ORIGINAL ARTICLE

Knowledge of Lymphadenopathies, and Sincerity in Reportage of Lymph Node Examination Findings: Survey of Medical and Dental Students

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ABSTRACT

Background: Lymphadenopathy is a common clinical finding, and it may also be the first, if not the only indication of an underlying disease condition in patients. Its finding may be pivotal in the diagnosis of many disease conditions. Therefore, sound knowledge of lymphadenopathies is an essential diagnostic tool in proper patient evaluation.

Objectives: To assess the knowledge of medical and dental students on lymphadenopathies. To explore the reportage of their findings on submandibular lymph node (SMLN) examination and to investigate factors that might have influenced the reportage in the past.

Methodology: This was a cross-sectional survey of medical and dental students at the University of Ibadan using a self-administered questionnaire.

Results: The mean age of the 179 respondents was 22.68 (± 2.21) years. Sixty percent were males and 68.2% were studying Medicine. The majority (96.5%) could associate tender SMLNs with acute infection, and 82.6% could associate stony hard SMLNs with cancer. However, only 55.5% could associate rubbery SMLNs with lymphoma, while 50.9% could associate matted SMLNs with tuberculosis. Forty (22.3%) had presented false report about their findings (on the examination of SMLNs), and the number of times which these respondents had presented such false reports ranged from 1 to 20 times. No association was found between the presentation of false SMLN reports and the respondents' level of study (χ^2= 4.87, p= 0.18). The top three reasons given for presenting false report of SMLNs examination were fear of consultant/lecturer, inadequate time to examine SMLNs, and unwillingness of patients to be examined.

Conclusion: The knowledge of our study population on lymphadenopathies is inadequate. Their attitudes toward the examination and sincere reportage of their findings on lymphadenopathies of SMLNs need to be enhanced. Emphasis should be placed on the importance of SMLNs examination and its correct reporting among medical students during clerking and presentations.

Keywords: *Clinical Examination, Ibadan Medical School, Skill acquisition, Submandibular lymph nodes,*

INTRODUCTION

Lymph nodes are encapsulated, ovoid anatomic structures, found along the lymphatic channels.[1] They represent a division of the defence system in the human body, and their diagnostic roles in medicine are indispensible.[2,3] Approximately 600 lymph nodes are located in the human body, some of which are peripherally located and palpable on clinical examination. The palpable lymph nodes that are routinely

examined are the inguinal, axillary and submandibular lymph nodes.[3]

An abnormal increase in size (usually >1.0cm), consistency, and/or number of lymph nodes is termed as lymphadenopathy. This can be caused by microbial infections, neoplasms, connective tissue diseases, endocrine disorders, or immunologic disorders.[3, 4]

Lymphadenopathy is a common clinical finding, and it may also be the first, if not the only, indication of an underlying disease condition in patients.[4,5,6,7,8,9] Therefore, sound knowledge of lymphadenopathies is essential for clinicians in order to make a correct evaluation of their patients.

In Ibadan Medical School, medical and dental students are actively involved in the management of patients. As clinical trainees, they are allowed to examine and present the cases of their patients during clinic sessions and on ward rounds. Investigating the knowledge of the clinical features of lymphadenopathies in this study population, the nature (true/false) of the reports on their findings on SMLN examination, as well as the factors that might have influenced any of them to give false report(s) of their findings on SMLN examination is important in the assessment of their acquired clinical skills, as well as their level of sincerity on the reportage of clinical findings on SMLN examination.

In this study, we focused on the submandibular group of lymph nodes because they are one of the most accessible groups of nodes in the human body that are routinely examined in both medical and dental practice.[3]

METHODOLOGY

Study setting

Ibadan Medical School is a sobriquet for the College of Medicine, University of Ibadan (UI). The UI is the oldest university in Nigeria, and she has the first and largest Nigerian medical school.

