



A Clinicopathological Study Of Lateral Neck Swellings

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Abstract

Introduction: Diagnosis of a neck swelling is always been very difficult and challenging. After diagnosis, management also is complicated and tests a surgeon's skill. Structured approach is the key. Neck swellings quite often is the first clinical presentation of upper gastro-intestinal tract and respiratory tract malignancy. Neck swellings are a cause of higher morbidity and mortality in India. The purpose of the study is to find out correlation of clinical diagnosis with pathological diagnosis, incidence of lateral neck swellings and commonest cause of cervical lymph node in this study.

Methods: A Prospective study was conducted over 30 cases at MGM Medical College and Hospital, Navi Mumbai. All patients coming to the Surgery Out Patient Department (OPD) with lateral neck swellings aged 14 years onwards were included in the study.

Results: We observed tuberculous lymphadenitis was the most common cause of cervical Lymphadenopathy in our study.

Conclusion: In our study of correlation between clinical and histopathological diagnosis we observed a statistical significance in the categories of infective/inflammatory and benign. We observed that in our study tuberculous lymphadenitis as the most common diagnosis observed in 13 out of 30 patients and the commonest cause of lymph nodes was tuberculosis.

Keywords: Neck swelling, tuberculosis, tuberculous lymphadenitis, lymph node

Introduction

Diagnosis of a neck swelling is always been very difficult and challenging. After diagnosis, management also is complicated and tests a surgeon's skill.⁽¹⁾ Structured approach is the key. Two basic keys which are knowledge of anatomy and pathologies within. The next step is to follow it with an appropriate investigations.⁽¹⁾

Commonest occurring swellings are lymphoid, thyroid, salivary glands etc.⁽²⁾ Apart from the above

Lateral Neck Swellings[LNS] are seen commonly in primary and secondary malignant lesions.⁽³⁾

Fine Needle Aspiration Cytology [FNAC] is the primary diagnostic investigation in cases of LNS. FNAC has replaced and quite often has complemented histopathological analysis in various scenarios. The advantages of FNAC being high sensitivity, cheap and rapid investigation.⁽³⁾

Neck swellings quite often is the first clinical presentation of upper gastro-intestinal tract and respiratory tract malignancy.⁽⁴⁾ Neck swellings are a

cause of higher morbidity and mortality in India.⁽⁵⁾ Any neck swelling greater than size of 2cms has 80% chance of being of malignant origin.⁽⁵⁾ Amongst the benign lesion Goitre is frequent. Amongst the malignant lesion Squamous Cell Carcinoma is frequent. Addictions like smoking, eating of pan and chewing of tobacco are a major precursors.⁽⁵⁾

The purpose of the study is to find out correlation of clinical diagnosis with pathological diagnosis, incidence of lateral neck swellings and commonest cause of cervical lymph node in this study.

Aims And Objectives

The purpose of this study is:-

To Compare Clinical Diagnosis with Pathological Diagnosis of Lateral neck Swellings.

To Find Out Incidence of Different Lateral Neck Swellings.

To Find Commonest Cause of Cervical Lymphadenopathy in this study

Materials And Methods

Study design: Prospective study

Place of study: MGM Medical College and Hospital, Navi Mumbai.

Sample size: 30

Informed, written and valid consent was obtained from all the patients before the start of the study.

Approval of ethics committee was obtained before the start of the study.

Study Plan:

Results:

1. Table showing Age distribution

Age groups (in years)	No. of patients	% of patients
11-20	5	16.67
21-30	9	30
31-40	6	20
41-50	6	20
51-60	2	6.67

Inclusion Criteria

All patients coming to the Surgery Out Patient Department (OPD):

- 1: With lateral neck swellings
- 2: Aged 14 years onwards

Exclusion Criteria

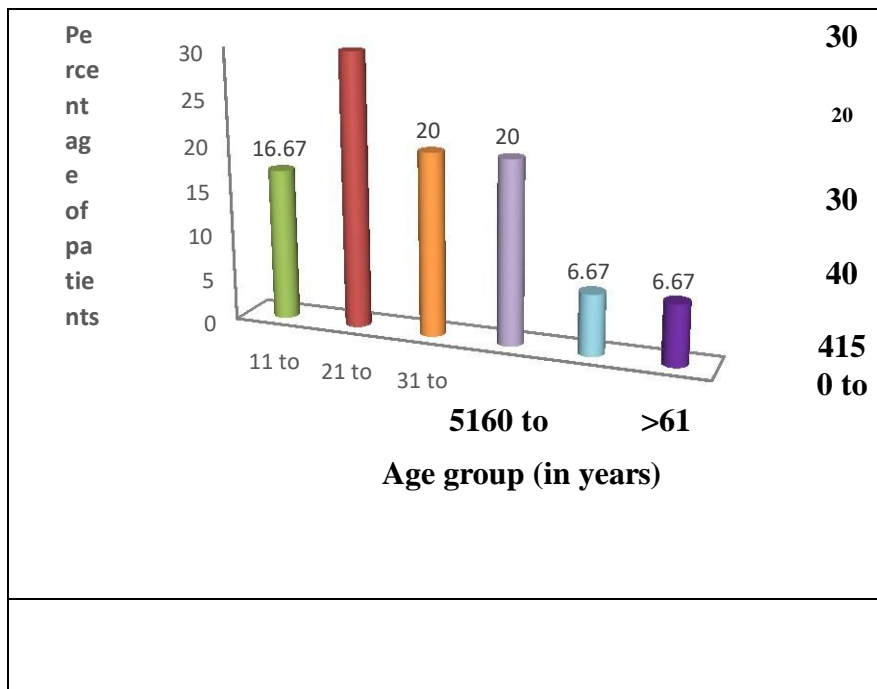
- 1: All acute inflammatory condition
- 2: All children below 14 years
- 3: Cases of recurrence with known diagnosis
- 4: Already diagnosed cases

Method Of Collection Of Data Clinical History

1. The purpose of study and methodology going to be adopted was clearly explained to patients in simple terms.
2. After this an Informed Consent Performa was explained in detail to the patient and if only the patient voluntarily agreed to participate, he or she was asked to sign it.
3. These patients were again explained about the study, its objective and that the study results could translate into possible benefits for better patient management.
4. Biochemical investigations evaluated were:
5. Blood counts, ESR.
6. FNAC, EXCISION BIOPSY, USG OF NECK, CT SCAN (IF REQUIRED)
7. All the above data was meticulously collected and then was subsequently analyzed at the end of the study, in consultation with a trained Biostatistician

>61	2	6.67
Total	30	100

Graph No 1: Age distribution

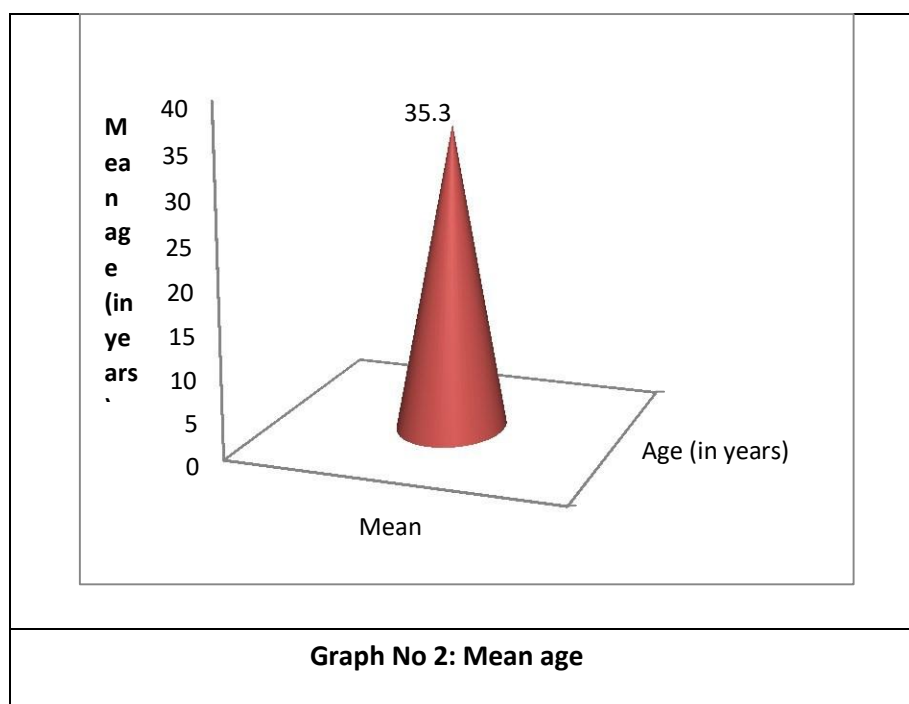


In our study the 30% of the cases were from the age groups between 21-30. 20% of the cases were between 31-40 and 41-50 each while 16.67% were between 11-20 years. There was 6.67% of patients between the age groups of 51-60 and above 61. Maximum patients were between age group of 21-30 and minimum between the age groups of 51-60 and above 61.

