



UTILITY OF SYDNEY SYSTEM FOR REPORTING LYMPH NODE CYTOLOGY IN A TERTIARY CARE HOSPITAL

Pathology

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ABSTRACT

Introduction: Fine needle aspiration cytology is the basic and simple technique for diagnosis and evaluation of lymphadenopathies. Although large numbers of conditions and cytomorphological overlapping may cause a challenging task in diagnosis. In 2020 an expert panel proposed Sydney system which provides key diagnostic and management recommendations. **Aim:** The Present study is taken up to know the diagnostic utility of Sydney system for lymph node cytopathology. **Methodology:** This is a retrospective cross-sectional study of lymph node cytopathology conducted in Sri Siddhartha medical college from January 2023 to July 2024 and results are correlated using Sydney system into five groups from L1 to L5. **Results:** Out of 60 FNA, According to Sydney system categorized into five categories, 2(3.3%) cases in L1 category (Inconclusive), 47(78%) cases in L2 category (Benign), 2(3.3%) cases in L3 category (Atypia), 1(1.6%) case in L4 category (Suspicious) 8(13.3%) cases in L5 category (Malignancy). Risk of Malignancy for L2 was 0.5%, L3 was 50%, L4 and L5 were 100%. **Conclusion:** The Proposed Sydney system promotes better understanding and communication between clinicians and pathologists and useful in risk stratification as well as management.

KEYWORDS

Sydney system, Fine needle aspiration cytology

INTRODUCTION

Fine needle aspiration is the basic and simple technique for diagnosis and evaluation of lymphadenopathies. LN-FNAC plays a key role in the evaluation of lymphadenopathies as it can provide cytomorphological information.

However, the conventional system of reporting lymph node smears lacks standardized diagnostic classification, a common language of reporting among cytopathologists & clear communication to clinicians about risk of malignancy and further management.

To address this problem, In the year 2020, a categorial system for performance, classification and reporting of lymph node cytopathology was proposed at 20th international congress of cytology in Sydney. This system also referred as Sydney system. It provides key diagnostic cytopathological features, management algorithm & uniform reporting worldwide.

The Present study is taken up to know the diagnostic utility of Sydney system of reporting lymph node cytopathology.

Aim:

The aim of the present study was to evaluate the Utility of the Sydney system for reporting lymph node FNC.

Objectives

1. Reporting of lymph node FNA by traditional method
2. Reporting of lymph node FNA by Sydney system

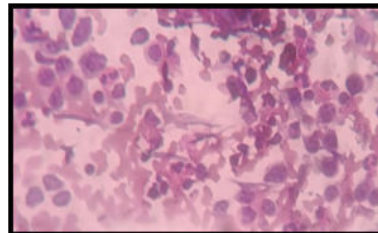
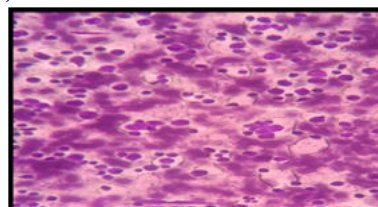
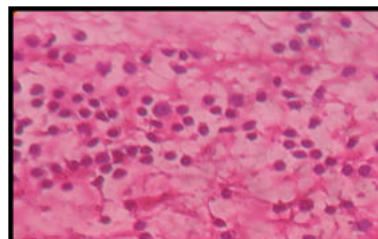
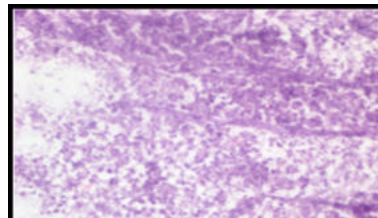
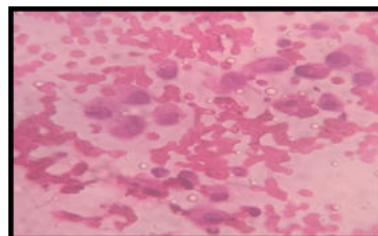
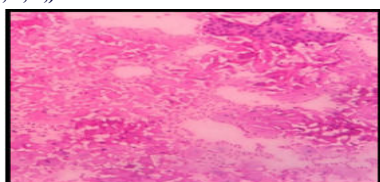
MATERIAL AND METHODS

This is observational-cross sectional study was conducted in Sri Siddhartha medical college, tumkur from January 2024 to July 2024.