Study population were the medical and dental students in the clinical phase of their academic programme (4th, 5th and 6th year). Those in the preliminary and pre-clinical phases were excluded from participating because they were yet to be exposed to the clinical courses in Medicine and Dentistry. The total number of the eligible medical (*N=412*) and dental (*N=103*) students was obtained and the sample size for each population was a 96 and 56 respectively calculated using WINPEPI estimation of proportions, only those that were willing to participate were recruited for the study.[10]

Study Tool

The study tool used was a questionnaire. A pilot study was conducted to pre-test the study tool and the research method. The questionnaire was re-structured to adequately meet the purpose of the study, based on the outcome of the pilot study. The questionnaire used for the main study had three sections: sections A, B and C. Section A obtained information on the socio-demographic features of the participants, section B obtained information on their knowledge of the clinical signs of lymphadenopathy, while section C obtained information on the nature (true/false) of SMLN reports given by each participant to his/her teacher, and the factor(s) that might have influenced each participant on giving a false report.

Data Collection

A simple random sampling technique was used and eligible medical and dental students were reached through their hostel rooms and classrooms. The aims and objectives of the study were explained to them, and they were assured of the confidentiality of their participation. Only those that were willing to participate (65 dental students and 150 medical students) were recruited for this study. Of the 65 questionnaires administered to the participating dental students, only 58 were returned back, while only 123, out of 150 were returned back by the participating medical students.

Data Analysis

Out of the 181 questionnaires returned, two questionnaires (each from the medical and dental respondents) were discarded because they were not properly filled; hence, we worked on the data of 57 and 122 dental and medical respondents respectively. The response rate was 82.9% (179/215).The cleaned data was entered into the Statistical Package for the Social Sciences (SPSS) version 16.0 software for analysis.

The mean, standard deviations, and frequencies were used to describe the continuous variables while proportions were used to describe the categorical variables. Observed differences (proportions) were compared using *Chi-square* and *Fischer*'s exact tests, and a *p-value* of 0.05 was considered statistically significant.

RESULTS

Socio-demographic Characteristics of Respondents

The age of the respondents ranged from 20–35years (mean 22.68 (±2.21)). One hundred and eight of them (60.3%) were males, while the remaining 71 (39.75) were females. The majority (68.2%) were studying Medicine, and 36.5% were in their 4th year (Table 1).

Knowledge of Respondents on the Clinical Signs of Lymphadenopathies

Table 2 shows the comparison between the gender of our respondents and their knowledge on the clinical signs of lymphadenopathies. Tender and warm lymph node was identified by 96.5% of participants as the common clinical sign of acute infection, 82.6% identified a stony hard lymph node as a common clinical sign of cancer, 55.1% identified a rubbery lymph node as a common clinical sign of lymphoma, while 50.9% identified a matted lymph node as a common clinical sign of tuberculosis.

Table 1. Socio-demographic characteristics of respondents

Socio-demographic Characteristics (*n=179*)	
Gender	
Male	108
Female	71
Mean age (± SD)*	22.68 (± 2.21)
Level of Study	
400	65 (36.3%)
500	61 (34.1%)
600	53 (29.6%)
Course of Study	
Medicine	122 (68.2%)
Dentistry	57 (31.8%)

SD= Standard Deviation
**Age in years*
n=Total Number of Respondents

Relationship between the Frequency of Examination of SMLNs by Respondents and the Frequency at which SMLNs were felt on Examination

Only one respondent had never examined a SMLN, while 8 (4.7%) and 67 (37.4%) respondents indicated that they rarely, and had always examine the SMLNs respectively. Of the 8 respondents that indicated that they rarely examine lymph nodes, only one had felt the SMLNs on palpation always. Of the 67 respondents that indicated that they had always examined the SMLNs, only 26.9% (18/67) of them were able to palpate the SMLNs always (Figure 1).