Table showing mean age

Parameter	Mean ± SD	Range
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Age (in years)	35.3 ± 14.62	15 to 72
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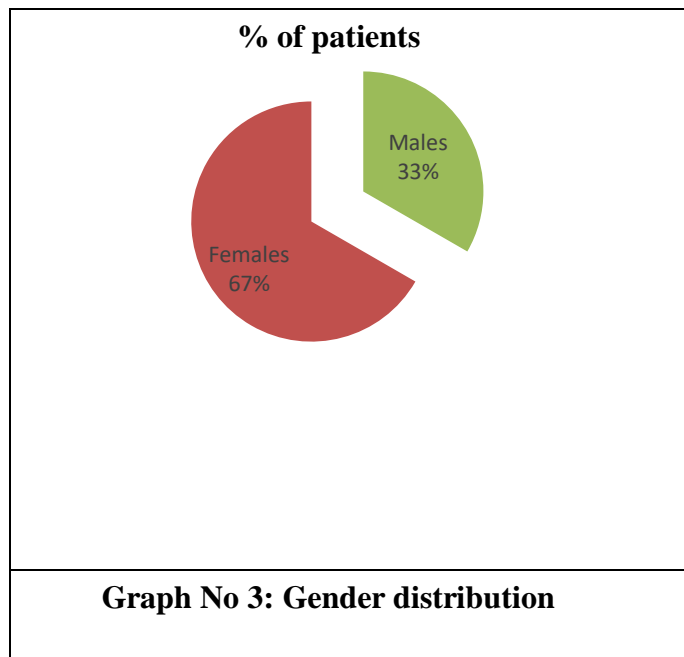


In our study the mean age of patients were 35.3 with a standard deviation of ± 14.62

Table showing Gender distribution

Gender	No. of patients	% of patients
Males	10	33.33

Females	20	66.67
Total	30	100

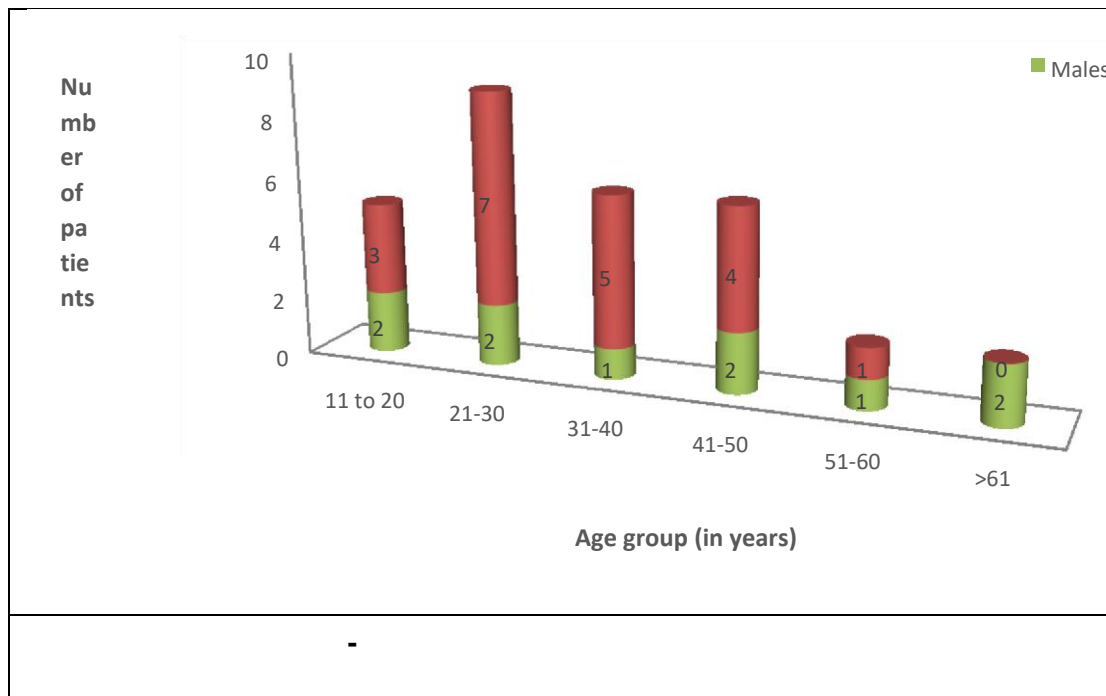


In our study male: female ratio was 1:2

Table showing Gender-wise distribution of patients according to age group

Age in years	Males	Females	Total
11-20	2	3	5
21-30	2	7	9
31-40	1	5	6
41-50	2	4	6
51-60	1	1	2
>61	2	0	2
Total	10	20	30

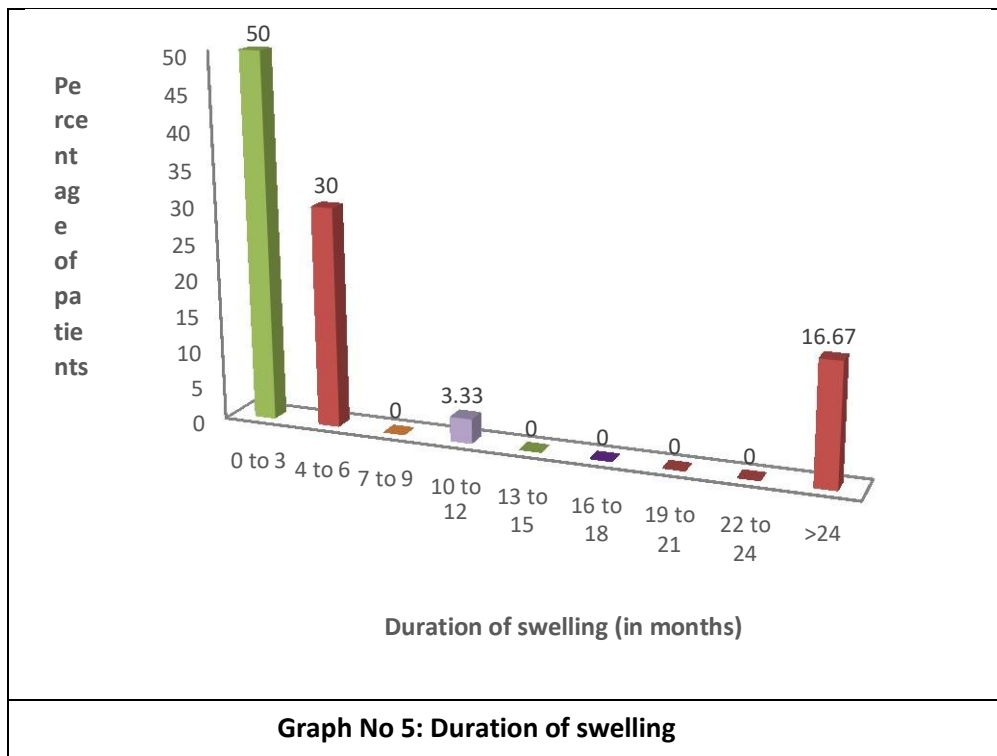
Graph No 4: Gender wise distribution of patients according to age group



