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ETIOLOGY OF LYMPHADENOPTHY AMONG SOUTH INDIAN POPULTION.

General Surgery

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ABSTRACT

Aim: To study the etiological causes of significant lymphadenopathy among the adults in the South Indian population .
Materials & Methods: Patients with significant lymphadenopathy and age more than 18 years and who fit with inclusion criteria are taken into study . Biopsy taken for all the patient fit for anaesthesia and sent for Gene Xpert , Histopathological examination, AFB culture .
Result: Among the 50 patients with significant lymphadenopathy, 31 were due to Tuberculous lymphadenitis, 6 were due to malignancy, 13 were due to reactive lymphadenitis.
Conclusion: the commonest cause of lymphadenopathy is tuberculosis, and the AFB culture and sensitivity when compared to Gene Xpert had 2.1 times more chances of detecting TB adenitis and HPE for TB adenitis when compared to Gene Xpert had 3.8 times more chances of detecting TB adenitis.

KEYWORDS

Lymphadenopathy , Tuberculous lymphadenitis

INTRODUCTION:

Body contains about 500 - 560 lymph nodes. Spleen , adenoids, Peyer patches and tonsils are the lymphatic tissue. The role is to neutralize the antigens entering into the body from the extra cellular fluid and the environment. Peripheral lymph nodes are located below the skin and palpable only if any pathological changes.

Lymphadenopathy defines as a condition in which nodes are abnormal in size, texture and count. A lymph node is usually less than 10mm in size. The size varies in different locations, different ages and different size. An inguinal lymph node size upto 15 mm is normal. Epi trochlear node upto 5mm is normal. If the lymph node size more than 2cm needs clinical evaluation.

It is important to take proper history taking and examination for diagnosing the etiology of the lymphadenopathy. The etiology varies in different areas. Tuberculosis is the commonest etiology for cervical lymphadenopathy in India and African countries. Most of the studies show common benign etiologies as Non specific reactive lymphadenopathy.

All patients of lymphadenopathy must be examined thoroughly. Examination of lymph nodes for its location, size, consistency and tenderness is important. Lymphadenopthy can be Generalized or Localized. Supra clavicular area is high risk for malignancy. Presence of red lymphangitic streak over the skin in infection and inflammatory conditions. Palpable lymphadenopathy of more than 0.5cm in supraclavicular, epitrochlear, cervical, popliteal and iliac nodes and inguinal node of more than 1.5cm is suggestive of pathological.

Tender lymphadenopathy may be due to infection and also induced by hemorrhage in the neoplastic nodes or rapid tumour expansion. Chronic inflammation leads to fibrosis make the node hard in palpation. Acute inflammation due to tension on the capsule causes tenderness.Stony hard and painless node is usually metastatic or granuloma of lymph node.Firm and rubbery nodes are seen in lymphoma. Matted lymph nodes are seen in mycobacterium infection. Lymphadenopathy due to infections and collagen vascular diseases are freely mobile in subcutaneous plane. Rubbery mobile nodes usually suggestive of lymphoma. Hard fixed node is usually due to metastatic and malignancy disease. Splenomegaly associated with lymphadenopathy seen in infectious mono nucleosis, acute lymphoma, Hodgkin disease , NHL and sarcoidosis.Skin lesions are common in malignancies such as melanoma. Traumatic lesions can be the cause for axillary lymphanopathy by the infections in the draining area.The benign reactive inguinal lyphadenopathy seen in bare foot walkers. Localized lymphadenopathy is typical of infections and due to sexually transmitted diseases like HSV ,Gonococcal infection, syphilis, LGV ,and Granuloma inguinale . Malignancy is rare when only inguinal nodes are enlarged. Carcinoma of penis, vulva and anus can involve inguinal lymphadenopathy.