Table 2. Comparison between the course of study of respondents and their knowledge of lymphadenopathies

VARIABLES	COURSE#			Fisher's Exact Value	P-value
	Medicine (N=122)	Dentistry (N=57)	Total (N=179)		
A rubbery lymph node is a common sign of:					
Acute Infection	4 (3.5%)	2 (3.7%)	6 (3.6%)	5.401	0.217
Lymphoma	59 (52.2%)	33 (61.1%)	92 (55.1%)		
Tuberculosis	29 (25.7%)	16 (29.6%)	45 (26.9%)		
Solid Cancer	20 (17.7%)	3 (5.6%)	23 (13.8%)		
Others	1(0.9%)	0 (0.0%)	1 (0.6%)		
Total	113	54	167		
A tender and warm lymph node is a common sign of:					
Acute Infection	114 (96.6%)	52 (96.3%)	166 (96.5%)	2.581	0.575
Lymphoma	3 (2.5%)	1 (1.9%)	4 (2.3%)		
Tuberculosis	0 (0.0%)	1 (1.9%)	1 (0.6%)		
Solid Cancer	1 (0.8%)	0 (0.0%)	1 (0.6%)		
Total	118	54	172		
A matted lymph node is a common sign of:					
Lymphoma	10 (8.6%)	9 (17.0%)	19 (11.2%)	8.690	0.022
Tuberculosis	54 (46.5%)	32 (60.4%)	86 (50.9%)		
Solid cancer	51 (44.0%)	12 (22.6%)	63 (37.3%)		
Others	1 (0.9%)	0 (0.0%)	1 (0.6%)		
Total	116	53	169		
A stony hard lymph node is a common sign of:					
Acute Infection	1 (0.9%)	0 (0.0%)	1 (0.6%)	2.916	0.655
Lymphoma	16 (14.2%)	6 (11.1%)	22 (13.2%)		
Tuberculosis	4 (3.5%)	1 (1.9%)	5 (3.0%)		
Solid Cancer	92 (81.4%)	46 (85.2%)	138 (82.6%)		
Others	0 (0.0%)	1 (1.9%)	1 (0.6%)		
Total	113	54	167		

N= number of respondents in each category; #Not all respondents gave a response to all the questions asked on the clinical signs of submandibular lymphadenopathies

Frequency of False Reportage of SMLNs by Respondents to their Teachers

Only 40 (22.3%) respondents indicated that they had presented false report about their findings on SMLNs to their teachers in the past (Table 3), and the estimated number of times which they had done such ranged from 1 to 20 times. There was no statistically significant association between the level of study of respondents and cases of presentation of false SMLNs report (χ^2= 4.87, *p-value = 0.18*). Also, there was no statistically significant association between gender of respondents and presentation of false SMLNs report (χ^2=*0.002, p-value=0.96*) (Table 4).

Of these 40 respondents who acceded to have given false reports, 17 (42.5%) of them indicated that they have given a false positive report of SMLNs after palpating the node, 13 (32.5%) indicated that they gave a false report when they never palpate the node at all, 12 (30.0%) indicated that they gave a false negative report when no SMLN was felt on palpation, while only 8 (20.0%) indicated that they gave a false negative report when it was not palpated at all (Table 4).

Table 3. False reporting of SMLNs by respondents

Ever presented a false report to your teacher(s) about your findings on SMLN examination? (n=179)				
	Yes	**No**	**χ^2**	**P-Value**
	No. (%)	No. (%)		
Level				
400	9 (13.8)	56 (86.2)		
			4.762	0.092
500	15 (37.5)	46 (75.4)		
600	16 (30.2)	37 (69.8)		
Total	**40 (22.3)**	**139 (77.7)**		
Gender				
Male	24 (13.4)	84 (46.9)		
			0.002	0.961
Female	16 (8.9)	55 (30.7)		
Total	**40 (22.3)**	**139 (77.7)**		

Table 4. Pattern of false reports given by the respondents that gave history of false reporting of SMLNs

Kinds of false reports commonly presented on SMLNs examination (N = 50) *	**m**	**%**
False Positive report about SMLN, when nothing was felt on palpation	17	34.0
False Positive report about SMLN, when it was not palpated	13	26.0
False Negative report about SMLN, when nothing was felt on palpation	12	24.0
False Negative report about SMLN, when it was not palpated	8	16.0

**Responses were more than respondents who said they have presented false report of SMLNs examination because it is a multiple-choice question;*
N=Total number of respondents that gave a history of false reporting of SMLNs;
m=Number of respondents in each category of variables.

