HEMATOLOGIC NEOPLASMS LYMPHOMA

Signs and symptoms

Lymphoma presents with certain non-specific symptoms. If symptoms are persistent, lymphoma needs to be excluded medically.

- Lymphadenopathy or Swelling of lymph nodes - It is the primary presentation in Lymphoma.
- B symptoms - Can be associated with both Hodgkin's lymphoma and non-Hodgkin's lymphoma. It consists of:
  - Fever
  - Night sweats
  - Weight loss
- Other Symptoms :
  - Loss of appetite or Anorexia
  - Fatigue
  - Respiratory distress or Dyspnoea
  - Itching

Classification

Thomas Hodgkin published the first description of lymphoma in 1832, specifically of the form named after him, Hodgkin's lymphoma. Since then, many other forms of lymphoma have been described, grouped under several proposed classifications. The 1982 Working formulation became very popular. It introduced the category non-Hodgkin lymphoma, divided into 16 different diseases. However, because these different lymphomas have little in common with each other, the NHL label is of limited usefulness for doctors or patients and is slowly being abandoned. The latest classification by the WHO (2008) lists 70 different forms of lymphoma divided in four broad groups.

The two main types of lymphomas:

- Hodgkin's lymphoma (HL) — There are six types of HL, an uncommon form of lymphoma that involves the Reed–Sternberg cells.

Hodgkin’s disease has a bimodal distribution, occurring most commonly at ages 15–34 years and above 50 years. It is generally asymptomatic and presents with painless lymphadenopathy, usually in the cervical region.

There are four main histological subtypes of Hodgkin’s: lymphocyte predominant, mixed cellularity, nodular sclerotic and lymphocyte depleted. Nodular sclerotic Hodgkin’s occurs most commonly in young adult patients. Staging of Hodgkin’s is based on the Ann Arbor classification, which is defined by lymph node involvement above and below the diaphragm and the presence of B symptoms (fever, night sweats or unexplained weight loss). Overall 10-year prognosis is good, but the presence of B symptoms is associated with adverse outcome.

- Non-Hodgkin lymphoma (NHL) — There are more than 61 types of NHL, some of which are more common than others. Any lymphoma that does not involve Reed-Sternberg cells is classified as non-Hodgkin lymphoma.

Although older classifications referred to histiocytic lymphomas, these are recognized in newer classifications as of B, T or NK celllineage. True histiocytic malignancies are rare and are classified as sarcomas.

The WHO Classification, published in 2001 and updated in 2008, is the latest classification of lymphoma and is based upon the foundations laid within the "Revised European-American Lymphoma classification" (REAL). This system attempts to group lymphomas by cell type (i.e. the normal cell type that most resembles the tumor) and defining phenotypic, molecular or cytogeneticcharacteristics. There are three large groups: the B cell, T cell, and natural killer cell tumors. Other less common groups, are also recognized. Hodgkin lymphoma, although considered separately within theWorld Health Organization (and preceding) classifications, is now recognized as being a tumor of, albeit markedly abnormal, lymphocytes of mature B cell lineage.

Mature B cell neoplasms

- Chronic lymphocytic leukemia/Small lymphocytic lymphoma
- B-cell prolymphocytic leukemia
- Lymphoplasmacytic lymphoma (such as Waldenström macroglobulinemia)
- Splenic marginal zone lymphoma
- Plasma cell neoplasms:
  - Plasma cell myeloma
  - Plasmacytoma
  - Monoclonal immunoglobulin deposition diseases
  - Heavy chain diseases
- Extranodal marginal zone B cell lymphoma, also called MALT lymphoma
- Nodal marginal zone B cell lymphoma (NMZL)
- Follicular lymphoma
- Mantle cell lymphoma
- Diffuse large B cell lymphoma
- Mediastinal (thymic) large B cell lymphoma
- Intravascular large B cell lymphoma
- Primary effusion lymphoma
- Burkitt lymphoma/leukemia

Mature T cell and natural killer (NK) cell neoplasms

- T cell prolymphocytic leukemia
- T cell large granular lymphocytic leukemia
- Aggressive NK cell leukemia
- Adult T cell leukemia/lymphoma
- Extranodal NK/T cell lymphoma, nasal type
- Enteropathy-type T cell lymphoma
- Hepatosplenic T cell lymphoma
- Blastic NK cell lymphoma
- Mycosis fungoides / Sezary syndrome

- Primary cutaneous CD30-positive T cell lymphoproliferative disorders
  - Primary cutaneous anaplastic large cell lymphoma
  - Lymphomatoid papulosis
- Angioimmunoblastic T cell lymphoma
- Peripheral T cell lymphoma, unspecified
- Anaplastic large cell lymphoma

Hodgkin lymphoma

- Classical Hodgkin lymphomas:
  - Nodular sclerosis
  - Mixed cellularity
  - Lymphocyte-rich
  - Lymphocyte depleted or not depleted
- Nodular lymphocyte-predominant Hodgkin lymphoma

Diagnosis

Lymphoma can be diagnosed by-

- Lymph node biopsy
- Fine Needle Aspiration Cytology (FNAC)

Immunophenotyping plays a major role in diagnosis. Histopathological findings of the various types of lymphoma are given in the table in the next section. A number of various classification systems exist for lymphoma. As an alternative to the American Lakes-Butler classification, in the early 1970s, Karl Lennert of Kiel, Germany, proposed a new system of classifying lymphomas based on cellularmorphology and their relationship to cells of the normal peripheral lymphoid system.

Some forms of lymphoma are categorized as indolent (e.g. small lymphocytic lymphoma), compatible with a long life even without treatment, whereas other forms are aggressive (e.g. Burkitt's lymphoma), causing rapid deterioration and death. However, most of the aggressive lymphomas respond well to treatment and are curable. The prognosis therefore depends on the correct diagnosis and classification of the disease, which is established after examination of a biopsy by a pathologist (usually ahematopathologist).

Treatment

These depend on the specific form of lymphoma. For some forms of lymphoma, watchful waiting is often the initial course of action. If a low-grade lymphoma is becoming symptomatic, radiotherapy or chemotherapy are the treatments of choice; although they do not cure the lymphoma, they can alleviate the symptoms, particularly painful lymphadenopathy. Patients with these types of lymphoma can live near-normal lifespans, but the disease is incurable.

Treatment of some other, more aggressive, forms of lymphoma can result in a cure in the majority of cases, but the prognosis for patients with a poor response to therapy is worse. Treatment for these types of lymphoma typically consists of aggressive chemotherapy, including the CHOP or RCHOP regimen.

Hodgkin lymphoma typically is treated with radiotherapy alone, as long as it is localized. Advanced Hodgkin disease requires systemic chemotherapy, sometimes combined with radiotherapy. See the articles on the corresponding form of lymphoma for further information.