CONDITION

Non-hodgkin lymphoma

Non-hodgkin lymphoma is a group of cancers affecting infection-fighting white blood cells called lymphocytes.

WHAT IT IS
Cancer of infection-fighting white blood cells

BODY SYSTEM
Lymphatic and immune systems

MAIN SYMPTOMS
Painless swelling, fevers, night sweats, unexplained weight loss

WHAT CAUSES IT
Acquired cell changes; exact cause often unknown

HOW IT IS DIAGNOSED
Tissue biopsy with laboratory testing

MAIN TREATMENT
Monitoring, medicines, radiation, cell therapy, or transplant

CAN IT BE CURED?
Sometimes - many fast-growing types are curable

IS IT AN EMERGENCY?
Sometimes - breathing difficulty or new nerve symptoms

LONG-TERM OUTLOOK
Often treatable; subtype and treatment response shape survival

Overview

Non-hodgkin lymphoma is a group of cancers that begin in lymphocytes. These white blood cells help your immune system fight infection. They are found in lymph nodes, blood, bone marrow, the spleen and many other parts of the body.

There are many types of non-hodgkin lymphoma. Most begin in B lymphocytes, or B cells. Others begin in T cells or natural killer cells. The type matters because each can grow, spread and respond to treatment differently.

Some lymphomas are indolent , meaning they usually grow slowly. They may cause few symptoms for years and may not need immediate treatment. Others are aggressive , meaning they grow quickly and usually need prompt treatment. Although the word "aggressive" can sound concerning, several fast-growing types can be cured.

Non-hodgkin lymphoma is different from Hodgkin lymphoma. A pathologist distinguishes them by examining lymphoma cells from a biopsy. This distinction guides treatment.

Symptoms

The most common sign is a painless, persistent swelling in the neck, armpit or groin. This can be an enlarged lymph node. Lymph nodes also swell because of common infections, so swelling alone does not mean you have lymphoma.

Other possible symptoms include:

Symptoms may depend on where the lymphoma is growing. Lymphoma in the chest can cause coughing, breathlessness or pressure. Lymphoma in the abdomen may cause pain, swelling, feeling full quickly, nausea or changes in bowel habits. In the skin, it may cause lumps, patches or an itchy rash.

Doctors sometimes call fever, drenching night sweats and significant unexplained weight loss B symptoms . These symptoms help describe the condition but can also have many other causes.

- Fevers without a clear infection
- Drenching night sweats
- Unplanned weight loss
- Ongoing tiredness
- Persistent itching
- Frequent or difficult-to-clear infections
- Easy bruising or bleeding

Causes and risk factors

Non-hodgkin lymphoma develops when genetic changes cause a lymphocyte to survive or multiply when it should not. These changes are usually acquired during life rather than inherited from a parent. For most people, it is not possible to identify why they occurred.

Factors associated with a higher risk include:

These factors do not mean that lymphoma will develop. Many people with one or more risk factors never get it, while many people diagnosed with lymphoma have no clear risk factor.

Non-hodgkin lymphoma is not contagious. You cannot catch it from or pass it to another

person.

- Older age, although lymphoma can occur at any age
- A weakened immune system after an organ transplant
- HIV or certain inherited immune conditions
- Autoimmune conditions, including rheumatoid arthritis, coeliac disease or Sjögren syndrome
- Previous chemotherapy or radiation therapy
- Certain infections, including Epstein-Barr virus, hepatitis C and Helicobacter pylori
- Long-term exposure to some chemicals, although evidence differs by chemical and exposure

Diagnosis

A clinician will ask about your symptoms, examine enlarged lymph nodes and look for swelling of the liver or spleen. Blood tests can check blood-cell counts and how well organs such as the liver and kidneys are working. Blood tests cannot confirm lymphoma by themselves.

A biopsy is needed for a definite diagnosis. During a biopsy, some or all of an enlarged lymph node or another affected tissue is removed. Removing a whole node often provides the clearest information, but a core needle biopsy may be appropriate in some situations.

A pathologist examines the tissue under a microscope. Further tests identify proteins and genetic changes in the cells. These results establish the exact lymphoma subtype and help guide treatment.

After diagnosis, tests are used to find where the lymphoma is in the body. These may include CT or PET-CT scans. A PET-CT shows areas using more glucose than surrounding tissue, which can indicate active lymphoma. Some people also need a bone marrow biopsy, MRI scan or lumbar puncture, depending on the subtype and symptoms.