Reasons Indicated by the Forty Respondents for Giving False Reports on SMLNs to their Teachers

Table 5 illustrates the reason behind the act of false reporting of SMLNs by the 40 respondents that indicated to have done such. The top three reasons for presenting such false report to their teachers include: fear of consultant/lecturer (64.75%); inadequate time to examine SMLNs (64.75%); and unwillingness of patients to get examined (27.5%).

Table 5. Respondents' reasons for giving false report of SMLNs examination to their teachers

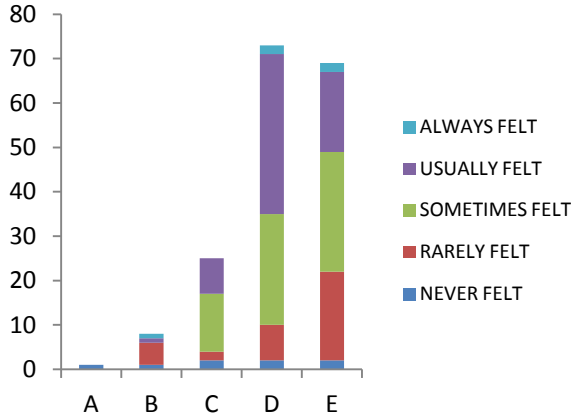
Reasons for presenting false report of SMLNs examination (N = 40)	**m**	**%**
Fear of consultant/lecturer	22	64.75
Fear of contracting infection from patient	3	7.5
Shame	4	10.0
Inadequate time to examine SMLN	22	64.75
Unwillingness of patients to get examined	11	27.5
Poor personal hygiene of patient	6	15.0
Gender of patient	1	2.5
Religion-based reasons	4	10.0
Lack of interest in examining SMLNs	6	15.0

N =Total number of respondents that gave a history of false reporting of SMLNs;
M=Number of respondents in each category ofvariables

DISCUSSION

Clinical skills acquisition is an important focus of education for health professionals extending from undergraduate to postgraduate and continuing professional education.[11] The current trend in medical education is to introduce clinical teaching early, within the first two years of the medical curriculum, to help students understand the relevance of the basic sciences to clinical practice and to provide instruction in basic clinical skills in a standardized fashion.[12]

Figure 1. Relationship between the frequencies of examination of SMLNs and the frequency at which SMLNs are felt on examination



df=16, p–value<0.001
A=I have never examined SMLNs
B=I rarely examine SMLNs
C=I sometimes examine SMLN
D=I usually examine SMLNs
E=I always examine SMLNs

In this study, examination of the SMLNs is used as a pointer to clinical examination skills of students due to its ease of access. The importance of lymph node examination in patient's physical examination cannot be overemphasised. Regular practice of physical examination of patients has been found to improve the clinical acumen of doctors-in-training.[13] So far, the approach to teaching trainees on patient clerking and physical examination has been found to have undergone modification from strict bed-side teaching to use of simulators and standardized patients to improve exposure of the students to varying clinical scenarios.[13,14] Many researchers have reported improved competencies with the use of these newer teaching techniques.[13]

In the structure of clinical training in the Ibadan Medical School, medical and dental students are on several occasions divided into small tutorial groups, under the tutelage of their teachers, and this is done throughout the course of their training programme.[15] This enables them to have a higher teacher-student ratio, thereby enhancing their ease of learning. Furthermore, there are different student-centred clinical sessions, where students are taught clinical skills through the use of manikins and human subjects. In light of this, it is of high academic benefit to regularly assess the knowledge of acquired clinical skills of students through research. This helps in the evaluation of students' acquired clinical skills.

