

## NON-HODGKIN'S LYMPHOMA

Non-Hodgkin's lymphoma (NHL) is a malignant (cancerous) tumor that starts in the lymphatic (lim-FA-tik) tissue in the body. There are 2 major forms of NHL: lymphoblastic and non-lymphoblastic lymphoma.

The lymphatic system is the part of the circulatory system that plays a major role in fighting infection. The lymphatic system is made up of hundreds of lymph nodes. Lymph nodes are normally about the size of kidney beans. They are connected by lymph vessels throughout the body (Picture 1). A clear liquid called "lymph" carries some infection-fighting cells through the nodes and vessels. The lymph nodes make lymphocytes, a type of white blood cell that fights the spread of infection. The nodes also strain out germs that cause infection.

### SIGNS AND SYMPTOMS

NHL is a disease that usually comes on suddenly and progresses rapidly. Symptoms vary, depending on its location. Some of the most common sites and symptoms are:

**Abdomen:** Pain, mass and swelling, fever, anemia, tiredness, weight loss, vomiting, diarrhea, constipation, and irregular periods.

**Chest:** Fever, cough, trouble with breathing, chest pain, weight loss, fatigue, night sweats, loss of appetite, vomiting, and nausea.

**Nose and Throat:** Pain, nasal stuffiness or discharge, bloody nose, headache, irritability, loss of appetite, and weight loss.

### DIAGNOSIS

The only way to be sure a person has non-Hodgkin's lymphoma is to examine one of the lymph nodes. A lymph node is removed in the Operating Room under general anesthesia.

The lymph node tissue is examined under a microscope by a pathologist. Once the diagnosis is made, further tests are done to determine the extent of the disease. These may include: blood tests, chest X-ray, CT scan, MRI, bone marrow test, bone marrow biopsy, and lumbar puncture.



**Picture 1** The lymphatic system inside the body.

## STAGING

Staging describes the extent of disease at the time of diagnosis. The meaning of each stage is as follows:

- Stage I** A single tumor or lymph node area outside of the abdomen and mediastinum is present.
- Stage II** A single tumor with lymph node involvement nearby or two or more tumors/lymph node areas are involved on one side of the diaphragm, or a tumor in the gastrointestinal tract. (The diaphragm is a muscle that separates the chest from the abdomen.)
- Stage III** Tumors or lymph node areas on both sides of the diaphragm or, primary tumor in the chest, or a large amount of abdominal tumor or tumor surrounding the spine.
- Stage IV** Bone marrow or spinal fluid (central nervous system or CNS) with cancer cells.

## TREATMENT

The main treatment for children with non-hodgkin's lymphoma is chemotherapy. Radiation therapy and surgery maybe used when necessary. Chemotherapy is required because cancer cells in lymph tissue can spread to other parts of the body through the bloodstream. Chemotherapy drugs circulate throughout the body and attack tumor cells that cannot be seen with X-rays. Your child's hematologist will discuss with you the type of therapy and length of treatment.

## FOLLOW-UP CARE

- Your child will have follow-up appointments with a hematologist who will monitor your child's progress.
- Every few weeks there may be X-rays or scans to check the effects of treatment.

If you have any questions or concerns, be sure to talk with your doctor or nurse.