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CYTOLOGICAL PATTERN OF LYMPHADENOPATHIES IN A REFERRAL HOSPITAL OF RWANDA: EXPERIENCE OF KIGALI UNIVERSITY TEACHING HOSPITAL

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ABSTRACT

Background: Lymphadenopathy is one of the common conditions encountered in clinical practice with varied etiological predispositions and it always causes problems to clinicians. The knowledge of its pattern in a given geographical region is essential for making a confident diagnosis or suspecting a disease.

Objective: To determine cytological pattern of lymphadenopathies in a referral hospital of Rwanda.

Design: Cross sectional study.

Setting: Kigali University Teaching Hospital, Rwanda.

Subjects: Patients with enlarged peripheral lymph nodes.

Results: The study shows that reactive lymphoid hyperplasia was the most common pattern accounting for 84 (41.0%) of cases followed by tuberculous lymphadenitis 58 (28.3%). Lymphomas were seen in 25 (12.2%) whereas secondary malignancies (metastasis) to lymph nodes were 13 (6.3%). In 58 cases of tuberculous lymphadenitis, there was a statistical significant association of tuberculous lymphadenitis with an age group of 15 and 44 years, with 76% of the cases, (P-value=0.017). Cervical group of group of lymph nodes were the most common involved, out of 205 patients received 157 (76.6%) were from cervical group.

Conclusion: Reactive lymphoid hyperplasia was the most common cytological pattern followed by tuberculous lymphadenitis. Tuberculous lymphadenitis was mostly common in patients aged between 15 to 44 years.

INTRODUCTION

Lymphadenopathy is one of the common conditions encountered in clinical practice with varied etiological predispositions and it always causes problems to clinicians (1). The differential diagnoses include reactive hyperplasia/inflammatory conditions, granulomatous disorders, lymphoma and metastasis among others (2). Being one of the major causes of morbidity particularly in paediatric age group it is essential that a correct diagnosis is made as early as possible(1).

The diagnosis of lymphadenopathy depends mainly on excision of lymph nodes and histological

examination. For this, general anaesthesia and hospitalisation are required (2). Fine needle aspiration cytology (FNAC) which is a diagnostic tool in which cells are extracted from a palpable swelling using FNAC gun, syringe and fine needle, nowadays is being used worldwide as a first approach to lymphadenopathies because it is a simple, gives a rapid report, requires little equipment, cause minimal discomfort to the patient, does not result in fibrosis, does not require wound healing and readily repeatable and cost effective (1-3).

The knowledge of the pattern of lymphadenopathy in a given geographical region is essential for making a confident diagnosis or suspecting a

disease. In developing countries, tuberculosis is the commonest cause of lymphadenopathy and should be considered in every case of granulomatous lymphadenopathy unless proved otherwise, whereas evaluation of granulomas is a complex problem in developed countries (4). The present study was carried out on 205 samples to identify the common cytological pattern of lymphadenopathies in Kigali University Teaching Hospital, Rwanda.

MATERIAL AND METHODS

After getting scientific and ethical approval from Rwanda Biomedical Center and Rwanda National Ethics Committee respectively. The study was conducted on 205 patients with enlarged superficial lymph nodes in period of January 2013 to December 2014. Lymph nodes were aspirated for cytological evaluation after thorough clinical examination. Aspirations were performed using 23 gauge and 22 gauge needle with disposable 10 ml plastic syringe. Ages of patients and sites of involved lymph nodes

were recorded. In all the cases, alcohol fixed smears were made and stained with H&E and air dried smears were stained with Diff-Quick. Extra smears were made on pus-like material and fixed in alcohol for demonstration of AFB by the Auramine O stain. The presence of AFB in smears stained with Auramine O indicated a positive result. In an attempt to find the association between the age group and cases of tuberculous lymphadenopathies on cytology, a cross-tabulation was made and Chi-square statistics was used for the statistical significance of associations between variables.

RESULTS

Table 1 shows the distribution of different clinical site of lymphadenopathy. Out of 205 cases 157 (76.6%) were from cervical group, the remaining sites were inguinal 27 (13.2%) and axillar 16 (7.8%). Patients with more than one site presentation (generalised) were 5 (2.4%).

