

Enlarged lymph node always put dilemmas in mind of physicians due to its association with certain conditions like malignancy. It is important for all physicians to have systemic but practical approach to these patients. Understanding of anatomical locations of lymph nodes and their drainage areas is essential (Table 1).

Evaluation of lymphadenopathy begins with good history which focuses on possible aetiologies of lymphadenopathy (Table 1). Physical examination directed towards finding out if it is localized or generalized lymphadenopathy and

characteristics of enlarged nodes like size, site, mobility & consistency.

In one large retrospective study from India in tertiary referral hospital studying diagnosis in 1724 patients who have under lymph node excision biopsy showed tuberculous adenitis in 31%, malignancy in 26% and had non-specific lymphadenitis in 31%¹. However incidence of malignancy is likely to be much lower in primary care situations.

Table 1: Lymph node drainage areas and causes of localised & generalised lymphadenopathy

Lymph node	Areas of drainage	Common cause of enlargement
Cervical	Neck and scalp region	Infections- Infectious mononucleosis, Tuberculosis. Ear nose throat & dental infections Malignancy Lymphoma Head and neck cancer Thyroid cancer
Supraclavicular	Breast & mediastinum on right side Abdomen on left side	Infections- e.g TB Hodgkin’s lymphoma Non-Hodgkin’s lymphoma Bronchogenic carcinoma Breast carcinoma
Epitrochlear	Upper limb-ulna, forearm and hand	Sarcoidosis Lymphoma Infectious mononucleosis Local infections in upper extremity Secondary syphilis HIV
Mediastinal	Mediastinum	Tuberculosis, histoplasmosis, Sarcoidosis, silicosis Lymphoma, other malignancies
Axillary	Upper extremities, breast and thorax	Skin infection with Streptococcal or staphylococcal Malignancies like breast carcinoma, metastatic melanoma etc
Abdominal	Mesenteric or retroperitoneal space	Tuberculosis, Lymphoma, Gastric malignancies etc
Generalised	> 3 lymph node or groups	Infectious mononucleosis, HIV infection, Tuberculosis infection, Medications, SLE

Table 2: Drugs causing lymphadenopathy

Hydralazine
Phenytoin
Primidone
Allopurinol
Atenolol
Carbamazepine
Cephalosporins
Quinidine
Sulfonamides

Practical approach to lymphadenopathy

HISTORY

Obtaining information about age of patient- older (higher probability of malignancy) or younger, possible infection or malignancy in drainage of particular lymph node enlarged, travel history and drug history (Table 2), eating habits like undercooked meat (for toxoplasmosis), high risk behaviour (multiple sexual partners, injection drug use)². Duration and evolution of lymphadenopathy can also give clue about aetiologies and severity. Longer duration of symptoms and lymph nodes enlargement would suggest possible chronic infections like TB or indolent cancers like follicular lymphoma.

Malignancy possibilities suggested by symptoms related mechanical compression like dysphagia, hoarse voice, cough, haemoptysis and systemic systems like weight loss, anorexia, fatigue & fever.

PHYSICAL EXAMINATION

All lymph node groups should be examined with attention to their characteristics, associated splenomegaly or signs of systemic illness. Size, site, mobility, consistency & location should be noted.

Size: Normal lymph nodes are usually less than 1 cm in size. Generally greater than 1 cm nodes are considered abnormal except one in inguinal region where size greater than 2 cm is considered abnormal³. Larger the size more is the possibility of pathological enlargement of lymph nodes.

Consistency: Softer nodes are seen commonly in acute leukaemia but chronic leukaemias and lymphomas have firm and rubbery nodes. Harder nodes are seen in malignancies and chronic infections leading to fibrosis.

Mobility: Fixation to underlying tissues can make nodes immobile. This can occur due to inflammation and cancers leading to matted or fixed nodes. This is generally a bad sign and should alert physician for possibilities of malignancy or chronic infections with fibrosis. Tenderness over lymph node is generally seen in nodes with infections or rapidly growing malignancy.

Location: Localised enlargement occurs due to infection or malignancy in drainage area of lymph nodes. Generalised lymphadenopathy generally manifest with

systemic disease like constitution symptoms etc. (Table1).

Associated splenomegaly is seen more commonly in patients with leukaemia, lymphoma.

DIAGNOSTIC INVESTIGATIONS

Routine tests like CBC, ESR along with viral markers like HIV, EBV, CMV and x ray chest is indicated in most of patients with lymphadenopathy. Specific tests like Mantoux test, ANA, tests for syphilis etc are required in further evaluation in specific suspected situations.

Patients having localized lymphadenopathy could be observed for duration up to four weeks if there is no suspicion for malignancy. This time will not lead to missed opportunity even if later turns out to be tuberculosis or lymphoma, as one will be able to still manage patient without adverse impact on treatment outcome. If lymph nodes remain enlarged even after 3-4 weeks or if there is high suspicion for malignancy right in beginning, further testing like lymph node biopsy is indicated.

Definitive diagnosis is generally made on lymph node biopsy of most representative enlarged node. It allows view of complete architecture of node and histopathological confirmation of pathology⁴. Excision biopsy is best for this purpose; however imaging guided core needle biopsy is next best alternative in cases where excision biopsy is not possible. Supraclavicular, cervical, mediastinal, axillary, inguinal are the choices for biopsy chosen in descending order. It is very important to convey likely diagnosis and samples required to surgical team, so that samples are taken in formalin for histopathology with biopsy and in saline for molecular tests for malignancies or tuberculosis.

Fine needle aspiration cytology (FNAC) allows quick and lesser invasive option for evaluation. However it is of limited value in diagnosis of certain conditions like malignancies as tissue architecture cannot be studied and there is a substantial false-negative rate. It may be used for screening of cytology in selective patients with suspected infections like TB or relapse of malignancies before planning for biopsy⁵.

Occasionally incision and drainage of fluctuating painful lymph node may be done to offer symptomatic relief to patient, but it is hardly useful for diagnosis purpose.

Imaging studies like computed tomography (CT), ultrasound, Doppler, or magnetic resonance imaging (MRI) play important role in evaluation of lymphadenopathy⁶. Imaging helps distinguish nodes from other lesions and also assess extent of lymphadenopathy for staging of cancers⁷. Imaging guided core needle biopsy is helpful in patient with internal lymphadenopathy, aborting need for laparotomy for diagnosis purpose.

There is no role for empirical antibiotics as it is very challenging to pinpoint bacterial cause from non bacterial causes of lymphadenopathy. And there is no clinical evidence to support its use in clinical practice.

Treatment will depend upon aetiology identified in diagnostic work up. Wait and watch is enough for

326 conditions like infectious mononucleosis and early stage follicular lymphoma or chronic lymphocytic leukaemia. Anti tubercular treatment for documented diagnosis or occasionally empirically when suspicion is strong but no diagnostic evidence could be achieved. However due rising number of resistant tubercular strains, it would be better to go for detailed work up like sensitivity and susceptibility tests along with histopathological diagnosis. Corticosteroids and other immunosuppressant are used for autoimmune conditions like SLE or sarcoidosis. Chemotherapy, radiation or surgical removal may be necessary for malignancy. Lymphoma is highly treatable cancer with high response rates.

TAKE HOME MESSAGE

Systematic approach to lymphadenopathy is highly useful due to divergent aetiologies. It is important to do step wise evaluation based on history & physician examination followed by blood investigation, biopsy in necessary patients along with imaging to come conclusion about diagnosis. Selection of appropriate node for biopsy is equally important to avoid false negatives. Treatment is guided by diagnosis.

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