PERIPHERAL LYMPHADENOPATHY – DIFFERENTIAL DIAGNOSIS:

Localised Peripheral Lymphadenopathy:

Cervical	Viral: URI, Infectious mononucleosis, Human herpes virus/ CMV/ HIV, Coxsackie virus Bacterial: staphylococccus aureus,Streptococcal pyogenes (Gr A), Mycobacterium Malignancy: Hodgkin, NHL, CA thyroid, metastatic carcinoma
Supraclavicular	Abdominal and thoracic malignancy CA breast, Mycobacterial and fungal infections
Axillary	Bacterial: Staphylococccus aureus, Streptococcal pyogenes (Gr A), Mycobacterium Malignancy : Lymphoma, Leukemia
Inguinal	Benign reactive lymphadenopathy STD infections Lymphoma, carcinoma of penis and vulva, metastatic melanoma

Generalised Peripheral Lymphadenopathy:

Infections	Infectious mononucleosis, HIV, Miliary TB, Typhoid fever, syphilis, Plague
Malignancy	Lymphoma and AML
Auto immune disorders	SLE, RA, Sjogren syndrome, Sarcoidosis
Drug reactions	Phenytoin, Allopurinol, Atenolol
Lipid storage diseases	Gaucher and Niemann Pick's disease

AIM:

To study the etiological causes that causes significant lymphadenopathy among the adults in the South Indian population .

MATERIALS & METHODS:

Patients with significant lymphadenopathy and age more than 18 years and who fit with inclusion criteria are taken into study . Biopsy taken for all the patient fit for anaesthesia and sent for Gene X pert ,

Histopathological examination, AFB culture .

Inclusion Criteria:
Age more than 18 yrs , and Patient should have significant lymphadenopathy which is described as Size: Insignificant if < 2cm . In axilla and inguinal, insignificant if < 3cm and supraclaviclar fossa > 1cm is significant. Consistency: soft (insignificant), rubbery (classically lymphoma) , hard (classically malignancy & granulomatous infection). Tender (classically infection) vs. non-tender (classically malignancy)

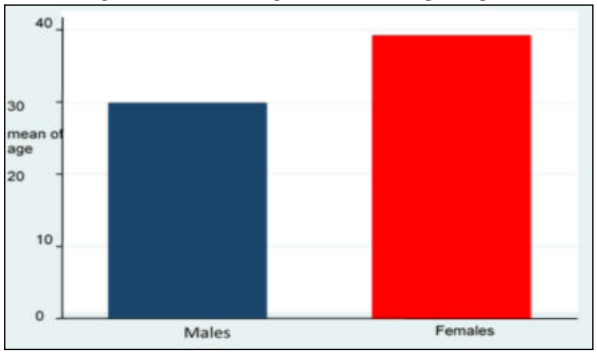
Exclusion Criteria:
Age less than 18 yrs , any seriously ill patient and Unfit for anaesthesia . Patient 2-12 years old commonly present with insignificant lymph nodes in neck secondary to frequent viral infection.

Study Design: Prospective and Retrospective .

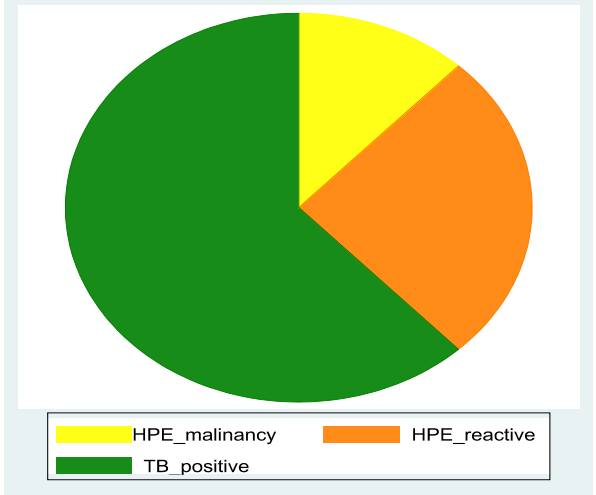
Methodology:
All eligible patients were informed about the study procedures in detail. Informed consent was obtained from willing patients. After getting anaesthetist fitness, biopsy of the concerned lymph node was done. The sample was sent for three investigational procedures namely geneXpert, histo pathological examination and mycobacterial culture and drug susceptibility testing.

Statistical Analysis :
The data was entered in Excel and analysed in STATA 16. Descriptive statistics was used to summarise the individual characteristics.

RESULTS
From Dec 2014 to August 2015, total of 50 patients were recruited. Among them, 40% were males and 60% were females. The mean age of the participants was 33.5 years (95% CI: 29.2-37.9). The mean age among females was 29.8 years (95% CI: 25-34.5) and the mean age among males was 39.1 years (95% CI: 31.4- 46.9). The figure below shows the age distribution among male and female participants.