In our study there was more females in every age group except 51-60 and above 61

Table showing duration of swelling

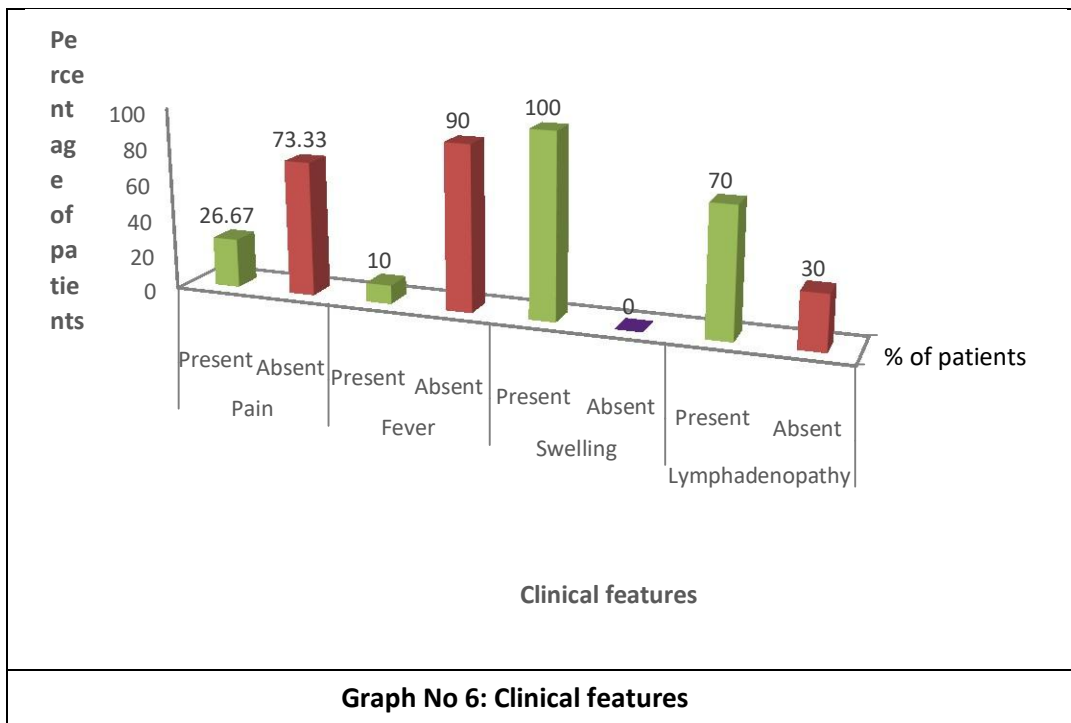
Duration in months	No. of patients	Percentage
0-3months	15	50
4-6 months	9	30
7-9 months	0	0
10-12 months	1	3.33
13-15 months	0	0
16-18 months	0	0
19-21 months	0	0
22-24 months	0	0
>24 months	5	16.67
Total	30	100



In our study we observed 50% of patients with duration of swelling <3 months

Table showing clinical features

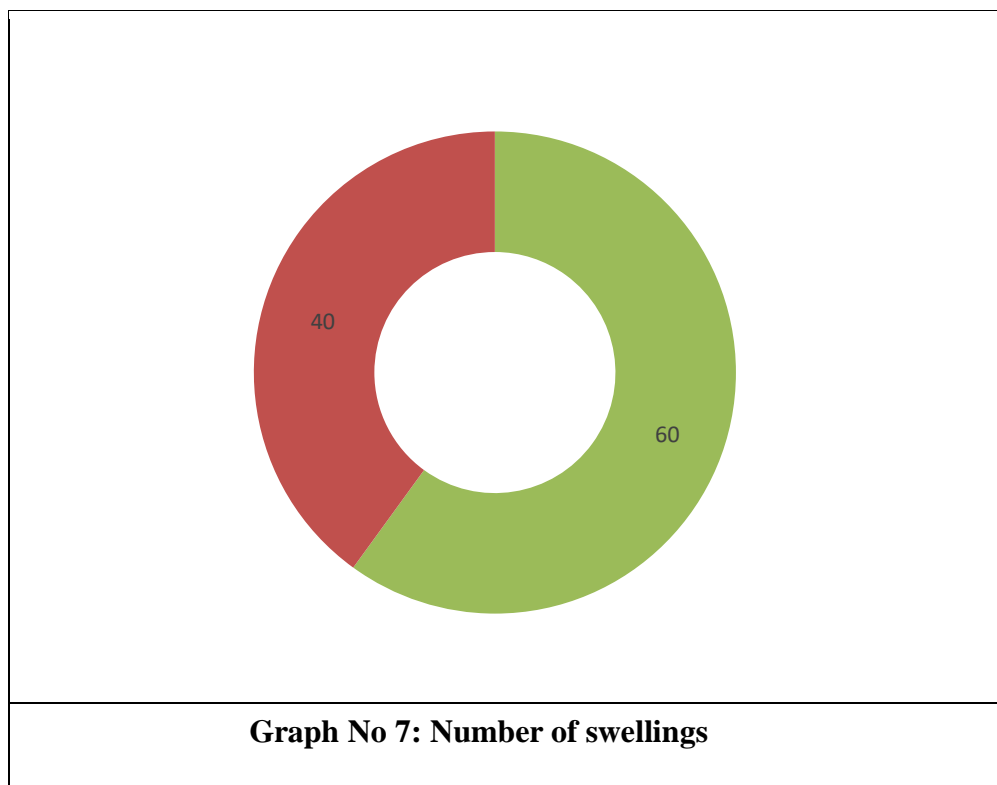
Clinical features	No. of patients	% of patients
Pain		
Present	8	26.67
Absent	22	73.33
Fever		
Present	3	10.90
Absent	27	
Swelling		
Present	30	100
Absent	0	0
Lymphadenopathy		
Present	21	70
Absent	9	30
Total	30	100



In our study painful swellings were observed in only 26.67% of patients. We also observed that only 10% patients presented with fever. Clinical swelling was seen in every patient. We also observed Lymphadenopathy in 70% of our patients.

Table showing number of swellings

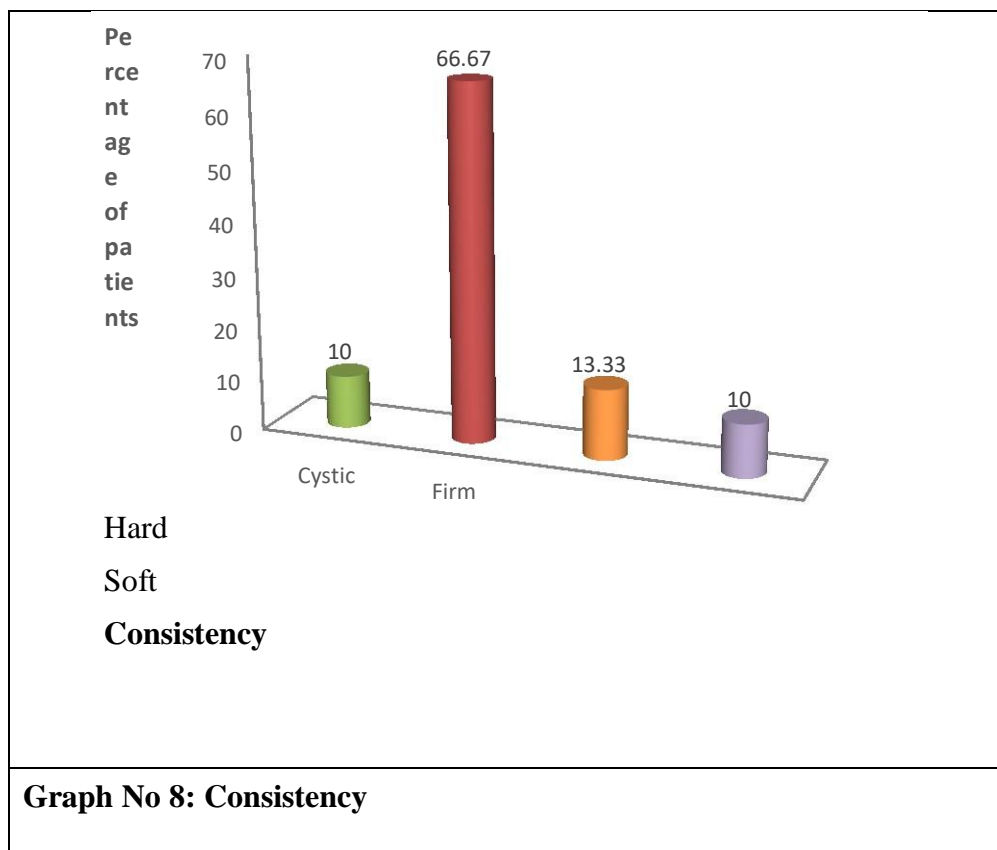
Number of swellings	No. of patients	% of patients
Single	18	60
Multiple	12	40
Total	30	100



In our study 60% of patients presented with a single neck swelling while 40% of patients presented with multiple neck swellings.

