-Sternberg cells. IHC confirmed HL by positivity for CD15 and CD30. Misdiagnosis was attributed to the masking effect of reactive lymphoid proliferation and insufficient initial immunophenotyping.**Conclusion:** HL can mimic RLH, making diagnosis challenging. Comprehensive histopathological assessment with IHC is critical to avoid misdiagnosis and ensure timely management. Further studies with larger cohorts are recommended.**Keywords:** Hodgkin Lymphoma, Reactive Lymphoid Hyperplasia, Misdiagnosis, Immunohistochemistry, Reed-Sternberg Cells.**DOI:** 10.25258/ijcpr.18.8.338

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Introduction

A unique kind of lymphoid cancer known as Hodgkin lymphoma (HL) is distinguished by the presence of Reed-Sternberg cells in the right cellular environment [1]. It often manifests with painless lymphadenopathy and systemic symptoms such as fever, nocturnal sweats, and weight loss [2]. Because of its histological overlap with benign reactive lymphoid hyperplasia (RLH), HL can occasionally be difficult to detect effectively, even with advancements in diagnostic tools [3].

A benign, non-neoplastic growth of lymphoid tissue brought on by infections, inflammation, or immunological stimulation is known as reactive lymphoid hyperplasia [4]. Due to the physical similarities between HL and RLH, misdiagnosis could result in delayed or ineffective treatment, especially in early or unusual instances. For the best possible patient care and prognosis, it is essential to distinguish between HL and RLH accurately [5,6].

The purpose of this study is to examine the prevalence, clinical features, and diagnostic difficulties of cases in which reactive lymphoid hyperplasia was originally mistaken for Hodgkin lymphoma. To examine the histopathological and clinical characteristics of cases that were first identified as reactive lymphoid hyperplasia but later found to be Hodgkin lymphoma, with a focus on enhancing early detection and identifying diagnostic obstacles.

Materials and Methods

Study Design and Duration: This retrospective study was conducted over two years.**Study Setting:** The study was carried out at Narayan Medical College and Hospital, Sasaram.**Sample Size:** Three patients initially diagnosed with reactive lymphoid hyperplasia but later confirmed as Hodgkin lymphoma were included.

Inclusion Criteria

- Patients of any age and sex initially diagnosed with reactive lymphoid hyperplasia on lymph node biopsy.
- Cases later reclassified as Hodgkin lymphoma based on histopathology and immunohistochemistry.
- Complete clinical and histopathological records available for review.

Exclusion Criteria

- Patients with initial diagnosis of lymphoma other than Hodgkin lymphoma.
- Cases with incomplete clinical or pathological data.
- Patients lost to follow-up before final diagnosis confirmation.

Data Collection and Diagnostic Evaluation:

Clinical details, histopathological slides, and immunohistochemistry reports were retrieved and

reviewed. Re-evaluation focused on identifying Reed-Sternberg cells and immunophenotypic markers CD15 and CD30 to confirm Hodgkin lymphoma diagnosis.

Results

A total of three patients were included in the study, all of whom were initially diagnosed with reactive lymphoid hyperplasia (RLH) but subsequently confirmed to have Hodgkin lymphoma (HL) after further evaluation.

Demographic and Clinical Features: The patients consisted of two males and one female, with ages ranging from 22 to 45 years (mean age 33.7 years). All patients presented with painless cervical lymphadenopathy. Systemic "B" symptoms such as intermittent fever and weight loss were reported in two cases (66.7%).

Table 1:

Patient No.	Age (years)	Sex	Presenting Symptoms	Initial Diagnosis	Final Diagnosis
1	22	M	Cervical lymphadenopathy, fever	Reactive lymphoid hyperplasia	Hodgkin lymphoma
2	45	F	Cervical lymphadenopathy, weight loss	Reactive lymphoid hyperplasia	Hodgkin lymphoma
3	34	M	Cervical lymphadenopathy	Reactive lymphoid hyperplasia	Hodgkin lymphoma

Histopathological Findings: Initial biopsies showed follicular hyperplasia with polymorphous lymphoid populations suggestive of reactive changes. However, on re-examination, scattered large atypical mononuclear and multinucleated Reed-Sternberg (RS) cells were identified in all three cases.

Immunohistochemistry (IHC) Results: IHC studies revealed that the large atypical cells were positive for CD15 and CD30, confirming the diagnosis of classical Hodgkin lymphoma. The reactive cells stained positively for CD20 and CD3, consistent with background lymphoid cells.

Diagnostic Pitfalls: The primary reason for initial misdiagnosis was the masking of RS cells by extensive reactive lymphoid proliferation and lack of adequate immunohistochemical evaluation during the first biopsy.

Discussion

Reed-Sternberg (RS) cells are histologically present in Hodgkin lymphoma (HL), a lymphoid cancer with a reactive inflammatory backdrop. It can be difficult to diagnose HL, particularly when reactive lymphoid hyperplasia (RLH) is widespread or RS cells are few. Given that the initial histological evaluation resulted in a misdiagnosis as RLH, our study emphasises the diagnostic

challenge presented by such instances. Our study's clinical presentations, which included painless lymphadenopathy and systemic "B" symptoms, align with traditional definitions of HL [7]. However, benign lymphadenopathies might be mistaken for early or restricted illness, which can cause difficulty in diagnosis. Similar findings were described by Alayed et al., who pointed out that the lack of neoplastic RS cells and overlapping morphological features could lead to HL being misdiagnosed as reactive hyperplasia [8].

Immunohistochemistry (IHC) and histopathological reevaluation were essential in determining the accurate diagnosis. The reactive nature of background lymphocytes and the positivity of RS cells for CD15 and CD30 validated traditional HL, which is consistent with findings from several studies that highlight the importance of IHC in differential diagnosis [9,10]. According to Roy et al., misdiagnosis rates in HL compared to RLH are considerably lower when morphology and immunophenotyping are combined [11].

Our results further highlight the frequent diagnostic hazard of missing RS cells as a result of substantial reactive background or sampling error. A study by Lee et al. supports this, emphasising the value of appropriate biopsy sampling and IHC use to prevent false-negative diagnoses in suspected HL

cases [12]. The small sample size of three patients in this study limits how broadly the results can be applied. Consistency may have been impacted by the retrospective review's incomplete clinical data and inconsistent initial diagnostic standards. Furthermore, molecular investigations that would have improved diagnostic precision were not carried out.

Larger prospective studies should be the main focus of future research in order to more thoroughly describe the pathological and clinical characteristics that lead to HL misdiagnosis [13]. Diagnostic accuracy may be increased by utilising molecular diagnostic methods such as gene rearrangement analysis and Epstein-Barr virus association. Programmes to educate pathologists and clinicians about the subtle signs of HL may also lower the rate of incorrect diagnoses, guaranteeing prompt and effective treatment [14,15].

Conclusion

Because of shared clinical and histological features, Hodgkin lymphoma can be mistaken for reactive lymphoid hyperplasia, especially when Reed-Sternberg cells are few or obscured by a reactive background. Accurate diagnosis requires careful histopathological evaluation supplemented by immunohistochemistry to identify characteristic markers such as CD15 and CD30. To prevent delays in receiving the right treatment, it is imperative to be aware of this diagnostic issue. This study emphasises the value of thorough diagnostic methods and the necessity of larger studies to enhance early detection and lower misdiagnosis rates in Hodgkin lymphoma, despite its small sample size limitations.

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