

MEDIASTINAL LYMPH  
NODE DISEASES

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Mediastinum involves important vital organs and great vessels, and functions as a center for lymphatic drainage. Many traditional compartmentalization schemes exist depending upon some landmarks on the lateral chest radiograph. Carter et al. [1] proposed a mediastinal division *identifying with computed tomography*. This division is widely accepted especially by the International Thymic Malignancy Interest Group as a new standard. The classification includes prevascular (or anterior), visceral (or middle), and paravertebral (or posterior) compartment, with anatomic borders identified by computed tomography. These subdivisions are used to describe the locations of the lymph nodes and mediastinal lesions. Lymph nodes are present in all the three compartments, but most of them are found in the anterior and visceral compartments. The lymph nodes in the mediastinum are divided into four separate but functionally connected groups: Prevascular lymph nodes are located in the anterior mediastinal compartment; tracheobronchial, paratracheal, and the posterior lymph nodes are in the visceral compartment of the mediastinum.

*Enlarged lymph nodes* which are mostly located in the visceral compartment *in the mediastinum always indicate* the presence of a disease. In the majority of clinical situations, rarely isolated but often multiple lymphadenopathies are detected. Enlargement of the lymph nodes may be due

to a wide spectrum of inflammatory, infectious, or malignant diseases [2].

Characteristics related to the size, shape and vascularization pattern of the mediastinal lymphadenopathy can give important information for the diagnosis of certain diseases. Unnecessary interventions may be avoided by attentive investigation of the structure of the enlarged lymph nodes. Maximum and minimum diameters and the ratio of the two lengths are the determinants for the lymph node measurement [3]. Computed tomography is the primary non-invasive technique for the evaluation of the nature of the mediastinal lymph nodes. The shortest axial diameter of the lymph node is a useful parameter for the enlargement, in which >10 mm is generally accepted as mediastinal lymph node enlargement. In each nodal station, a different threshold value is determined in staging of lymphoma or bronchogenic carcinoma. Kiyono et al. [4] propose that maximum normal short axial metrics is 12 mm for station 7; 10 mm for stations 4 and 10R; and 8 mm for other stations. Greatest normal axial diameters for all mediastinal stations vary widely, ranging from 10 to 25 mm.

Lymphadenopathy may affect in any age group and its differential diagnosis can be quite challenging even after detailed clinical evaluation, advanced imaging techniques and pathological tests. Habermann and Steensma recommended the use of the word “CHICAGO” for determin-

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### **Hodgkin lymphoma**

Approximately 10% of all lymphomas and 0.6% of all cancers are Hodgkin lymphoma. Diagnosis is achieved by histological examination of Reed-Sternberg cells in HL patients. The age range is 15-34 years and over 55 years is reported as the peak age of disease incidence. HL is divided into two groups: Classic Hodgkin Lymphoma (cHL) and nodular lymphocytic predominant Hodgkin lymphoma (NLPHL). The subgroups of cHL are classified as; nodular sclerosis, mixed cellular, lymphocyte-rich and lymphocyte-free. HL is more common in patients with a history of infectious mononucleosis with Epstein-Barr virus [30]. In immunodeficiency syndromes such as AIDS, the incidence of HL is increased by 5-25 times [31]. Low serum albumin value, anemia, male sex, Stage-4 disease, age >45, leukocytosis (>15.000), and lymphopenia are known to be adverse factors for prognosis. Benign-malignant distinction and subclassification may not be possible with small biopsy specimens. Thus, if there is not any palpable peripheral lymph node, biopsy with mediastinoscopy, mediastinotomy, video assisted thoracic surgery (VATS) and even thoracotomy should be performed [32]. In early stages, chemotherapy and radiotherapy is the appropriate regimen whereas chemotherapy alone is the main treatment method in advanced stages. High-dose chemotherapy and autologous hematopoietic cell transplantation are recommended in patients in whom recurrence and/or treatment resistance occurs.

### **Non-Hodgkin lymphoma**

Non-Hodgkin Lymphoma constitutes the two-thirds of other lymphoma patients. It can be evaluated in following subheadings: Follicular lymphoma (FL), diffuse large B-cell lymphoma, chronic lymphocytic leukemia (CLL), mantle cell lymphoma, marginal zone lymphoma and T cell lymphoma. In our country, diffuse large B-cell lymphoma is detected in 30.1% of the lymphoma patients, while CLL in 10.4%, FL in 5.6%, mantle cell lymphoma in 3.2%, Burkitt lymphoma in 3.1%, plasma cell neoplasms in 3.0%, MALT lymphoma in 2.9%, anaplastic large cell lymphoma

in 2.9%, T lymphoblastic lymphoma 2.3%, and Hodgkin lymphoma in 20.9% [33].

### **Metastatic tumors of lung**

Breast, kidney, adrenal gland, testicular and thyroid cancers, melanoma, head and neck tumors, some rare hematologic malignancies (Waldenström macroglobulinemia, multiple myeloma, and systemic mastocytosis) can metastasize to mediastinal lymph nodes. Parenchymal metastases, lymphangitis and pleural effusion may also accompany to mediastinal lymphadenopathy. Parenchymal metastases of extrapulmonary malignancies are detected 10 times higher than mediastinal lymph node metastases. Single node metastasis was observed in 60% of nodal metastases. Hilar and right paratracheal lymph nodes are most commonly affected and involvement is often asymmetric. Nasopharyngeal cancers may metastasize to mediastinal lymph nodes, with the highest rate among head and neck cancers [34]. It is important to distinguish against primary bronchial carcinoma and lymphoma. In three large mediastinoscopy series, it was reported that 11-16% of mediastinal lymph node metastases originate from solid tumors. Mediastinal lymph node involvement was found in 4.5% of 241 patients with papillary thyroid carcinoma. Axillary lymph node metastasis and mediastinal lymph node metastasis have been identified in patients with metastatic prostate carcinoma. Renal, breast, testicular origin tumors and melanoma cause mediastinal lymphadenopathy rarely.

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