Original Article

Evaluation of Lymph Node Fine Needle Aspiration Cytology in Pediatric Age Group

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Abstract

Background: Lymphadenopathy is a common clinical presentation in paediatric practice and may result from diverse disease processes. Fine Needle Aspiration Cytology (FNAC) has proven to be a rapid, minimally invasive, and reliable diagnostic tool with low morbidity. The aim of this study is to determine the utility of FNAC in diagnosing the cause of lymphadenopathy, to identify the spectrum of cytological findings in paediatric lymph nodes, and to correlate cytological findings with clinical, histopathological, and Acid-Fast Bacilli (AFB) staining results.

Materials and Methods: This retrospective study was conducted from January 2011 to December 2013 and included 293 cases of paediatric lymph nodes in the age range of 0-12 years.

Results: A total of 293 lymph nodes were aspirated. The cases were classified as: Benign 277 (94.54%): Reactive 183 (62.46%) [Reactive 166 (56.66%), Florid reactive 17 (5.80%)], Tuberculous lymphadenitis 86 (29.36%), BCG lymphadenitis 3 (1.02%), Non-specific lymphadenitis 4 (1.36%) [Resolving inflammation 3 (1.02%), Suppurative 1 (0.34%)], Dermatopathic 1 (0.34%). Malignant 16 (5.46%): Hodgkin lymphoma (HL) 8 (2.73%), Non-Hodgkin lymphoma (NHL) 7 (2.39%), Metastasis 1 (0.34%), The distribution of cases according to gender, anatomic location of lymph nodes, associated organomegaly, and clinical presentation was also analyzed. Out of the 26 cases with histopathological follow-up, results were concordant in 12 benign and 11 malignant lesions, while discordant in two benign and one malignant lesion.

Conclusion: The calculated sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of FNAC were high for malignant lesions in paediatric lymphadenopathies.

Keywords:

Fine Needle Aspiration Cytology, Paediatric, Lymphadenopathy, Reactive

Introduction

Lymphadenopathy is a common clinical presentation in paediatric practice. Enlargement of a lymph node may result from diverse disease processes, generally classified as benign and malignant diseases.

Most patients can be diagnosed based on a careful history, epidemiologic clues, physical examination, laboratory tests, and imaging. However, some cases remain unexplained. The decision for excision can be challenging, particularly for children under 12 years of age, due to the risks of surgery and general anesthesia, cosmetic concerns, and hospital costs. Fine needle aspiration cytology (FNAC) should be part of the initial evaluation of paediatric patients with cervical lymphadenopathy before determining the treatment plan, such as excision biopsy or observation [1].

When there is suspicion of malignancy or a lack of response to an empirical trial of antibiotics, and lymphadenopathy persists, a morphologic analysis of the lymph node (LN) becomes essential. In cases of persistent or suspicious lymphadenopathy, there is a need for a rapid, simple, and accurate diagnostic tool. Given the high frequency of nonspecific benign self-limiting lymphadenopathy, the number of patients requiring diagnostic or therapeutic surgical biopsy is relatively low [2].

Indications for Fine Needle Aspiration of Lymph Nodes: Establish the cause of lymphadenopathy. Stage a known lymphoid or non-lymphoid malignancy. Monitor for recurrence of lymphoid or non-lymphoid malignancies and assess for potential progression or transformation of lymphoid malignancies [3].

Aims and Objectives: Assess the utility of FNAC in diagnosing the cause of paediatric lymphadenopathy. Determine the spectrum of cytological findings of lymph node FNAC in the paediatric age group. Correlate FNAC findings with clinical, histopathological, and Acid Fast Bacilli (AFB) staining results, as available.

Materials and Methods

Informed written consent was obtained from the patient's guardian. A data sheet containing details of the patient and other medical records was noted. Material was obtained using a non-aspiration technique with a sterile disposable needle (23-25 gauge) attached to a 10 ml disposable syringe. Air-dried, methanol-fixed slides were stained with Giemsa, and wet-fixed slides (fixed for 30 minutes in absolute alcohol) were stained with Papanicolaou stain (PAP).

Results

The present study was undertaken retrospectively from January 2011 to December 2013 in the cytology section, Department of Pathology of a tertiary care hospital, which included 293 paediatric lymph node cases in the age range of 0-12 years.

Distribution of lesions is described in [Table 1]. Reactive lymphadenopathies were the most common lesions [Figure 1]. The study comprised 183 males (62.46%) and 110 females (37.54%).

Localized lymphadenopathy (94.19%) included cervical (88.05%), axillary and inguinal (3.07% each), while generalized lymphadenopathy was seen in 5.81%. Lymphadenopathy with organomegaly/hepatosplenomegaly was observed in nine cases (3.07%), including three cases of tuberculosis, four cases of non-Hodgkin lymphoma (NHL), and one case each of reactive and florid reactive categories. Organomegaly in the reactive category corresponded to a case of enteric fever, while the florid reactive category had an intestinal wall lesion diagnosed as Burkitt lymphoma.

Clinical Presentation and Etiologies: A total of 95.56% of cases presented with lymph node swelling, while 4.44% presented with fever (39.93%), cold/cough (36.86%), loss of weight/appetite (19.80%), localized pain (5.12%), and abdominal pain (2.39%). In these cases, lymph nodes were incidentally detected by clinicians.