Table showing Consistency of the swellings

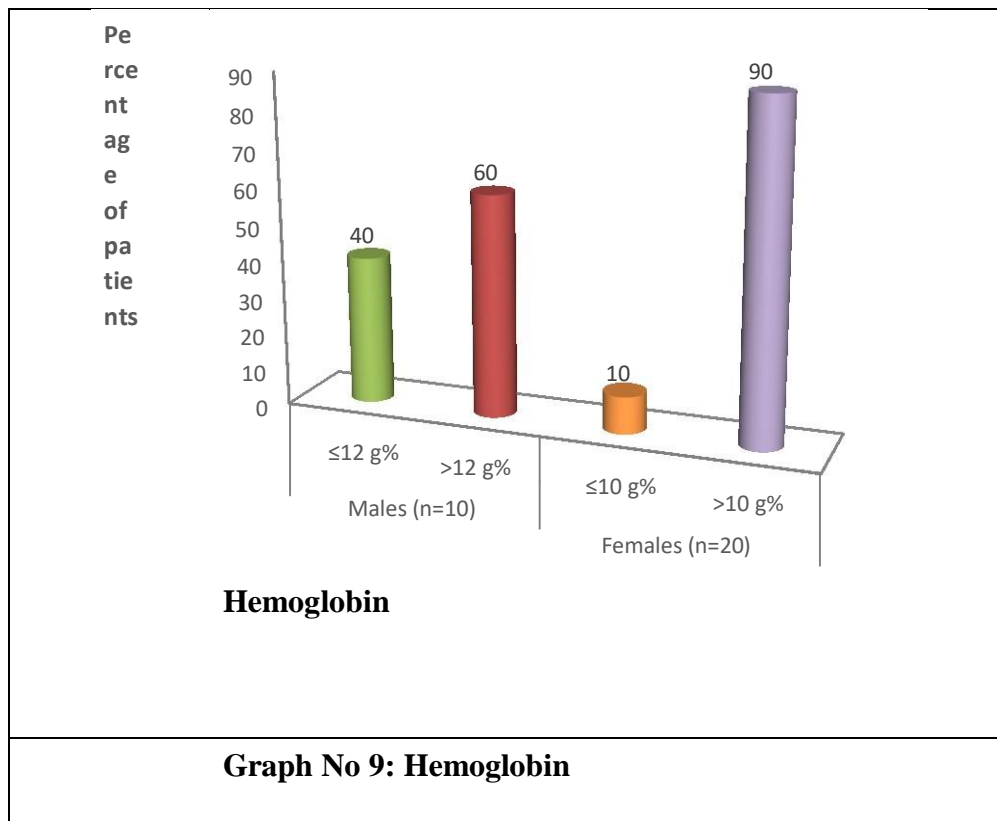
Consistency	No. of patients	% of patients
Cystic	3	10
Firm	20	66.67
Hard	4	13.33
Soft	3	10
Total	30	100



In our study 66.67% patients presented with a firm swelling

Table showing value of hemoglobin

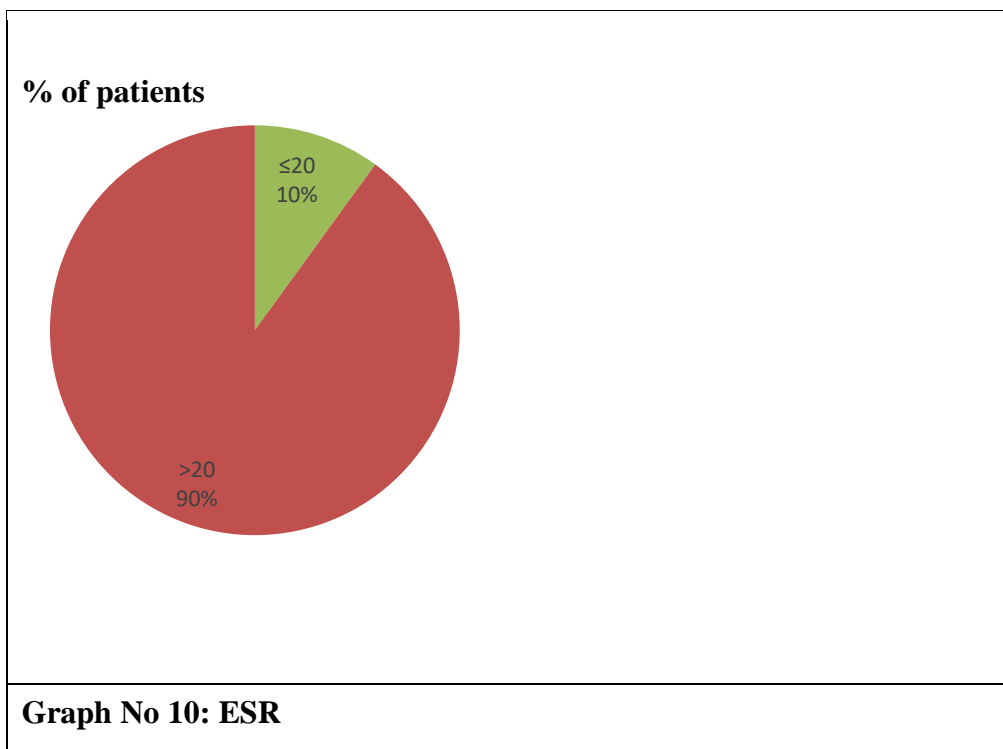
Hemoglobin	No. of patients	% of patients
Males (n=10)		
≤12 g%	4	40
>12 g%	6	60
Females (n=20)		
≤10 g%	2	10
>10 g%	18	90
Total	30	100



In our study we observed 40% males having hemoglobin less than 12gm% and 10% females having hemoglobin less than 10gm%.

Table showing value of Erythrocyte Sedimentation Rate(ESR)

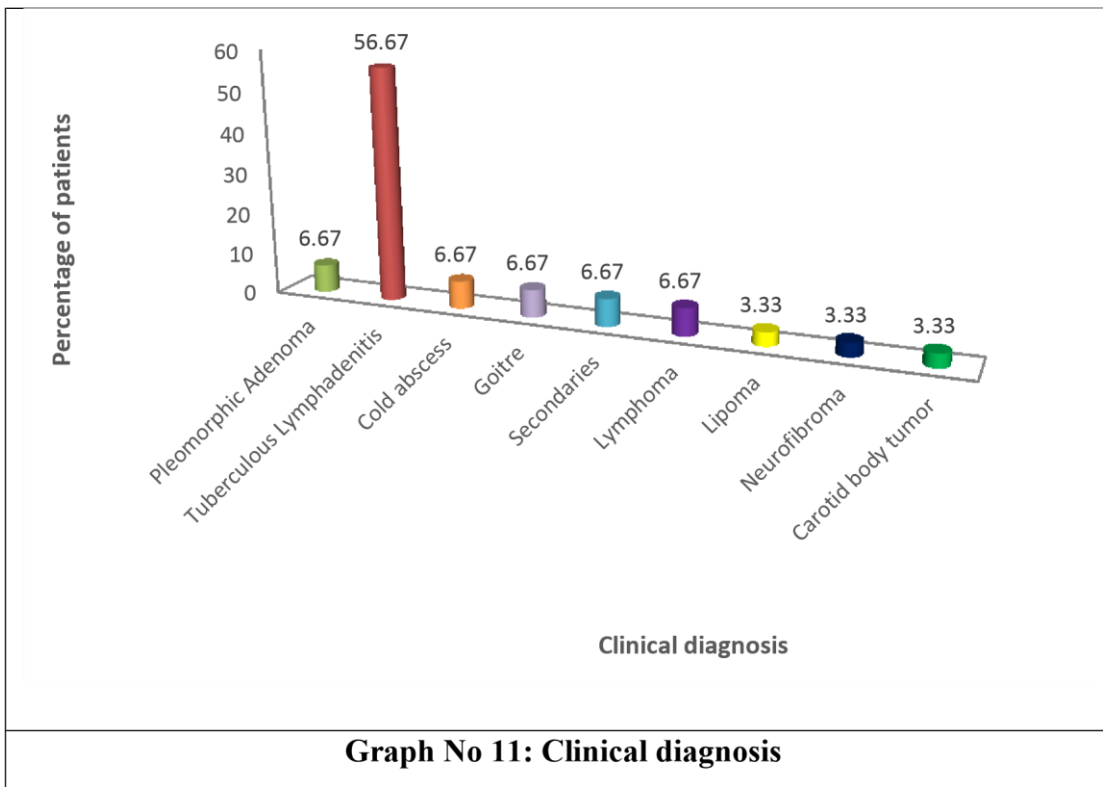
ESR	No. of patients	% of patients
≤20	3	10
>20	27	90
Total	30	100



In our study 90% of patients had a raised ESR.

