Lymphomas

- Common features between Hodgkin and non Hodgkin Lymphomas
 - o painless Lymph node enlargement :
 - decides stage
 - persistent for more than 1 month
 - larger than 1 cm
 - associated with fever, night sweats and weight loss
 - Compression symptoms may occur
 - Extra-nodal involvement
 - Needs Lymph node biopsy for diagnosis
 - Each has different histology
 - Both have similar staging system depending on extent of lymph node enlargement
 - o different age groups involved : hodgkin in younger and non hodgkin in older

Non Hodgkin Lymphoma NHL

- The types of NHL reflect the developmental stages of lymphocytes
- Each type of lymphoma can be viewed as a lymphocyte arrested at a certain stage of development and transformed into a malignant cell.
- 85% are from B cell origin and the rest are T cell or null cell
- Etiology of NHL
 - ldiopathic
 - Immune suppression
 - lorgan transplant patients on cyclosporine
 - congenital : Wiskott Aldrich
 - AIDS
 - increasing age
 - ONA repair defects
 - ataxia telangiectasia
 - xeroderma pigmentosum
 - Chronic inflammation and antigenic stimulation
 - Helicobacter pylori inflammation
 - Chlamydia psittaci inflammation in ocular adnexal tissues
 - Sjogren syndrome
 - Viral causes
 - EBV : Burkitt lymphoma
 - HTLV1 : T cell leukemia or lymphoma

- HTLV5 : cutaneous T cell lymphoma
- Hepatitis C
- majority of gene mutations associated with NHL are Translocation mutations
- Staging : Ann Arbor staging system
 - stage 1 : 1 lymph node region or structure like cervical or axillary / can be more than
 1 lymph node
 - stage 2 : more than 1 lymph node region or structure but on the same side of diaphragm (both axillary regions)
 - stage 3 : different lymph node regions on both sides of diaphragm
 - stage 4 : Extranodal or extralymphatic sites involvement / diffuse
- REAL Classification for B Cell Neoplasms
 - Indolent : CLL
 - Aggressive : MCL / multiple myelomas / diffuse large B cell (most common lymphoma followed by follicular) / anaplastic
 - Very Aggressive : Burkitt and lymphoblastic lymphoma
- Prognostic factors in NHL
 - Age > 60 years
 - Stages 3 and 4
 - High serum lactate dehydrogenase level LDH
 - Performance status : ECOG (2 or more normal 0-2)
 - More than one extranodal site involved
- Treatment Options in Advanced Indolent Lymphomas
 - Observation only.
 - Radiotherapy to site of problem
 - Systemic chemotherapy
 - oral agents: chlorambucil and prednisone
 - IV agents: CHOP, COPR, FCR
 - Antibody against CD20 : rituximab
 - Stem cell or bone marrow transplant
 - New monoclonal antibodies
- Treatment Options for Aggressive Lymphomas
 - Systemic chemotherapy CHOPR
 - o bone marrow transplant
 - New monoclonal antibodies
 - Intrathecal chemotherapy in AIDS patients and CNS involvement
 - Radiotherapy in Spinal cord compression or bulky disease
- Burkitt Lymphoma is Treated with multidrug regimen similar to pediatric leukemia and

lymphoma regimens or with bone marrow transplant

- Hodgkin Lymphoma treatment
 - With appropriate treatment about 85% of patients with Hodgkin's disease are curable
 - most common treatment is multiagents chemotherapy like MOPP

Multiple Myeloma

- associated with malignant plasma cells from the B Lymphocytes lineage
- a disease of the elderly
- it comes secondary to bone marrow failure and the presence of high unique clonal proteins in the blood
- other symptoms include
 - o renal failure
 - o anemia
 - lytic lesions in the skull (hypodense areas) which are also present in bones like femur or humorous and the vertebrae
 - hypercalcemia due to osteoclastic activity of bone marrow
 - o bone pain and fractures
 - hyperviscosity
 - amyloidosis
 - infections
- screening for multiple myeloma is done by protein electrophoresis in which another peak is present indicating the presence of malignant clonal proteins
- sometimes the malignant cells produce defective immunoglobulins with only light chains which can be used in diagnosis
- other diagnosis methods : biopsy / skeletal survey / MRI / x rays / bone scan (do not show lytic lesions) / Igs count
- Common tetrad of multiple myeloma is CRAB
 - C = Calcium (elevated)
 - R = Renal failure
 - A = Anemia
 - B = Bone lesions
- Active Multiple Myeloma (Both criteria must be met):
 - Clonal bone marrow plasma cells 10% or biopsy proven bony or extramedullary plasmacytoma
 - Any one or more of the CRAB features

- Smouldering Multiple Myeloma (Both criteria must be met):
 - Serum monoclonal protein (IgG or IgA) 3 g/dL or urinary monoclonal protein 500 mg per 24 h or clonal bone marrow plasma cells 10%–60%
 - Absence of myeloma defining events or amyloidosis
- International staging system
 - stage 1 (good prognosis)
 - Serum albumin > 3.5 g/dl
 - Serum beta 2 microglobulin < 3.5 mg/dl
 - stage 2 : not stages 1 or 3
 - stage 3 : beta 2 microglobulin > 5.5 mg/dl
- Treatment of Multiple Myeloma (not for smoldering)
 - Standard Chemotherapy
 - Dexa and Thalidomide
 - O Dexa and Bortezomib (Velcade)
 - Lenalidomide
 - Melphalan and prednisone
 - High Dose Chemotherapy with Bone marrow transplant