Our findings revealed that many of our respondents' knowledge of lymphadenopathies are inadequate (Table 2, and Figure 1). This may suggest that a significant proportion of them are yet to have adequate clinical skills on how to examine the SMLNs. Based on the curriculum of Ibadan Medical School, they have been exposed to the techniques of lymph node examination either in the clinics, wards, or in the classrooms, because SMLN examination is one of the routine activities in the clinics, and on ward rounds.[15]Lecture on lymph nodes examination also forms part of the basic lectures received by medical and dental students in the early weeks of the commencement of the clinical phase of their training.[15]As at the time this data was collected, all participants had spent more than four months in the clinical phase of their training, hence they have all passed through the phase of introductory lectures to Clinical Medicine.[15] This indicates that there is a need to investigate into the reasons why a significant proportion of our study population still lack adequate knowledge of SMLN examination.

Furthermore, our study population do engage in the clerking of patients. They do present their clerking to their clinical teachers (i.e. consultants and resident doctors) for assessment before its final documentation in patients' case notes. Some of the students that participated in this study stated that they had at one time or the other intentionally presented false reports of SMLN examination to their teachers (Table 4). We also observed that male students have a higher likelihood of presenting false report of their clinical findings on SMLNs compared to the females. The importance of truth-telling cannot be

overemphasised in clinical practice.[16,17] Giving students' seminars on the ethics of clinical practice and organising standardized patients' intervention models can help model their attitude towards truth-telling.[18]Moreover, clinical teachers also have roles to play in building students' confidence on giving true reports of situations by being a role model in truth-telling.[19]

The fear of teachers and the lack of adequate time in the physical examination of patients are two major factors that were demonstrated to influence students to give false clinical reports. Emotions have been proven to have strong connection with human ability to process and store information.[20]Negative emotions like fear or anger can interfere with students' learning processes.[21]Sinceemotional bonding forms a basic aspect of human relationships, teacher-student emotional landscape is very crucial in student's acquisition of knowledge.[22,23] Students need to be regularly encouraged to ask questions from their teachers on areas where they have deficient clinical skills without fear, as this has been proven to help in building the confidence and interest of students in the teacher and on the subject matter.[23] Also, students need to know how to make standard clerking within a short period of time, with the aim of clerking not jeopardised. This could be effectively achieved by exposing them repeatedly to clinical scenarios that challenge their clerkship skills.[24,25,26]

Patients' attributes can create barrier to patients' examination by medical and dental students. Some of these attributes include poor personal hygiene of patient, unwillingness of patient to get examined, religion of patient, and the gender of patient. This had also contributed to why some students failed to conduct thorough examination on their patient, but went ahead to give false reports to their teachers. Patients sometimes get tired of being examined by many students, hence, the use of simulators and standardized patients will also help in alleviating this challenge.

Some students showed little interest in examining SMLNs. This may be attributed to their inadequate knowledge of the importance of lymph node examination in clinical diagnosis; hence, they need enlightenment on the importance of detailed patient examination. Shame is also a contributory factor to false reporting among dental and medical students. Students need to be encouraged not to hide their ignorance to their teachers. This will encourage them in truth-telling to their teachers.

However, this study has few limitations. We did not enquire into the methods used to teach our study participants on lymphadenopathy and its techniques of examination and the students' perceived proficiency level in clinical examination.

CONCLUSION

In conclusion, there exists a need to educate our study population on lymphadenopathies and lymph node examination, and as well discourage them from presenting false reports (of their patient's SMLNs examination) to their teachers. We recommend that attention should be placed on the in-depth teaching, simulation, revision, and supervision of the medical and dental students on patients' physical examination and evaluation. This will go a long way in ensuring that the high standard of medical and dental education in the institution is maintained.

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