Table showing Clinical diagnosis

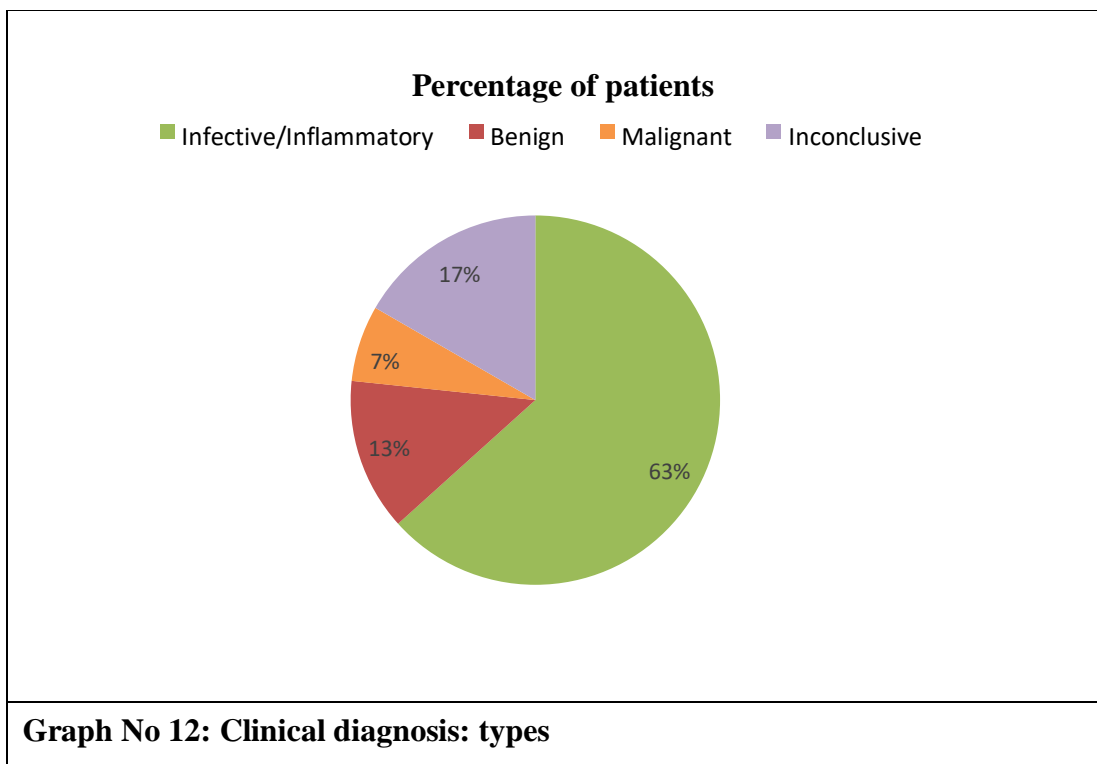
Clinical Diagnosis	No. of patients	% of patients
Pleomorphic Adenoma	2	6.67
Tuberculous Lymphadenitis	17	56.67
Cold abscess	2	6.67
Goitre	2	6.67
Secondaries	2	6.67
Lymphoma	2	6.67
Lipoma	1	3.33
Neurofibroma	1	3.33
Carotid body tumor	1	3.33
Total	30	100



In our study we observed tuberculous lymphadenitis as the most common diagnosis seen in 56.67% of patients.

Table showing types of clinical diagnosis

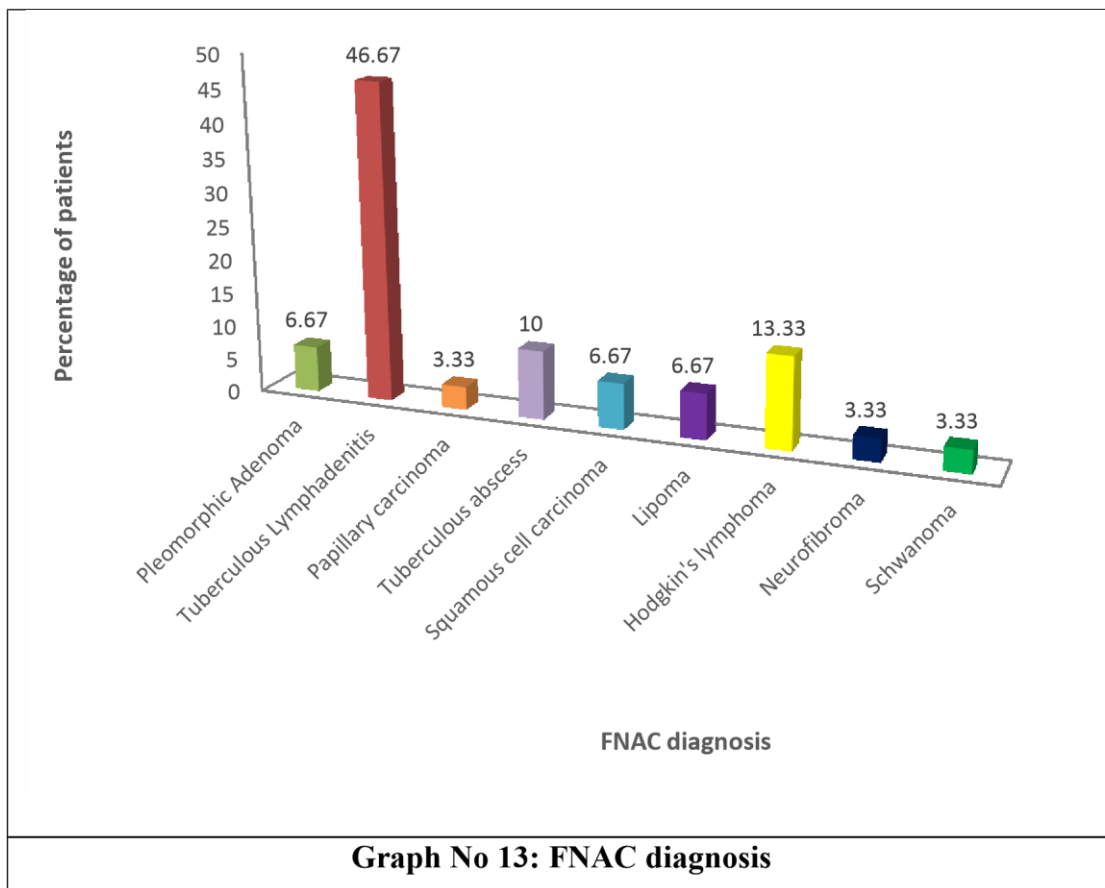
Type of clinical diagnosis	No. of patients	Percentage of patients
Infective/Inflammatory	19	63.33
Benign	4	13.33
Malignant	2	6.67
Inconclusive	5	16.67
Total	30	100



In our study we observed 63.33% patients with a clinical diagnosis of Infective/Inflammatory type.