Total 60 FNA of lymph node lesions performed through the study period and reported by both conventional method and Sydney classification, taking all clinical details of the patient and correlated with histopathological examination wherever available.

All FNA procedures were performed under aseptic precautions after obtaining written consent and discussing the procedure. A 22G needle attached to 10ml syringe will be introduced after palpating the lymph node. Vacuum will be created, the needle will be moved in different directions, suction will be released and needle will be taken out & slides are stained with H&E, Giemsa/Leishman.

Figure(A,B,C,D,)



(Figure E,F)

Fig(1).A Representative Depiction of Lymph Node Cytology

According to the Sydney System Category. (A)Low cellularity (L1: Non-diagnostic),Obj.40x; (B)Reactive lymphadenitis (L2: Benign), Obj.100x; (C)Large cells scattered among the lymphocyte cells (L3: AUS), Obj.100x;(d)Cells are large and pleomorphic(suspicious) (E,F)Metastatic deposits of squamous cell carcinoma from skin and adenocarcinoma from lung

RESULTS

Table 1:Sample and Characteristics

	Number	Percentage
SEX		
Female	38	63.3%
Male	22	36.6%
AGE		
<40 Years	25	41%
>40 Years	35	58.3%
SITE		
Cervical	49	81%
Axillary	07	11.6%
Inguinal	01	1.6%
Supra/Infraclavicular	03	5%
Total number of cases	60	100%
HPE available cases	12	20%

In the present study total number of females were 38(63.3%) and total number of males were 22(36.6%).

Table 2:conventional Method Of Reporting Salivary Gland Cytology

Conventional Method of Reporting LN cytology	Number
1.Inadequate	02
2.Reactive lymphadenitis	32
3.Granulomatous lymphadenitis	10
4.Acute suppurative lymphadenitis	07
5.Suspicious of Malignancy	01
6.Malignancy	08

Table 3: Sydney System Of Reporting Lymph Node Cytology

Sydney system of reporting Lymph node cytology	
L1(Inadequate/non-diagnostic)	Low cellularity-2
L2(Benign)	Reactive lymphadenitis-30 Granulomatous lymphadenitis-10 Acute suppurative lymphadenitis-07
L3(AUS/ALUS)	Atypical lymphocytes-2
L4(Suspicious)	Lymphoma-1
L5(Malignant)	Non hodgkins lymphoma-1 Hodgkins lymphoma-1 Metastasis-6

Table 4: Summary Of Diagnostic Categories

	CYTOLOGY	HISTOPATHOLOGY
L1(n=2)	Low cellularity	-
L2(n=47)	Reactive lymphadenitis-30 Granulomatous lymphadenitis-10 Acute suppurative lymphadenitis-07	Reactive lymphadenitis - 02 Granulomatous lymphadenitis-03
L3(n=2)	Atypical lymphocytes-2	Reactive follicular hyperplasia-01 Follicular lymphoma-01
L4(n=1)	Lymphoma-1	Diffuse large B cell lymphoma-1
L5(n=8)	Non hodgkins lymphoma-1 Hodgkins lymphoma-1 Metastasis-6	Non hodgkins lymphoma-01 Hodgkins lymphoma-01 Metastatic squamous cell carcinoma-2

Risk Of Malignancy In Each Category
L1-0,L2-0,L3-50%,L4-100%,L5-100%

Histopathological Examination
Figure A,B,C,D,E,F,G

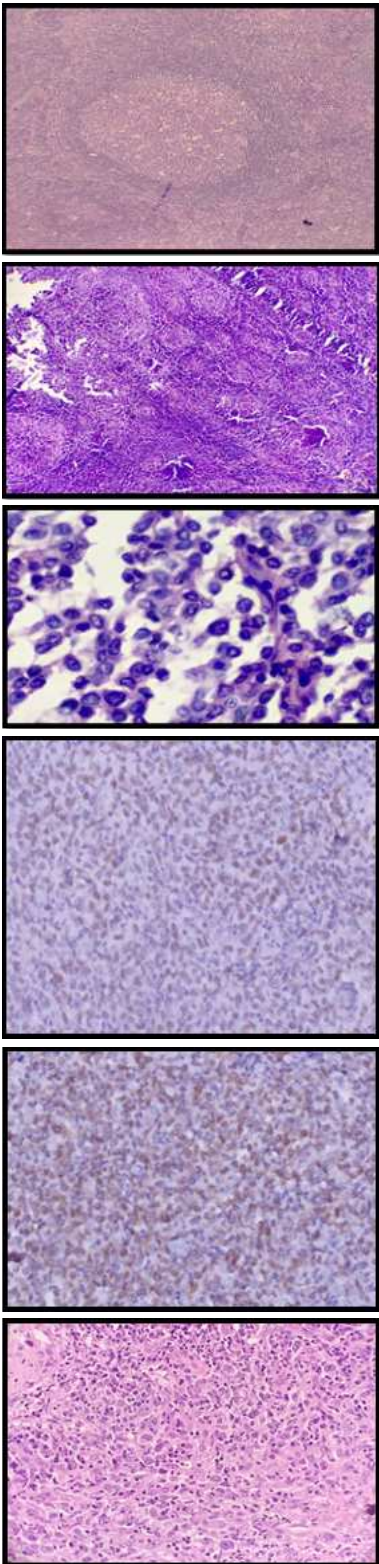
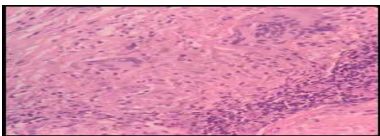


