**HOT Batch 6 Paragraphs**

***Hematologic System***

**Lymphoma**

Lymphoma is cancer that begins in cells of the lymph system. The lymph system is part of the immune system, which helps the body fight infection and disease. Because lymph tissue is found all through the body, lymphoma can begin almost anywhere in the body.

The two general types of lymphoma are Hodgkin lymphoma and non-Hodgkin lymphoma (NHL). These can occur in both children and adults.

Most people with Hodgkin lymphoma have the classic type. With this type, there are large, abnormal lymphocytes (a type of immune cell) in the lymph nodes called Reed-Sternberg cells. Hodgkin lymphoma can usually be cured.

There are many different types of NHL. Most types form from B-cells, but some form from T-cells or NK cells. NHL may be indolent (slow-growing) or aggressive (fast-growing).

The most common types of NHL are diffuse large B-cell lymphoma, which is usually aggressive, and follicular lymphoma, which is usually indolent. Mycosis fungoides and the Sézary syndrome are types of NHL that start in white blood cells in the skin. Primary central nervous system lymphoma is a rare type of NHL that starts in white blood cells in the brain, spinal cord, or eye.

The treatment and the chance of a cure depend on the stage and the type of lymphoma.

**Multiple Myeloma and Other Plasma Cell Neoplasms**

Plasma cells are immune system cells that make antibodies, which help the body fight infection and disease. Plasma cell neoplasms are diseases in which the body makes too many plasma cells in the bone marrow and these cells are abnormal. The abnormal plasma cells make M proteins, which are abnormal antibodies that build up in the bone marrow and can cause the blood to thicken or damage the kidneys.

The abnormal plasma cells can also form tumors in the bone or soft tissue. When there is only one tumor, the disease is called a plasmacytoma. When there is more than one tumor, the disease is called multiple myeloma. Both are malignant (cancer).

Multiple myeloma may not cause signs or symptoms for a long time and is often not found until it is advanced. Myeloma tumors can weaken the bone, cause too much calcium in the blood, and damage the kidneys and other organs. Bone pain is a common symptom of advanced multiple myeloma. Other signs and symptoms include frequent infections, anemia, bleeding, numbness or tingling, and weakness.

One type of benign (not cancer) plasma cell neoplasm is called monoclonal gammopathy of undetermined significance (MGUS). In MGUS, there are low levels of M protein and there are no symptoms or damage to the body. In rare cases, MGUS can become multiple myeloma.

**Myeloproliferative Neoplasms and Myelodysplastic Syndromes (Option 2)**

Myeloproliferative neoplasms and myelodysplastic syndromes are diseases of the blood cells. They include chronic myeloproliferative neoplasms, myelodysplastic syndromes, and myelodysplastic/myeloproliferative neoplasms.

Chronic myeloproliferative neoplasms are diseases in which the bone marrow makes too many red blood cells, platelets, or certain white blood cells.

Myelodysplastic syndromes are a group of cancers in which stem cells do not mature into healthy cells. Instead, they become abnormal blast (immature) cells in the blood and/or bone marrow.

Myelodysplastic/myeloproliferative neoplasms are diseases that have features of both myelodysplastic syndromes and myeloproliferative neoplasms.

Certain types of myeloproliferative neoplasms and myelodysplastic syndromes may become a type of blood cancer called acute leukemia.

***Neurologic System***

**Neuroblastoma**

Neuroblastoma is a disease in which malignant (cancer) cells form in certain types of nerve tissue. Neuroblastoma most often begins in the adrenal glands, which are on top of the [kidney](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=46325&version=Patient&language=English)s. It can also form in nerve tissue in the neck, chest, abdomen, or spine.

Neuroblastoma most often occurs in children younger than 5 years of age. Sometimes it forms before birth and is found during a [routine](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=46400&version=Patient&language=English) pregnancy [ultrasound](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=46157&version=Patient&language=English). In children aged 6 months or younger, the disease sometimes goes away without treatment.

Neuroblastoma is usually found when the tumor begins to grow and cause signs or symptoms. By the time it is diagnosed, the [cancer](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=45333&version=Patient&language=English) has usually metastasized (spread to other parts of the body).

An increased risk of neuroblastoma is sometimes [inherited](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=45098&version=Patient&language=English) (passed from parent to child). In inherited neuroblastoma, the disease may form in two or more organs.

**Pituitary Tumor**

The pituitary gland is a pea-sized [gland](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=257523&version=Patient&language=English) at the base of the brain, just above the back of the nose. It makes different [hormones](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=45713&version=Patient&language=English) that affect the way many parts of the body work.

Most pituitary tumors are benign (not cancer), and are called pituitary adenomas. These tumors grow very slowly. They do not spread from the pituitary gland to distant parts of the body, but they sometimes spread to the bones of the skull or sinus cavity near the pituitary gland. A very small number of pituitary tumors are malignant (cancer) and can spread to distant parts of the body.

Most pituitary tumors are called functioning tumors, which means they make more hormones than normal pituitary cells. The extra hormones may cause signs or symptoms of disease. The signs and symptoms depend on which hormone is being made.

A family history of multiple endocrine neoplasia type 1 (MEN1) syndrome, Carney complex, or isolated familial [acromegaly](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=476630&version=Patient&language=English) increases the risk of pituitary tumors.

***Langerhans***

**Langerhans Cell Histiocytosis**

Langerhans cell histiocytosis (LCH) is a rare cancer that begins in LCH cells, a type of dendritic cell (white blood cell found in the skin). LCH cells can grow in many different parts of the body, where they can damage tissue or form lesions.

LCH may occur at any age but is most common in young children. In infants up to one year of age, LCH may go away without treatment.

LCH in the skin, bones, lymph nodes, or pituitary gland usually gets better with treatment and is called "low-risk." LCH in the spleen, liver, or bone marrow is harder to treat and is called "high-risk."