Lymphoma - Non-Hodgkin - Diagnosis [1]

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ON THIS PAGE: You will find a list of the common tests, procedures, and scans that doctors can use to find out what's wrong and identify the cause of the problem. To see other pages, use the menu on the side of your screen.

Doctors use many tests to diagnose cancer and find out if it has spread to another part of the body. Some tests may also determine which treatments may be the most effective. A biopsy is the only way to make a definitive diagnosis of lymphoma. Imaging tests may be used to find out whether the lymphoma has spread. This list describes options for diagnosing this type of cancer, and not all tests listed will be used for every person. Your doctor may consider these factors when choosing a diagnostic test:

- Age and medical condition
- Type of lymphoma suspected
- Signs and symptoms
- Previous test results

To determine if a person has NHL, the doctor will first take a complete medical history and do a physical examination, paying special attention to the lymph nodes, liver, and spleen. The doctor will also look for signs of infection that may cause the lymph nodes to swell and may prescribe an antibiotic. If the swelling in the lymph nodes still does not go down after antibiotic treatment, the swelling may be caused by something other than an infection. If the doctor suspects lymphoma, he or she will recommend a biopsy, as well as laboratory and imaging tests.

The following tests may be used to diagnose and manage NHL:

Biopsy [3]. A biopsy is the removal of a small amount of tissue for examination under a

microscope. This tissue may be removed using a fine needle, a cutting needle, or surgery. To diagnose lymphoma, tissue is usually taken from the lymph nodes in the neck, under an arm, or in the groin. A biopsy may also be taken from the chest or abdomen using a fine needle during a computed tomography scan (CT scan, see below) or from the stomach or intestine during an endoscopy. An endoscopy is a test that allows the doctor to see inside the body with a thin, lighted, flexible tube. A biopsy of the skin may also be needed depending on the suspected subtype of lymphoma.

A biopsy is the only way to make a definite diagnosis of lymphoma and find out the subtype. Having enough tissue is very important to make a diagnosis. Very rarely, needle biopsy samples are sufficient to make a definite diagnosis of lymphoma. In most cases, a core biopsy or surgical biopsy is needed to remove enough tissue to diagnose and classify the lymphoma correctly. The tissue sample removed during the biopsy should be analyzed by a pathologist or a hematopathologist who is experienced in diagnosing lymphoma. A pathologist is a doctor who specializes in interpreting laboratory tests and evaluating cells, tissues, and organs to diagnose disease. A hematopathologist is a pathologist who has extra training in the diagnosis of blood cancers. Because there are so many subtypes of lymphoma and because some of these subtypes are very uncommon or rare, getting a second opinion [4] may be helpful.

Computed tomography (CT or CAT) scan [5]. A CT scan creates a three-dimensional picture of the inside of the body with an x-ray machine. A computer then combines these images into a detailed, cross-sectional view that shows any abnormalities or tumors. A CT scan can also be used to measure the size of a tumor. Sometimes, a special dye called a contrast medium is given before the scan to provide better detail on the image. This dye can be injected into a patient's vein or given as a liquid to swallow. A doctor who specializes in performing imaging tests to diagnose disease, called a radiologist, interprets CT scans. CT scans of the chest, abdomen, and pelvis can help find cancer that has spread to the lungs, lymph nodes, and liver.

Magnetic resonance imaging (MRI) scan [6]. An MRI uses magnetic fields, not x-rays, to produce detailed images of the body. A contrast medium may be given before the scan to create a clearer picture. This dye is usually injected into a patient's vein. A radiologist interprets the scan.

Positron emission tomography (PET) scan [7]. A PET scan is a way to create pictures of organs and tissues inside the body. A small amount of a radioactive sugar substance is injected into the patient's body. This sugar substance is taken up by cells that use the most energy. Because cancer tends to use energy actively, it absorbs more of the radioactive substance. A scanner then detects this substance to produce images of the inside of the body. A nuclear medicine physician interprets the scan.

Integrated PET-CT scan [8]**.** This scanning method collects images from both a CT and PET scan at the same time and then combines the images. This technique can be used to look at both the structure and how much energy is used by the tumor and healthy tissues.

If, after having one or more imaging tests, the doctor decides the lymphoma might be affecting the bone marrow, he or she would recommend having a bone marrow biopsy.

Bone marrow aspiration and biopsy [9]. These two procedures are often done at the same time to examine the bone marrow. Bone marrow has both a solid and a liquid part. A bone marrow aspiration removes a sample of the fluid with a needle. A bone marrow biopsy is the removal of a small amount of solid tissue using a needle. The sample(s) are then analyzed by a pathologist. The most common site for a bone marrow aspiration and biopsy is the iliac crest of the pelvic bone, located in the lower back of the hip. The skin in that area is usually numbed with medication beforehand. Other types of anesthesia may also be used to block the awareness of pain.

Lymphoma often spreads to the bone marrow, so looking at a sample of the bone marrow can be important for doctors to diagnose lymphoma and determine the stage. The sample removed during the aspiration is also used to find any chromosome changes.

Molecular testing. Your doctor may recommend running laboratory tests on the lymphoma cells to identify specific genes, proteins, chromosome changes, and other factors unique to the disease. Results of these tests will help decide on your treatment options. There are different types of molecular and genetic testing. Cytogenetics studies normal and abnormal chromosomes in dividing cancer cells. Fluorescent in situ hybridization (FISH) uses fluorescent probes under a special microscope to detect changes in specific chromosomes. Flow cytometry looks at proteins that are on the surface or inside a cancer cell. Polymerase chain reaction (PCR) is used to detect specific DNA sequences that occur in some cancers.

After diagnostic tests are done, your doctor will review all of the results with you. If the diagnosis is cancer, these results also help the doctor describe the cancer; this is called subtyping and staging.

The next section helps explain the different types and subtypes of NHL that may be diagnosed. Use the menu on the side of your screen to select Subtypes, or you can select another section, to continue reading this guide.

Links
[1] http://www.cancer.net/cancer-types/lymphoma-non-hodgkin/diagnosis
[2] http://www.cancer.net/about-us
[3] http://www.cancer.net/node/24406
[4] http://www.cancer.net/node/25355
[5] http://www.cancer.net/node/24486
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