Fig.2(A)Histopathological section shows features of Granulomatous lymphadenitis,(B)Follicular hyperplasia, (C,D)Follicular lymphoma, (E,F)IHC for Follicular lymphoma(BCL2+,BCL6+),(G)Hodgkins lymphoma,

DISCUSSION

After the successful establishment of Bethesda system for cervical and thyroid cytology and Milan system for salivary gland cytology, in 2020 proposal of Sydney system for lymph node was proposed to keep uniform reporting and better communication. The present study showed the diagnostic accuracy of Sydney system in Fine needle aspiration cytology of lymph node pathologies.

Table 6: Distribution Of Cases In The Present Study With Other Studies

	Present study	Dhwani et al	Gupta et al
L1-Non-diagnostic	3.3%	4.12%	4.1%
L2-Benign	78%	61.34%	48.6%
L3-Atypia	3.3%	3.09%	0.5%
L4-Suspicious	1.6%	13.4%	1.4%
L5-Malignant	13.3%	18.04%	45.5%

In the category L1 in the present study two cases showed low cellularity and risk of malignancy could not be calculated. Advised repeat FNAC or Biopsy for these cases.

In the category L2 showed more prevalence which was similar to Dhwani et al study, On the contrary, studies by Gupta P et al, vigilar E et al, showed equal distribution between benign and malignant. This could be due to low sample size.

In the category L3 two cases were reported atypical lymphocytes which later were diagnosed as reactive follicular hyperplasia and follicular lymphoma. Risk of malignancy is 50% which is similar to Dhwani et al, Gupta et al, Vigilar et al.

In the category L4 one case were reported as lymphoma with monomorphic atypical lymphoid cells which later were diagnosed as diffuse large B cell lymphoma, Hence risk of malignancy is 100%, which is similar to Dhwani et al, Gupta et al and Vigilar et al study

In the category L5 one case of Non hodgkins lymphoma, one case of Hodgkins lymphoma and six cases of metastasis which later in histopathological examination as one case of non-hodgkins lymphoma, one case of hodgkins lymphoma , two cases metastasis from squamous cell carcinoma. Hence risk of malignancy is 100% similar to Dhwani et al, gupta et al and vigilar et al studies.

The sensitivity of lymph node FNA in the malignant lesions is variable and it has range from 75% to 99% while other studies have found that core biopsies for suspicious lymph nodes are more useful in diagnosing malignant lymph node lesions.

The present study showed sensitivity and specificity of diagnosing FNA lymph node lesion by using Sydney system of reporting to be as 91% and 94% respectively which is similar to the other studies by Dhwani et al, Vigilar et al.

Table 7: Comparison Of Various Statistical Parameters Of Present Study With Other Similar Studies

Variables	Present study	Dhwani et al	Gupta et al
Sensitivity	91%	95.23%	79.9%
Specificity	94%	94.11%	98.7%
Positive predictive value	96%	98.36%	98.4%
Negative predictive value	86.6%	84.21%	83.1%

CONCLUSION

Lymph node fine needle aspiration cytology helps in the primary diagnosis of lymphadenopathy which is very useful for further management according to the lesions.

The recently proposed Sydney system of lymph node reporting system is a promising and important classification system that is useful in clinicians understanding the risk of malignancy as well as management.

However, multicentric studies with a larger sample size along with advanced ancillary techniques are required for more accurate results.

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