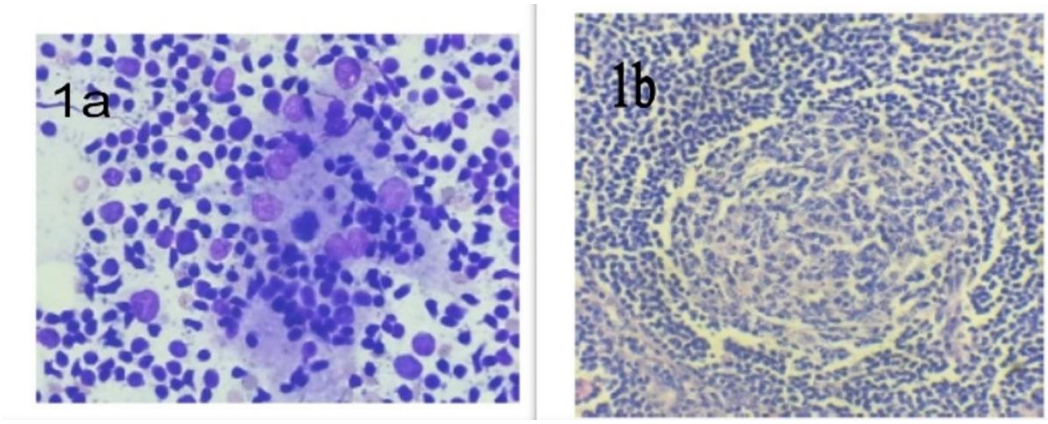

Figure 1: Reactive lymph node showing germinal centre cells, mature and transformed lymphocytes in cytology (a, Giemsa X400) and secondary germinal centre formation in histology (b, HE X400).

Table 1: Diagnoses

Diagnosis	**Subcategory**	**No. of Cases**	**Percentage**	
Benign (277)	-	**277**	**94.54%**	
Reactive lymphadenopathy(183)	Reactive	166	56.66	62.46
	Florid Reactive	17	5.80	
Tuberculous(TB) Lymphadenitis (86)	Necrotising	5	1.71	29.36
	Necrotising suppurative (NS)	6	2.05	
	Granulomatous	17	5.80	
	Necrotizing granulomatous (NG)	58	19.80	
Bacille Calmette-Guerin (BCG) Lymphadenitis	-	3	1.02	
Non-specific Lymphadenitis(4)	Suppurative (Fig 7)	1	0.34	1.36
	Resolving inflammation	3	1.02	
Dermatopathic	-	1	0.34	
Malignant(16)	-	**16**	**5.46%**	
Non Hodgkin lymphoma (NHL)		7	2.39	
Hodgkin lymphoma (HL)	-	8	2.73	
Metastasis of undifferentiated carcinoma to look for primary in upper aerodigestive tract (UADT)	-	1	0.34	
Total		293	100	

Complaints in the reactive group included 11 cases of tonsillitis, six cases of otorrhea, five cases of pneumonia, three cases of dental caries, two cases of odynophagia, and one case each of enteric fever, highly reactive airway disease, chicken pox, mouth ulcer, tinea corporis (skin infection), viral lymphadenitis [Figure 5], inguinal abscess, and microfilaria on smear, probably from peripheral blood [Figure 6].

In the florid reactive category [Figure 2], three cases were seropositive, four were seronegative, and the serostatus was unknown in 10 cases.

In the dermatopathic category [Figure 3], one patient had undergone surgery for VSD a year earlier. However, no skin problems

were present, and the swelling subsided after a 15-day antibiotic course. One case in the resolving inflammation category [Figure 4] had a past history of H. simplex with pediculus capitis and secondary bacterial infection 15 days earlier.

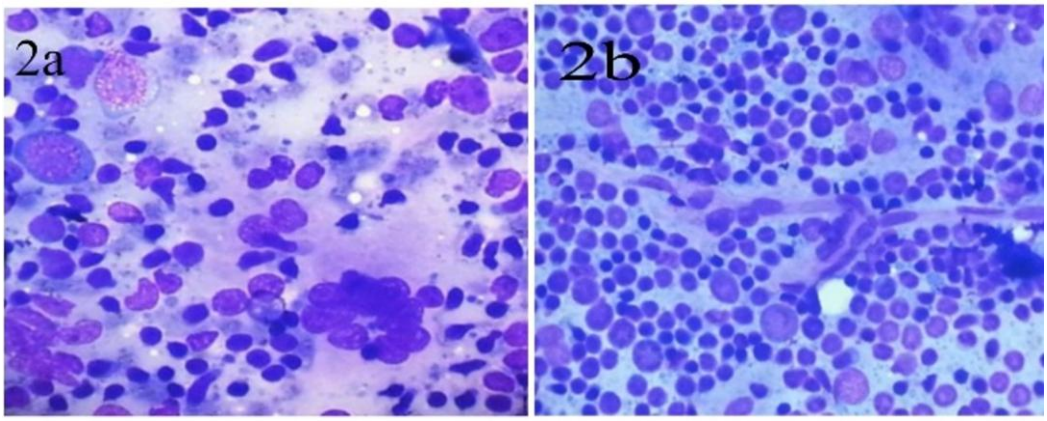

Figure 2: Florid reactive lymph node showing Warthin-Finkeldey giant cells and immunoblasts (a, Giemsa X400) with proliferating blood vessels, mature, and transformed lymphocytes (b, Pap X400).

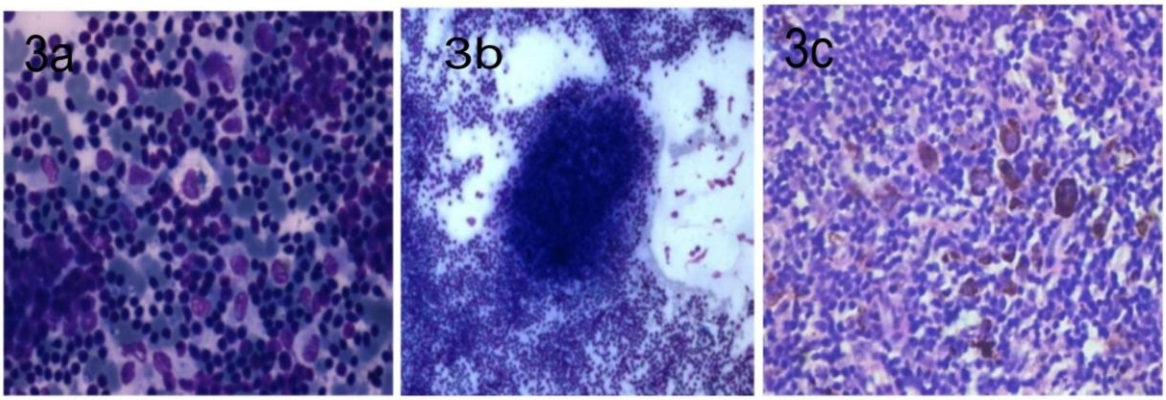

Figure 3: Dermatopathic lymphadenitis showing pigment-laden macrophages (a, Giemsa X400), Langerhans histiocyte proliferation (b, Giemsa X100), and histiocytes with melanin pigment in histology (c, HE X400).