With histo pathological examination, 31 (62%) patients had histo pathological changes suggestive of TB. Malignant changes were seen in 6 (12%) patients. Non specific reactive lymphadenitis was seen in 13 (26%) patients. The figure below shows the different histology changes reported in the participants.



The table below shows the sex distribution with histo pathological changes in the lymph nodes.

Index	Frequency
TB_positive	
Female	22
Male	9
HPE_Malignancy	
Female	3
Male	3
HPE_Reactive Node	
Female	5
Male	8

The distribution of lymph node enlargement among the patients is as follows.The cervical lymph node enlargement was seen in majority of patients (83.87%), followed by submandibular lymph nodes (6.45%), axillary nodes (6.45%) and supra clavicular nodes (3.23%).

TB Positive	FREQUENCY	PERCENTAGE
SUB MANDIBULAR	2	6.45
SUPRA-CLAVICULAR	1	3.23
AXLLARY	2	6.45
CERVICAL	26	83.87

Among the 50 participants, 26 patients were positive for Mycobacterial culture for tuberculosis, 16 patients positive for M.tuberculosis with GeneXpert and 31 patients positive in histo pathological examination. GeneXpert and culture was both positive for M.TB in 13 patients. HPE and culture was positive in 23 patients. HPE and geneXpert was positive for M.TB in 17 patients. The table below summarises the results positive for M.TB in HPE, AFB culture and geneXpert.

TB POSITIVE	
Culture for AFB positive	26
Gene expert positive	17
Gene expert & AFB culture positive	13
HPE TB ADENITIS	31
HPE & AFB CULTURE POSITIVE	26
HPE & GENE EXPERT	16

The odds ratio was calculated for HPE, AFB culture and sensitivity and GeneXpert test by Fisher Exact test.

HPE_TB	Gene_expert_positive 0	1	Total
0	18 2.4	1 4.6	19 7.0
1	15 1.5	16 2.8	31 4.3
Total	33 3.8	17 7.4	50 11.3

Fisher's exact = 0.001
1-sided Fisher's exact = 0.001

Fisher exact test for HPE and GeneXpert

Odds ratio was calculated for diagnosis of TB by GeneXpert compared to HPE. had 3.8 times more chances of diagnosing TB adenitis than GeneXpert with P-value of 0.001.

AFB_c/s	Gene_expert_positive 0	1	Total
0	20 1.1	4 2.1	24 3.2
1	13 1.0	13 2.0	26 3.0
Total	33 2.1	17 4.1	50 6.2

Fisher's exact = 0.018
1-sided Fisher's exact = 0.013

Fisher exact test for AFB culture and sensitivity and GeneXpert

Odds ratio was calculated for diagnosis of TB by GeneXpert compared to AFB culture and sensitivity. AFB culture and sensitivity had 2.1 times more chances of diagnosing TB adenitis than GeneXpert with P-value of 0.018.

DISCUSSION:

The fact that TB lymphadenitis is more common among females is supported by other studies done by Kulkarni and Frimodt Moller 1969, Krishnaswami et al 1972 and Pamra 1974.

Cervical region is the most common site of lymphadenopathy in this study which is also established in other studies by Doctor 1964, Frase 1965 and Kent 1967. More evidence is needed to establish the role of GeneXpert in diagnosis of lymph node tuberculosis.

CONCLUSION:

This study describes the etiological causes of lymphadenopathy in patients attending tertiary care centre among south Indian population. The following were the results of the study

a. Among the study participants, 60% were females and they presented at younger age compared to males.
b. Histo pathological changes suggestive of TB was seen in 62% of the subjects.
c. Malignant changes were seen in 12% of the subjects.
d. Non specific reactive lymph adenitis was seen in 26% of patients.
e. The most common site of lymphadenopathy was cervical region
f. Among patients diagnosed with TB lymphadenitis, 71% were females.
g. All the 31 patients diagnosed with TB lymphadenitis were positive for M.TB in histo-pathological examination.
h. 17 samples were positive with GeneXpert and 26 samples were positive for AFB culture.
i. AFB culture and sensitivity when compared to GeneXpert had 2.1 times more chances of detecting TB adenitis.
j. HPE for TB adenitis when compared to GeneXpert had 3.8 times more chances of detecting TB adenitis.

ABBREVIATION: TB- Tuberculosis, HPE - Histopathological examination , AFB – Acid fast bacilli.

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