Table showing Fine Needle Aspiration Cytology (FNAC) Report

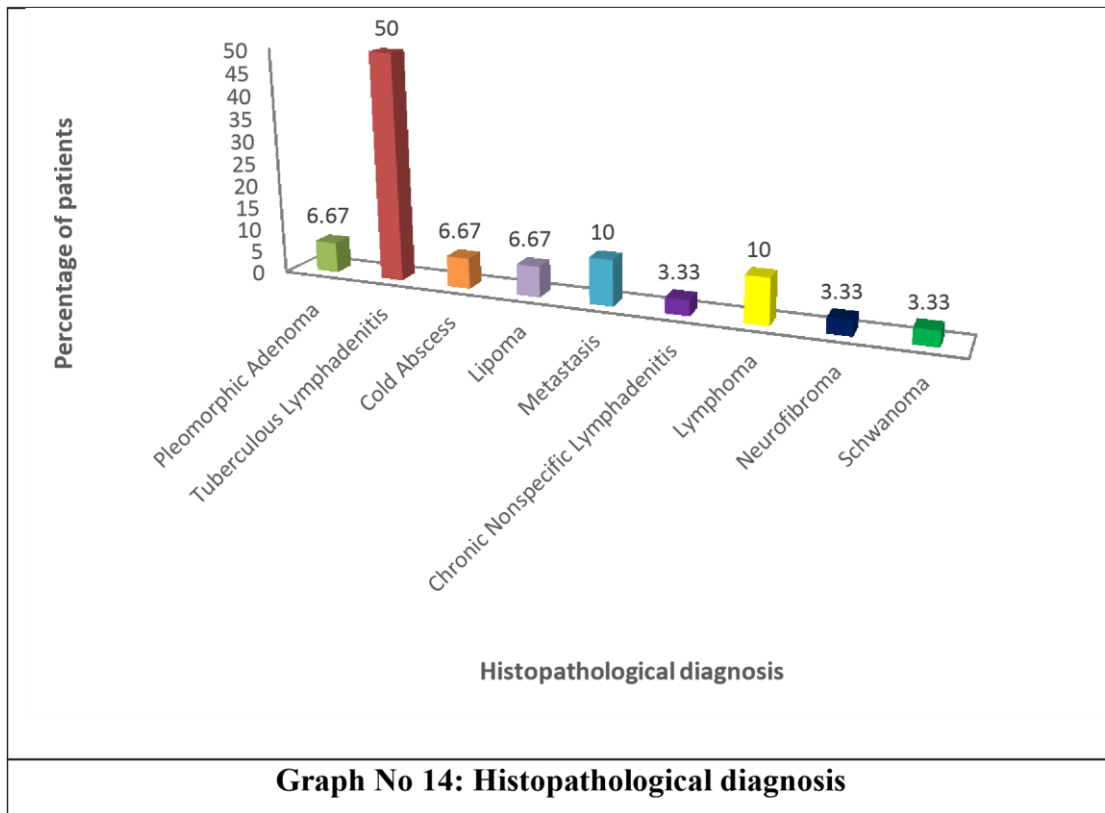
FNAC Diagnosis	No. of patients	% of patients
Pleomorphic Adenoma	2	6.67
Tuberculous Lymphadenitis	14	46.67
Papillary carcinoma	1	3.33
Tuberculous abscess	3	10
Squamous cell carcinoma	2	6.67
Lipoma	2	6.67
Hodgkin's lymphoma	4	13.33
Neurofibroma	1	3.33
Schwanoma	1	3.33
Total	30	100



In our study FNAC of 46.67% was tuberculous lymphadenitis.

Table showing histopathological diagnosis

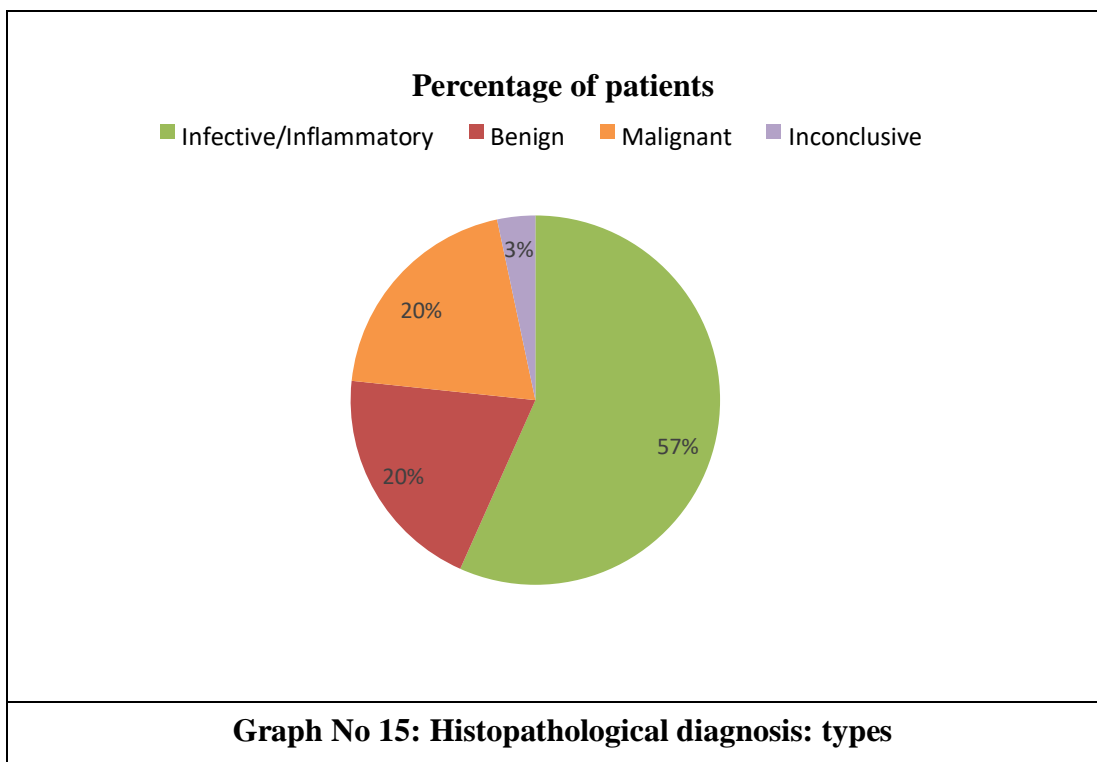
Histopathological Diagnosis	No. of patients	Percentage
Pleomorphic Adenoma	2	6.67
Tuberculous Lymphadenitis	15	50
Cold Abscess	2	6.67
Lipoma	2	6.67
Metastasis	3	10
Chronic Nonspecific Lymphadenitis	1	3.33
Lymphoma	3	10
Neurofibroma	1	3.33
Schwanoma	1	3.33
Total	30	100



In our study 50% of patients histopathology report suggested tuberculous lymphadenitis.

Table showing types of histopathological diagnosis

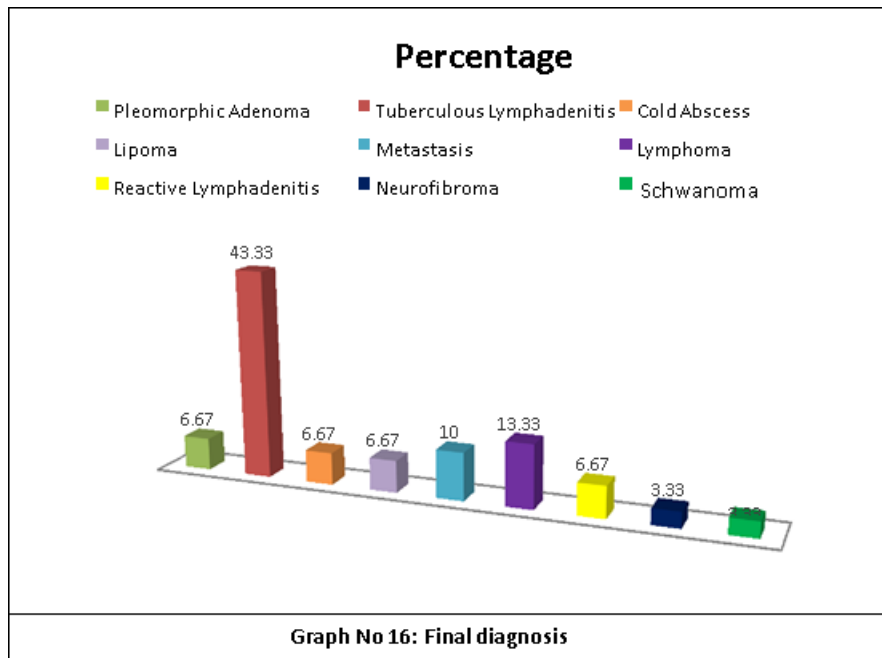
Type of histopathological diagnosis	No. of patients	Percentage of patients
Infective/Inflammatory	17	56.67
Benign	6	20
Malignant	6	20
Inconclusive	1	3.33
Total	30	100



In our study histopathological diagnosis of 56.67% patients were Infective/Inflammatory type.