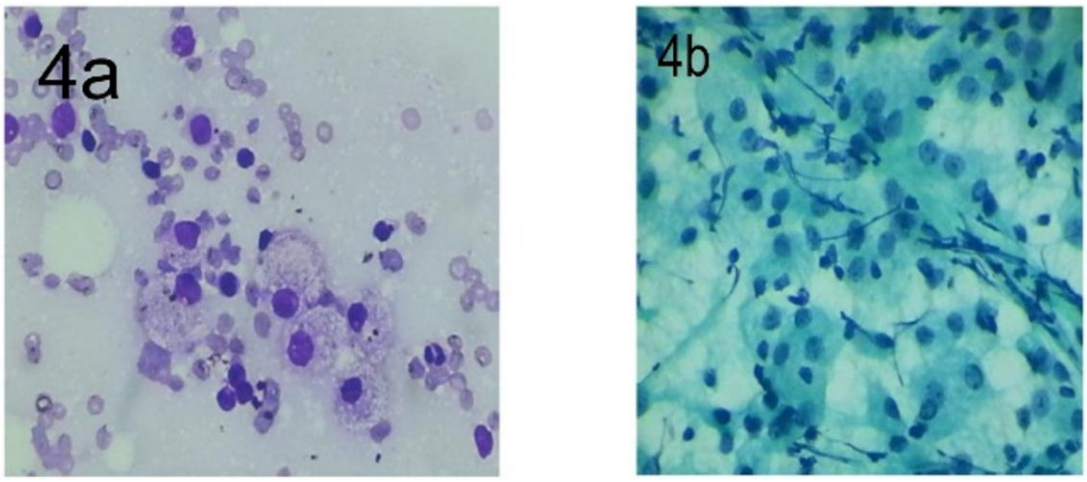

Figure 4: Resolving inflammation cytology, foamy macrophages, lymphocytes (Giemsa 4a, Pap 4b X400).

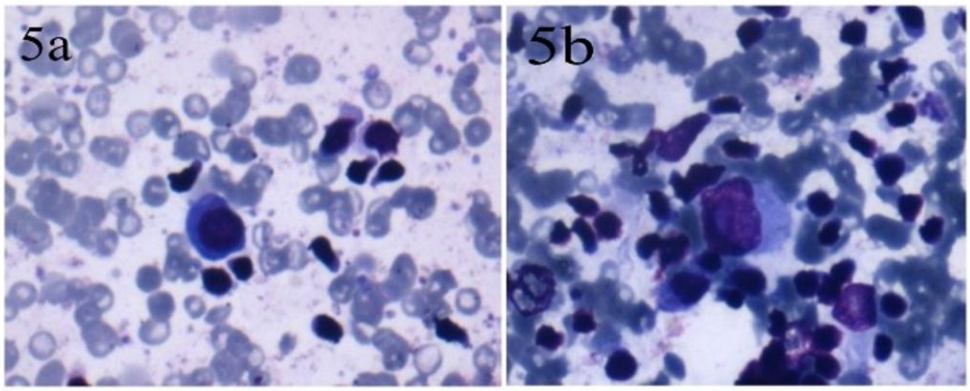

Figure 5: Viral lymphadenitis cytology; Plasmacytoid (5a), Monocytoid (5b) lymphocytes (Giemsa X400).

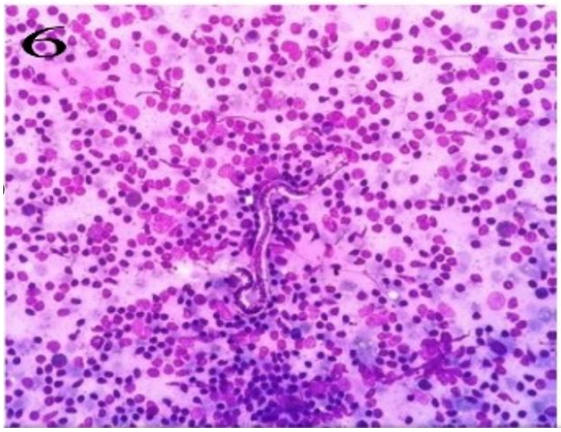

Figure 6: Microfilaria in the background of reactive lymphadenitis (X100) Giemsa, Cytology.

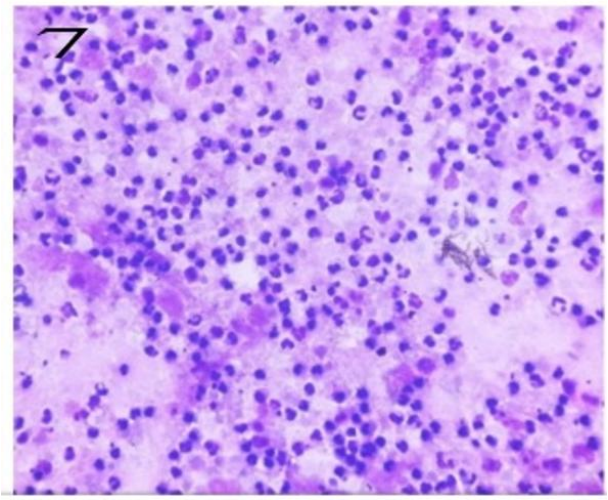

Figure 7: Suppurative Lymphadenitis: Degenerated and viable neutrophils, fibrin strands, few lymphocytes, histiocytes and foamy macrophages (Giemsa X400): Cytology.