Table 1
Distribution of clinical site of lymphadenopathy

Site	Frequency (%)
Cervical group	157 (76.6)
Axillar	16 (7.8)
Inguinal	27 (13.2)
Generalised	5 (2.4)
Total	205 (100)

Table 2 shows the cytology pattern of lymphadenopathy in a total number of 205 patients. Reactive lymphoid hyperplasia was the most common finding accounting for 84 (41.0%) of cases. Features suggestive of tuberculous lymphadenitis were seen in 58 (28.3%). Primary malignancies in lymph nodes (lymphoma) were seen in 25 (12.2%) and 13 (6.3%) were metastatic to lymph nodes.

Table 2
Cytology pattern of lymphadenopathy

Cytology diagnosis	Frequency (%)
Reactive lymphoid hyperplasia	84 (41.0)
Suppurative lymphadenitis	1 (0.5)
Lipoma	1 (0.5)
Tubercular lymphadenitis	58 (28.3)
Granulomatous lymphadenitis	6 (2.9)
Lymphoma	25 (12.2)
Metastasis	13 (6.3)
Lymphangioma	5 (2.4)
Cyst	5 (2.4)
Necrotizing lymphadenitis	7 (3.4)
Total	205 (100)

Table 3 shows the association between different age groups and features of tuberculous lymphadenitis on cytology. According to the results, the association was statistically significant (P-value=0.017). Out of 58 cases of tuberculous lymphadenitis 76% were between the age of 15 and 44 years, the age group of 25-34 has 17 (29.3%) cases whereas the one of 15-24 has 16 (27.6%) cases.

Table 3
Age group and Tuberculous Lymphadenitis cross-tabulation

Age group	Tubercular Lymphadenitis			P-value
	Positive	Negative	Total	
Under 5	2	14	16	0.017
5-14	5	32	37	
15-24	16	20	36	
25-34	17	28	45	
35-44	11	19	30	
45-54	3	10	13	
55-64	1	12	13	
65 and older	3	12	15	
Total	58	147	205	

DISCUSSIONS

FNA has provided an alternative and easy procedure for collection of material for cytomorphological and bacteriologic examination of enlarged lymph nodes (5). In this study, we examined 205 patients of enlarged lymph nodes. The mean age was 30.06 ± 19.88 , finding lower than 32 in Singh et al, 2013 (6) and 32.7 in Fatima et al., 2011 (7). However, this finding is higher than 28.7 in Ahmed et al. 2009, (8). The majority were females with 111 (54.1%) while males were 94 (45.9%), this finding is in accordance with several studies, (5,6,9,10).

Out of 205 cases 157 (76.6%) were from cervical group, the remaining sites were inguinal 27 (13.2%)

and axillar 16 (7.8%). Patients with more than one site presentation (generalised) were 5 (2.4%). From this study, cervical group was the most common finding and similar findings were reported in previous studies (6,10-14).

The findings from this study show that most of cytological patterns were of benign lesions accounting for 162 (79.1%) whereas malignant account for 43 (20.9%). This finding is similar to the one reported by Singh *et al* (6) and Ahmad *et al.* (12). Out of benign, reactive lymphoid hyperplasia was the most common finding 84 (41.0%) followed by tuberculous lymphadenitis 58 (28.3%), this was in accordance with other studies (6,15,16).

Table 4
Malignancy: Comparison with other studies

Authors	Number of cases	
	Lymphoma	Metastasis
The present study	12.2%	6.3%
Ahmed <i>et al.</i> (8)	10%	12%
Hafez <i>et al.</i> (11)	8.3%	19.7%
Singh <i>et al.</i> (6)	5.5%	8.9%
Fatima <i>et al.</i> (7)	5.5%	8.7%
Ahmad <i>et al.</i> (12)	4.5%	9.1%
Lakhey <i>et al.</i> (15)	3.3%	8.0%

The association between different age groups and features of tuberculous lymphadenitis on cytology was statistically significant (P-value=0.017). Out of 58 cases of tuberculous lymphadenitis 76% were between the age of 15 and 44 years, the age group of 25-34 has 17 (29.3%) cases whereas the one of 15-24 has 16 (27.6%) cases. The results are in accordance with what was found by Biadlegne et al. in Northwest Ethiopia (17). The association of tuberculous lymphadenitis was also found in a study of Khan et al. (p = 0.007) where the incidence was highest among the age group of 21–30 years (29.4%) (18).

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