Table showing final diagnosis

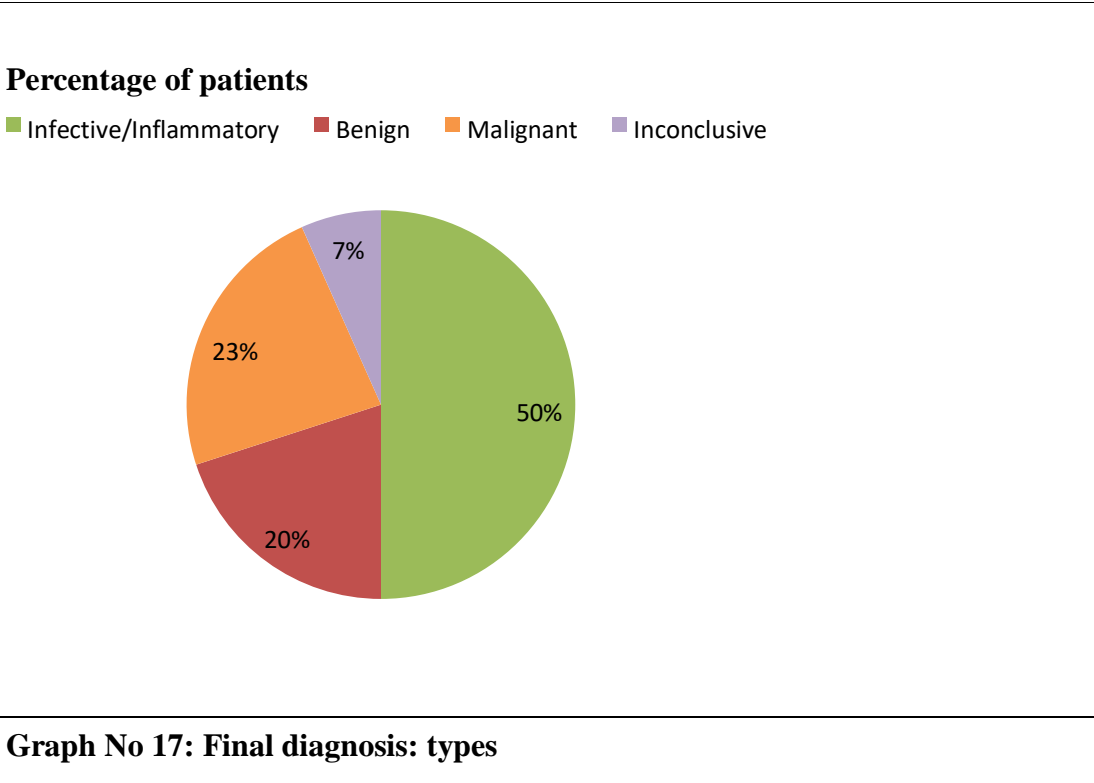
Final Diagnosis	No. of patients	Percentage
Pleomorphic Adenoma	2	6.67
Tuberculous Lymphadenitis	13	43.33
Cold Abscess	2	6.67
Lipoma	2	6.67
Metastasis	3	10
Lymphoma	4	13.33
Reactive Lymphadenitis	2	6.67
Neurofibroma	1	3.33
Schwanoma	1	3.33
Total	30	100



In our study we observed that 43.33% of patients were diagnosed with tuberculous lymphadenitis and 13.33% of patients had lymphoma.

Table showing types of final diagnosis

Type of final diagnosis	No. of patients	Percentage of patients
Infective/Inflammatory	15	50
Benign	6	20
Malignant	7	23.33
Inconclusive	2	6.67
Total	30	100



In our study we observed that 50% of patients were diagnosed with infective/inflammatory type while 23.33% were malignant and 20% were benign. 6.67% result was inconclusive.

Table showing Distribution of patients with Clinical Diagnosis and Histopathological Diagnosis

		Histopathological Diagnosis				Total
		Infective /Inflammatory	Benign	Malignant	Inconclusive	
Clinical Diagnosis	Infective/Inflammatory	17	0	2	0	19
	Benign	0	4	0	0	4
	Malignant	0	0	1	1	2
	Inconclusive	0	2	3	0	5
Total		17	6	6	1	30

Table showing correlation between clinical diagnosis and histopathological diagnosis

Diagnosis	r	p-value
Infective/Inflammatory	0.8701	<0.0001
Benign	0.7845	<0.0001
Malignant	0.2004	0.2883

Inconclusive	-0.083	0.6628
*Calculated using the Pearson's n test correlatio r = Pearson's correlation coefficient; r = 1 means a perfect positive correlation, r = -1 means a perfect negative correlation p<0.05 considered statistically significant.		

In our study, the correlation between clinical diagnosis and histopathological diagnosis are statistically significant for Infective/Inflammatory and Benign type.

Table showing distribution of patients with Histopathological Diagnosis and Final Diagnosis

		Final Diagnosis				Total
		Infective/ Inflammatory	Benign	Malignant	Inconclusive	
Histopathological Diagnosis	Infective /Inflammatory	15	0	0	2	17
	Benign	0	6	0	0	6
	Malignant	0	0	6	0	6
	Inconclusive	0	0	1	0	1
Total		15	6	7	2	30

Table showing correlation between histopathological diagnosis and final diagnosis

Diagnosis	r	p-value
Infective/Inflammatory	0.8745	<0.0001
Benign	1	<0.0001
Malignant	0.9063	<0.0001
Inconclusive	-0.0496	0.7930

*Calculated using the Pearson's correlation test $r =$ Pearson's correlation coefficient;
 $+0.7609 = 1$ means a perfect positive correlation,
 and $r = -1$ means a perfect negative correlation
 $p < 0.05$ considered statistically significant.

In our study there was perfect positive correlation between histopathological and final diagnosis in benign type.

Table showing distribution of patients with Clinical Diagnosis and Final Diagnosis

		Final Diagnosis				Total
		Infective/ Inflammatory	Benign	Malignant	Inconclusive	
Clinical Diagnosis	Infective/ Inflammatory	15	0	2	2	19
	Benign	0	4	0	0	4
	Malignant	0	0	2	0	2
	Inconclusive	0	2	3	0	5
Total		15	6	7	2	30

Table showing correlation between clinical diagnosis and final diagnosis

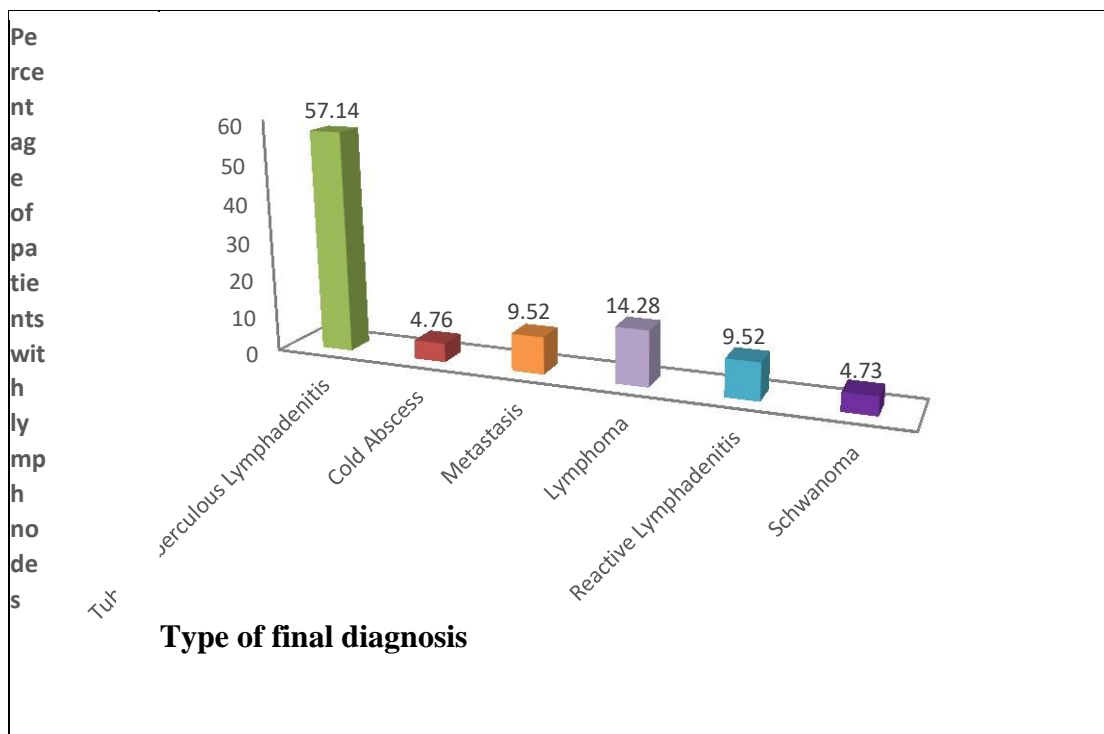
Diagnosis	r	p-value
Infective/Inflammatory	0.7609	<0.0001
Benign	0.7845	<0.0001
Malignant	0.4845	0.0067
Inconclusive	-0.1195	0.5311