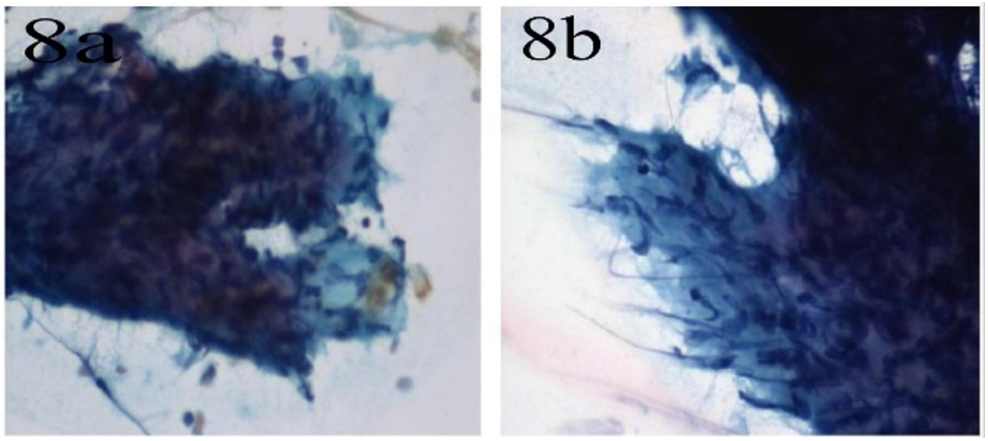

Figure 8: Reactive Lymph node- Discrepant case- Cytology 8a: Fibrous tangles (Pap X100), 8b: Epithelioid granuloma at the edge (Pap X400).

A case diagnosed as reactive lymphadenopathy, possibly of viral etiology, responded to antipyretics alone and showed a few atypical lymphoid, monocytoid, and plasmacytoid cells in a reactive background.

Cases with Discrepancy in Reactive and Florid Reactive Categories Responding to AKT: Out of 19 cases of reactive and florid reactive lymphadenitis that did not subside spontaneously and responded to AKT, five had radiological evidence of tuberculosis. Upon review, only two cases showed extensive crush artifacts, fibrotic tangles [Figure 8a], and a single epithelioid granuloma with caseous necrosis at the edge of a fibrotic tangle [Figure 8b], confirmed histopathologically as tuberculous (TB) etiology.

A patient with ileal wall thickening, hepatosplenomegaly, and extensive axillary and abdominal lymphadenopathy underwent FNAC of the axillary lymph node, showing polymorphous reactive cells [Figure 9a,b] along with atypical lymphocytes with dense basophilic cytoplasm, coarse chromatin, and prominent nucleoli [Figure 9a]. Cytology suggested florid reactive lymph node with suspected hematolymphoid malignancy. Axillary lymph node biopsy [Figure 9c] revealed follicular and paracortical hyperplasia with numerous immunoblasts in the medullary cord. The final histopathological impression was "Florid reactive LN with follicular hyperplasia and paracortical T zone expansion." However, the intestinal wall lesion was diagnosed histopathologically as "Burkitt lymphoma," CD20 positive with Mib1-98%. Burkitt lymphoma cells were not observed on the axillary lymph node aspirate smear.

Patterns of Tuberculous Lymphadenopathy [Table 2]: Among 86 cases of tuberculous lymphadenitis, necrotizing granulomatous was the most common pattern. AFB was performed in 76 cases, with a low AFB positivity rate of 13.95%.

Table 2: Patterns of tuberculous lymphadenitis

Diagnosis	Number	%
Necrotising (Fig 10c,d)	5	5.81
NS (Fig 10g)	6	6.98
Granulomatous (Fig 10e,f)	17	19.77
NG (Fig 10a,b)	58	67.44
Total	86	100

Bacille Calmette-Guerin (BCG) Lymphadenitis: Three cases of BCG lymphadenitis presented with a single left axillary (two cases) or left supraclavicular (one case) lymph node, without other symptoms. All had received BCG at birth. Cytodiagnosis

included granulomatous (two cases) and necrotizing (one case) patterns, suggestive of BCG lymphadenitis. AFB was negative in all three cases. The granulomatous cases responded to antibiotics within 15 days, while the necrotizing case responded to aspiration and antibiotics. None required AKT.

Distribution of Malignant Lesions: Out of 16 cases, eight were Hodgkin lymphoma (HL) [Figure 11] (50%), seven were NHL [Figure 12] (43.75%), and one was metastasis (6.25%). Seven HL cases and five NHL cases had histopathological follow-up.

One NHL case showed polymorphous reactive cytology with a few atypical intermediate-sized lymphoid cells with scant cytoplasm and coarse chromatin [Figure 13a], raising suspicion of NHL. Biopsy confirmed nasopharyngeal rhabdomyosarcoma [Figure 13b,c] (Desmin, MyoD1 positive; LCA, synaptophysin negative).

Another malignant case revealed large cells with a high nucleocytoplasmic ratio, scant cytoplasm, vesicular nuclei, and prominent nucleoli [Figure 14a], along with clusters of large epithelial cells [Figure 14b]. The diagnosis suggested metastasis of undifferentiated carcinoma, prompting investigation for a primary lesion in the upper aerodigestive tract (UADT). Differential diagnoses included undifferentiated nasopharyngeal carcinoma, syncytial variant of nodular sclerosis HL, and metastatic high-grade salivary gland carcinoma.

Follow-up - Histopathology (HP) [Table 3]: Out of 26 cases with histopathological follow-up, results were concordant in 12 benign (46.15%) and 11 malignant (42.31%) lesions, while discordant in two benign (7.69%) and one malignant (3.85%) lesion. HL, NHL, and rhabdomyosarcoma cases responded to chemotherapy.