*Calculated using the Pearson’s correlation test $r =$ Pearson’s correlation coefficient;
 $+0.5r06+ = 1$ means a perfect positive correlation, and
 $r = -1$ means a perfect negative correlation $p < 0.05$
 considered statistically significant.

In our study there was positive correlation between clinical and final diagnosis for Infective/Inflammatory, Benign and Malignant.

Table showing Final diagnosis in patients with lymph nodes

Final Diagnosis	No. of patients	Percentage
Tuberculous Lymphadenitis	12	57.14
Cold Abscess	1	4.76
Metastasis	2	9.52
Lymphoma	3	14.28
Reactive Lymphadenitis	2	9.52
Schwanoma	1	4.73
Total	21	100



Graph No 18: Final diagnosis in patients with lymph nodes

In our study we observed that the most commonest cause of Lymphadenopathy was Tuberculous lymphadenitis(57.14%)

Discussion

In this prospective study of 30 cases of lateral neck swellings done by us in Mahatma Gandhi Mission's Medical College, Navi Mumbai, Maharashtra. After comparing our results with various similar studies which were done previously by other specialities, the following are the relevant observations and findings. The purpose of the study is to find out correlation of clinical diagnosis with pathological diagnosis, incidence of lateral neck swellings and commonest cause of cervical lymphadenopathy in this study.

In our study of 30 patients 10 were males and 20 were females with a male: female ratio of 1:2. In a study by Popat et al⁽⁵⁾ in 2010 of 103 cases, 54 were males and 49 were females.

In our study the commonest age group was between 21-30 years compared to Popat et al⁽⁵⁾ noted a age group of 21-50 years. The mean age group of this study is 35.3.

According to the age group, in our study we found maximum number of females were in the age group 21-30. Males were distributed evenly amongst all age group.

We observed in our study that the most common duration of symptoms (50%) were between 0-3 months.

In our study the clinical presentation were categorised as presence of pain, fever, swelling and lymphadenopathy. We observed 26.67% had pain, 10% presented with fever, 70% presented with Lymphadenopathy while all patients presented with a visible swelling.

In our study we observed that 60% of patients presented with a single swelling while 40% presented with multiple swellings.

In our study on clinical examination 66.67% of swellings were firm in consistency, while 13.33% were hard in consistency and cystic and soft swellings were observed in 10% patients each.

In our study we observed that 40% of males had Haemoglobin below 12gm/dl and 10% females had

haemoglobin below 10 gm/dl. We also observed raised Erythrocyte Sedimentation Rate (ESR) in 90% of the subjects.

In our study the clinical diagnosis comprised of Tubercular lymphadenitis (56.67%), Pleomorphic adenoma (6.67%), cold abscess (6.67%), goitre (6.67%), lymphoma (6.67%), secondaries (6.67%), lipoma (3.33%), Carotid body tumours (3.33%) and neurofibroma (3.33%).

In our study we classified the clinical diagnosis as infective/inflammatory (63.33%), benign (13.33%), malignant(6.67%) and inconclusive (16.67%).

In our study FNAC diagnosis revealed Tuberculous lymphadenitis(46.67%), Hodgkin's lymphoma(13.33%), tuberculous abscess(10%), Pleomorphic adenoma(6.67%), Squamous cell carcinoma(6.67%), lipoma(6.67%), Papillary carcinoma (3.33%), Neurofibroma(3.33%), Schwanoma (3.33%). Abscesses(10%), lymphoma(2%), Secondary metastases(6 %), reactive lesion(28%). cystic lesion(2%). The next most common masses were malignant neoplasms, cysts, benign neoplasms and sialadenitis, in 13%, 11%, 9% and 5%, respectively. Thus our study had concluded that the most common FNAC diagnosis being tuberculous

lymphadenitis. In our study we concluded the histopathological diagnosis comprised of Tuberculous lymphadenitis(46.67%), Hodgkin's lymphoma(13.33%), tuberculous abscess(10%), Pleomorphic Adenoma(6.67%), squamous cell carcinoma(6.67%), Lipoma(6.67%), papillary carcinoma(3.33%), neurofibroma(3.33%) and schwanoma(3.33%). In our study we classified the histopathological diagnosis as Infective/Inflammatory (56.67%), Benign(20%), Malignant(20%) and Inconclusive(3.33%).

In our study we observed final diagnosis as Tuberculous Lymphadenitis(43.33%), Lymphoma(13.33%), Metastasis(10%), Pleomorphic Adenoma(6.67%), Cold abscess(6.67%), Lipoma(6.67%), Reactive Lymphadenitis(6.67%),

Neurofibroma(3.33%) and Schwanoma(3.33%). As compared to previous study by Manjula K et al⁽³⁾ who observed Infective/Inflammatory(66.05%), benign(6.57%) and malignant(27.36%). In our study a correlation between clinical diagnosis and histopathological diagnosis was done. The Pearson's correlation coefficient 'r' was calculated. We observed an 'r' value of 0.8701 in Infective/Inflammatory, 0.7845 in Benign, 0.2004 in Malignant and -0.083 in Inconclusive types. Thus we observed a statistically significant correlation in Infective/Inflammatory and Benign types. In our study a correlation between histopathological and final diagnosis was done. The Pearson's correlation coefficient 'r' was calculated. We observed an 'r' value of 0.8745 in Infective/Inflammatory, 1 in Benign, 0.9063 in Malignant and -0.0496 in Inconclusive types. Thus we observed a perfect positive correlation in benign type.

In our study a correlation between clinical and final diagnosis was done. The Pearson's correlation coefficient 'r' was calculated. We observed an 'r' value of 0.7609 in Infective/Inflammatory, 0.7845 in Benign, 0.4845 in Malignant and 0.1195 in Inconclusive types. Thus we observed a statistically significant correlation in Infective/Inflammatory and Benign types. In our study we observed that 21 out of 30 patients had a clinically palpable lymph node. We observed that tuberculous lymphadenitis (57.14%) was the most common diagnosis. Other observations were cold abscess (4.76%), metastasis (9.52%), lymphoma (14.28%), reactive lymphadenitis (9.52%) and schwannoma (4.73%).

Thus we observed tuberculous lymphadenitis was the most common cause of cervical Lymphadenopathy in our study.

Conclusion

In our study of correlation between clinical and histopathological diagnosis we observed a statistical significance in the categories of infective/inflammatory and benign. While the diagnosis of malignant cases the correlation was not present.

In our study the mean age of patients as 35 with a female predominance, male to female ratio as 1:2.

In our study tuberculous lymphadenitis as the most common diagnosis observed in 13 out of 30 patients.

In our study the commonest cause of lymph nodes was tuberculosis.

Thus we concluded that tuberculosis affects many young adult females. Tuberculosis is a very dangerous disease which causes significant damage to the Indian society. A systemic approach is required for a case of lateral neck swelling with a good clinical history, histopathological investigation and subsequent management.

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