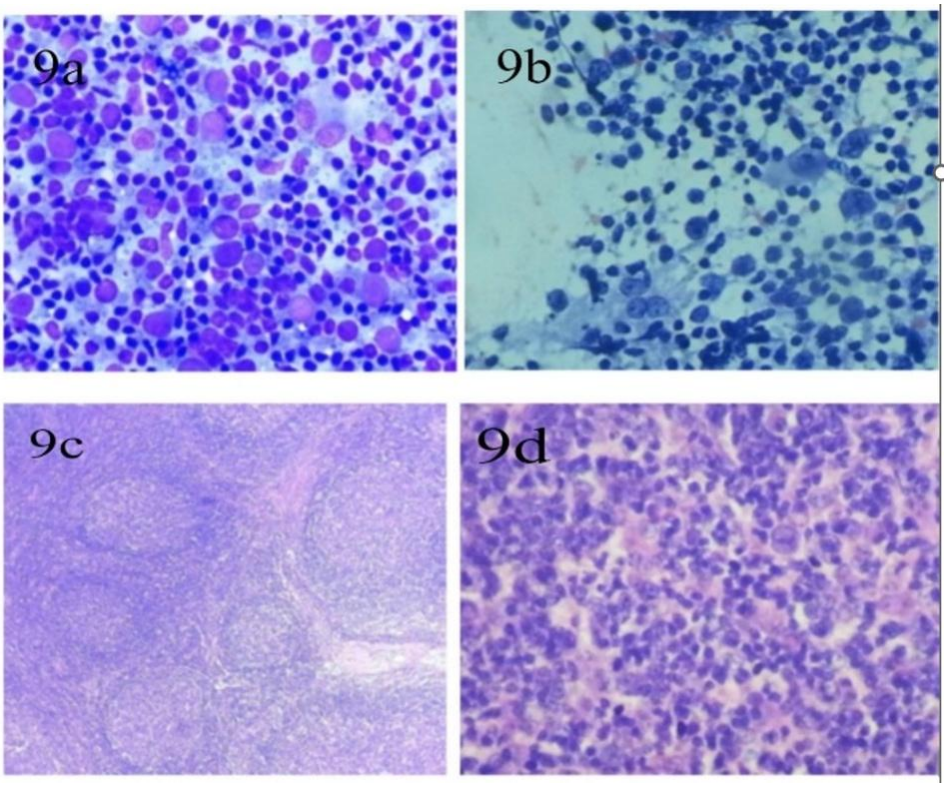

Figure 9: Florid reactive lymph node with suspected hematolymphoid malignancy showing atypical lymphocyte proliferation (a, Giemsa X400), mature and transformed lymphocytes with germinal centre cells (b, Pap X400), and follicular and paracortical hyperplasia with immunoblast proliferation in histology (c, d; HE X100, X400).

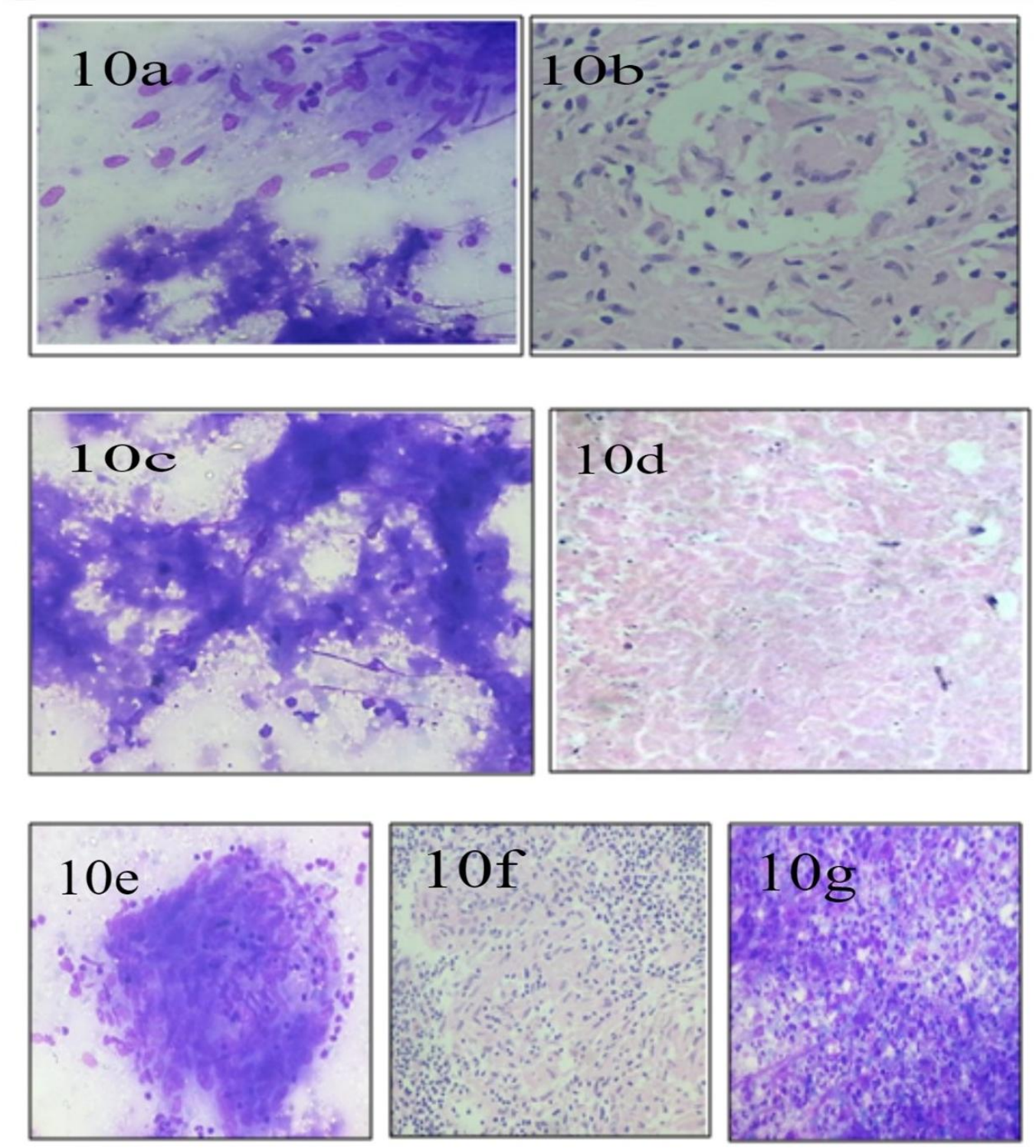

Figure 10 : Tuberculous lymphadenitis pattern showing non-necrotising granuloma in cytology (a, Giemsa X400) and histopathology (b, HE X100), necrotising features in cytology (c, Giemsa X400) and histopathology (d, HE X400), granuloma in cytology (e, Giemsa X100) and histopathology (f, HE X100), and necrotising suppurative features in cytology (g, Giemsa X400).

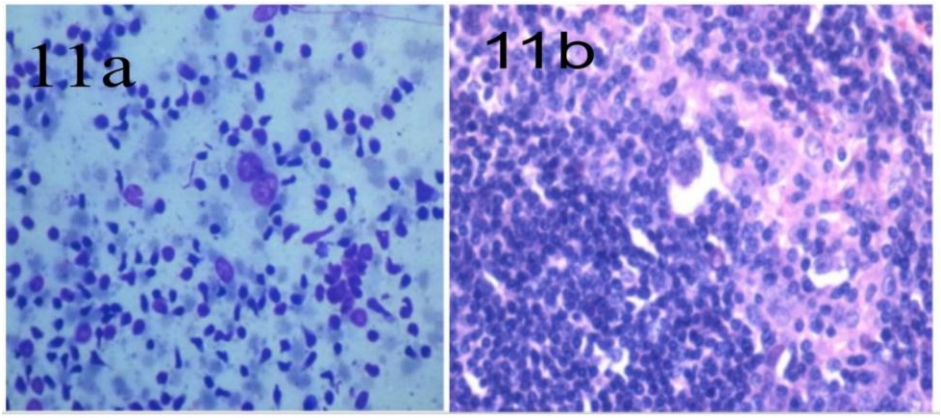

Figure 11: Hodgkin lymphoma showing binucleate RS cell in cytology (a, Giemsa X100) and corresponding histology (b, HE X100).

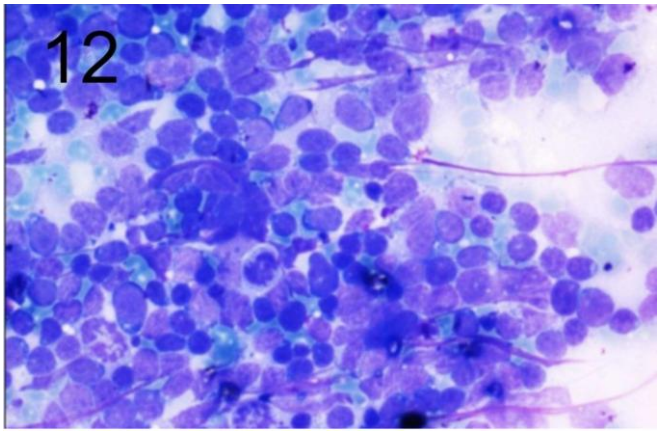

Figure 12: Non-Hodgkin lymphoma with atypical mitoses in cytology (Giemsa X400).

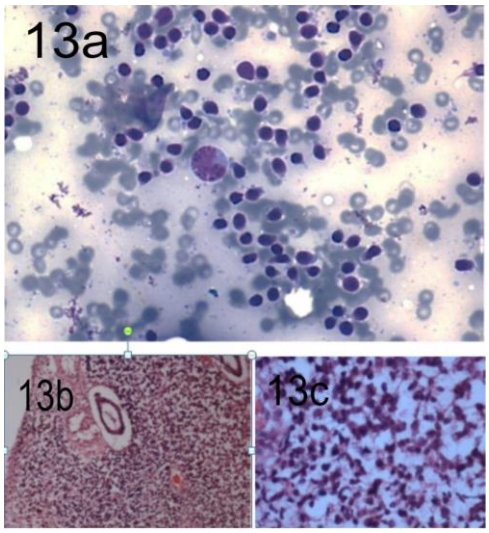

Figure 13: Discrepant case showing atypical lymphoid cells with scant cytoplasm and coarse irregular chromatin amidst small lymphocytes in cytology (a, Giemsa X400), with nasopharyngeal mass biopsy revealing rhabdomyosarcoma in histopathology (b, c; HE X100, X400).

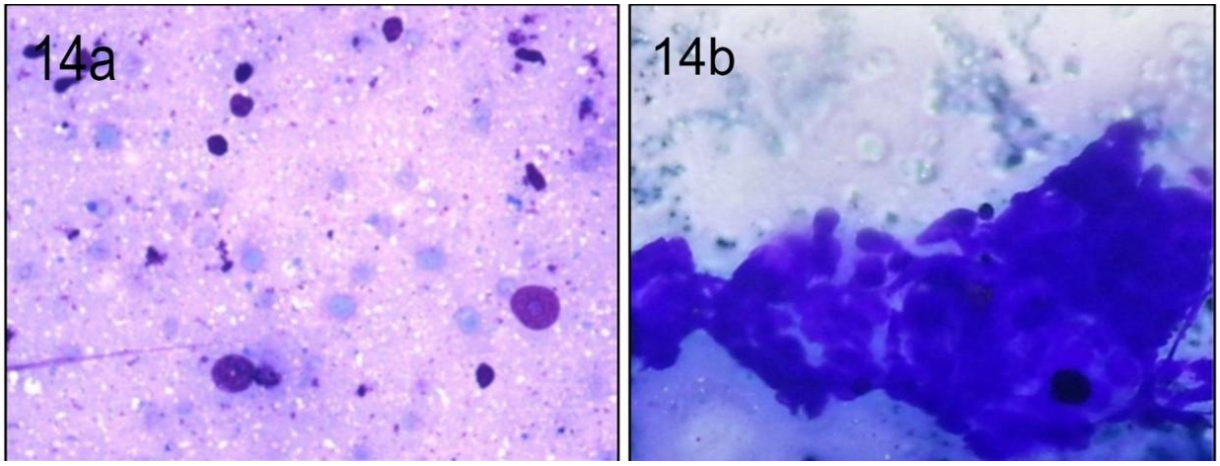

Figure 14: Metastasis of undifferentiated carcinoma showing large cells with high nucleocytoplasmic ratio, scanty cytoplasm, vesicular nuclei, and prominent nucleoli (a, Giemsa X400), along with epithelioid cell clusters (b, Giemsa X400).

Table 3: Follow up-Histopathology (HP) (Cytology results concordant/discordant with HP)

Diagnosis	Subcategory	Concordant	Discordant	Histopathology
Benign				
Reactive	Reactive	03	02	02-NG 03-Reactive
	FR	02	-	02- Florid Reactive
TB	-	06	-	06-Tuberculosis
BCG lymphadenitis	-	-	-	-
Suppurative	-	-	-	-
Resolving inflammation	-	-	-	-
Dermatopathic	-	01	-	01-Dermatopathic
Malignant(16)				
NHL(07)		04	01	03-Lymphoblastic lymphoma (LBL) 01-Burkitt 01-Reactive
HL(8)		07	-	07-HL

Discordant Results After HP Follow-up: Two reactive cases were histopathologically discordant, turning out to be necrotizing granulomatous with crushed granuloma and caseous necrosis. One NHL case was reclassified as reactive lymphadenopathy, with nasopharyngeal mass diagnosed as rhabdomyosarcoma.

As histopathology is the gold standard, its correlation is used for statistical evaluation [Table 4]. The sensitivity, specificity, positive predictive value, negative predictive value, and accuracy were 100%, 93.33%, 91.67%, 100%, and 96.15%, respectively.

Discussion

The diagnoses in our study were almost comparable to those reported by Khan et al., Handa et al., Lee et al., and Dhingra et al. (Table 5) [4,5,1,6]. Benign conditions with reactive patterns were the most common findings across all studies.

Table 4: Table for Statistical calculations

Diagnosis	True positive	True negative	False Positive	False Negative	Total
Benign	-	14	-	-	14
Malignant					
NHL	04	-	01	-	05
HL	07	-	-	-	07
Total	11	14	01	00	26

Table 5: Correlation of Diagnoses

Diagnosis	**Current study (No.) %**	**Khan et al (No.) %**	**Handa et al %**	**Lee et al No. %**	**Dhingra et al No. %**
Benign/ Inflammatory	**277 94.54%**	**84 94.38%**	**- 93.84%**	**15 83.33%**	**239 88.5%**
Reactive	183 62.46%	49 55.06%	62.2%	-	151 56%
TB	86 29.36%	35 39.32%	25.2%	-	76 28.1%
BCG lymphadenitis	03 1.02%	-	-	-	-
Non-specific Lymphadenitis	04 1.36%	-	6.3%	-	12 4.4%
Dermatopathic	01 0.34%	-	-	-	-
LCH	-	-	0.14%	-	-
Malignant(16)	**16 5.46%**	**05 5.62%**	**1.3%**	**3 16.67%**	**31 11.5%**
NHL	07 2.39%	05 5.62%	1.01%	2 11.11%	21 7.8%
HL	08 2.73%				06 2.2%
Metastasis	01 0.34%	-	0.29%	1 5.56%	Nil
Unsatisfactory	Not included	Not included	4.6%	Not included	Not included
Leukemic infiltrate	-	-	-	-	04 1.5%
Total	293	89	692	18	270

Gender: Our study included 183 males (62.46%) and 110 females (37.54%), comparable to the study by Lee et al., which included 13 males (72.2%) and 5 females (27.8%) [1].

Anatomic Distribution: Our study showed localized lymphadenopathy in 94.19% of cases and generalized lymphadenopathy in 5.81%. This was in agreement with observations by Dhingra et al. and Ahmad et al. (Table 6) [6,7]. Across all studies, the cervical group of lymph nodes was the most commonly involved.

Table 6: Correlation of anatomic distribution

	Current study	Dhingra et al	Ahmad et al
Localised	**94.19%**	**90%**	**93.37%**
Cervical	88.05%	79%	79.51%
Axillary	3.07%	11% (100%)	9.93%
Inguinal	3.07%	10%	3.93%
Generalised	**5.81%**	**10%**	**6.63%**

Lymphadenopathy with Organomegaly/Hepatosplenomegaly: Lymphadenopathy is known to be associated with organomegaly in various benign and malignant conditions, including viral infections, hemophagocytic syndrome, autoimmune lymphoproliferative syndrome, metabolic storage diseases, leukemias, infectious mononucleosis, Hodgkin lymphoma (HL), non-Hodgkin lymphoma (NHL), and sarcoidosis [8,9].

Enteric fever can also cause hepatomegaly, as supported by the study by Jagadish et al., in which hepatomegaly was seen in 51.6% of typhoid fever cases [10]. Disseminated tuberculosis can present with hepatosplenomegaly and lymphadenopathy [11]. This supports the etiology of organomegaly in both benign and malignant cases observed in our study.

Clinical Presentation and Etiologies: The clinical presentation and etiology of lymphadenopathy in our study were comparable to those reported in the literature, with causes including malignancies, infections, autoimmune disorders, miscellaneous, and iatrogenic causes [12].

Similar to our findings, in the study by Ataş et al., lymphadenopathy presented as swelling in the neck (88%), axilla (8%), anterior and posterior part of the ear (2%), nape (1%), and groin (1%). Additionally, 2% of cases presented with abdominal and chest pain, while 26% reported sore throat [13].

Viral Lymphadenitis: Peripheral blood smears in infectious mononucleosis typically show atypical lymphocytes, predominantly of T-cell lineage, with pale blue cytoplasm and large nuclei containing conspicuous nucleoli (Downey cells) [14].

Atypical lymphocytes include monocytoid lymphocytes (immunoblasts in lymph nodes) and plasmacytoid lymphocytes. These cells are not pathognomonic for infectious mononucleosis and are also found in cytomegalovirus mononucleosis, toxoplasmosis, viral hepatitis, viral pneumonia, varicella, mumps, and childhood viral exanthems [15]. Similar cells were observed in our study.

Cases with Discrepancy in Reactive and Florid Reactive Categories Responding to AKT: Cases diagnosed as reactive lymphadenitis on cytology that responded to anti-tuberculosis therapy (AKT) did not show activated histiocyte clusters. In the study by Laishram et al., 361 out of 4024 cases were diagnosed as reactive lymphadenitis with activated histiocyte clusters, and a repeat aspiration was recommended after antibiotic treatment. Among 113 cases that returned for re-aspiration, 73 (64.60%) developed epithelioid granulomas, while the rest remained reactive [16].

In the study by Gupta et al., of 112 reactive lymphoid hyperplasia cases, 35 (31%) were positive for Mycobacterium complex by RT-PCR and culture. In the absence of granulomas or necrosis, cytology or tissue findings can mislead, as granuloma formation typically takes 14–100 days [17].

Brijesh et al. reported that among 145 cases suspected of tuberculosis with peripheral lymphadenopathy, 90 (62.1%) aspirates

showed cytomorphology suggestive of tuberculous lymphadenitis. Pulmonary tuberculosis features were evident on chest radiographs in 32.2% (29/90) of cases [18].

These findings highlight the role of radiology, re-aspiration in non-responders, and ancillary techniques in diagnosing tuberculosis, as granulomas take time to develop, leading to potential misdiagnosis.

Serostatus in Florid Reactive Lymphadenopathies: Florid reactive hyperplasia in lymph nodes can result from syphilis, rheumatoid arthritis, the plasma cell variant of angiofollicular hyperplasia (Castleman's disease), and HIV [19]. Kanakala et al. suggest other etiologies, including Yersinia, adenovirus, and Shigella infections [20]. In our study, HIV was the only identified cause.

Patterns in Tuberculous Lymphadenitis (Table 7): Our results were comparable to the study by Laishram et al., except that necrotizing lymphadenitis was more common than necrotizing suppurative lymphadenitis. The age of patients ranged from 6 months to 75 years, with a median age of 34 years [16].

Table 7: Correlation of Patterns of tuberculous lymphadenitis

Individual diagnosis	**Current study** **No.** **%**	**Laishram et al** **No.** **%**
Necrotising	5 5.81%	161 13.31%
NS	6 6.98%	79 6.53%
Granulomatous	17 19.77%	354 29.26%
NG	58 67.44%	616 50.90%
Total	86 100%	1210 100%

AFB and Tuberculous Lymphadenitis: AFB positivity in our study was observed in 12 out of 76 cases (15.79%). AFB was not performed in 10 cases. This was lower compared to studies by Laishram et al. (511/1210; 42.23%), Lakhey et al. (71/122; 58.1%), and Khan et al. (24/35; 68.5%) [16,21,4].

BCG Lymphadenitis: According to Goraya et al., the diagnosis of BCG lymphadenitis requires: Isolated axillary (or supraclavicular/cervical) lymph node enlargement. History of BCG vaccination on the same side. Absence of tenderness or raised temperature over the swelling. Absence of fever or constitutional symptoms.

Chest radiography, Mantoux tests, and hematological analysis are not useful. FNAC supports clinical diagnosis in doubtful cases. Non-suppurative BCG lymphadenitis resolves spontaneously, while suppurative lymphadenitis may require needle aspiration or, rarely, surgical excision. Antibiotics or antituberculous drugs do not hasten resolution [22].

In our study, all criteria were met, but antibiotics were administered in all three cases.

Distribution of Malignant Lesions (Table 8): Our results were consistent with studies by Khan et al., Handa et al., and Lee et al. [4,5,1]. Lymphomas were the most common malignant lesions in all studies.

Table 8: Correlation of Distribution of Malignant lesions

Lesion	Current Study	Khan et al	Handa et al	Lee et al
	No. %	No. %	No. %	No. %
HL	8 50	5 100	7 77.78	2 66.67
NHL	7 43.75			
Metastasis	1 6.25	00	2 22.22	1 33.33
Total	16	5	9	3

Histopathological Follow-up: Out of 26 cases with histopathological follow-up, 12 (46.15%) benign and 11 (42.31%) malignant lesions showed concordance, while 2 (7.69%) benign and 1 (3.85%) malignant case were discordant. Lee et al. reported concordance in 14 (77.78%) benign and 3 (16.67%) malignant cases [1].

Statistical Evaluation in Diagnosis: FNAC for malignant lesions in pediatric lymphadenopathy in our study showed sensitivity, specificity, PPV, NPV, and accuracy of 100%, 93.33%, 91.67%, 100%, and 96.15%, respectively, comparable to Lee et al. [1].

Conclusion

Present findings depict that FNAC is an excellent, highly sensitive, fairly specific, and accurate method for the evaluation of pediatric lymph nodes. FNAC is highly reliable and replaces invasive procedures, facilitating the initiation of appropriate therapy; hence, it should be considered the first-line investigation for the evaluation of pediatric lymphadenopathies. Our study has emphasized not only the spectrum but also highlighted non-responding lymphadenopathies in children, pitfalls in diagnosis, etiologies of florid reactive cases, criteria for BCG lymphadenitis, clinical presentation, and benign and malignant causes of organomegaly.

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