Lymphoma is usually assigned a stage from I to IV. The stage describes how widely it is distributed. Stage IV does not carry exactly the same meaning as stage IV in many solid cancers: some advanced lymphomas remain highly treatable or curable.

Treatment and management

Treatment is based on the exact subtype, its stage and growth rate, your symptoms, test

results and your general health. A blood-cancer specialist, called a haematologist or haematologist-oncologist, usually coordinates care.

Some slow-growing lymphomas do not need treatment straight away. Active monitoring , sometimes called watch and wait, involves planned appointments, examinations and tests. Treatment begins if the lymphoma grows, affects organs or causes troublesome symptoms. Monitoring is an established management approach and does not mean the condition is being ignored.

Treatment options may include:

Many B-cell lymphomas are treated with medicines that target a protein called CD20. This protein is not present in every subtype, so the same treatment is not suitable for everyone.

Supportive care is also important. It may include treatment for nausea, pain or infections; blood transfusions; and medicines that reduce complications when lymphoma cells break down quickly. Vaccination plans may need to be adjusted because lymphoma and its treatment can weaken vaccine responses.

Some treatments can affect fertility. If this is relevant to you, ask about fertility preservation before treatment starts whenever time allows.

- Immunotherapy , which helps the immune system identify or attack lymphoma cells
- Chemotherapy , which uses medicines that damage rapidly dividing cells
- Targeted therapy , which acts on specific features of lymphoma cells
- Radiation therapy , usually directed at a limited area
- Corticosteroids like prednisone or hydrocortisone , often used as part of a treatment combination
- Stem cell transplant , used in selected people after intensive treatment
- CAR T-cell therapy , which modifies your own immune cells to recognise lymphoma
- Bispecific antibodies , which bring immune cells and lymphoma cells together

Complications

Lymphoma can reduce normal blood-cell production or affect nearby organs. This may lead to anaemia, infections, bruising or pressure on structures in the chest, abdomen, brain or spine.

Treatment can also cause complications. These differ by treatment but may include infection, fatigue, nerve symptoms, heart effects or changes in fertility. Some effects appear months or years later, including a small risk of another cancer after certain treatments.

Tumour lysis syndrome occurs when many lymphoma cells break down quickly and release their contents into the blood. This can disrupt kidney function and body salts. It is most likely around treatment for rapidly growing lymphoma, and the care team may use monitoring, fluids or medicines to reduce the risk.

Prevention

Most cases of non-hodgkin lymphoma cannot be prevented. There is no screening test recommended for people without symptoms, and healthy habits cannot guarantee that lymphoma will not develop.

Reducing the chance of HIV and hepatitis C infection may lower risks linked to those infections. This includes avoiding shared needles and using appropriate protection during sex. Effective HIV treatment also supports immune function.

If you take medicines that suppress the immune system, do not stop them to try to prevent lymphoma. Their benefits and risks need to be reviewed with the clinician who prescribed them.

Living with it and what to expect

The course of non-hodgkin lymphoma differs greatly between subtypes. A fast-growing lymphoma may require several months of intensive treatment followed by scans and follow-up. If it responds completely, long-term follow-up focuses on recovery and signs that it has returned.

A slow-growing lymphoma may remain stable for years, sometimes without treatment. These types are often controllable but can return after successful treatment. Some people have several periods of treatment and remission, when there is little or no detectable lymphoma.

Follow-up may include appointments, physical examinations and blood tests. Scans are used when clinically helpful rather than automatically for every person at every visit. Tell your care team about new or persistent symptoms between appointments.

Tiredness can continue after treatment. Returning to work, exercise and usual responsibilities may need to happen gradually. Most people are encouraged to remain active within their abilities, eat a balanced diet and seek help for sleep, mood or financial concerns.

Treatment can affect infection protection. Your team can explain which vaccines are appropriate and whether you should avoid live vaccines. Household members may also need vaccination advice in some circumstances.

When to get medical help

Arrange a routine medical appointment if you have a painless lump that persists or grows, repeated unexplained fevers, drenching night sweats, unplanned weight loss or ongoing symptoms that concern you. These symptoms often have causes other than lymphoma, but they should be assessed.

If you have already been diagnosed, contact your lymphoma team promptly about new lumps, worsening symptoms or treatment side effects. During chemotherapy or other immune-suppressing treatment, fever, chills or feeling suddenly unwell requires urgent advice because infection can become serious quickly. Follow the temperature threshold and contact instructions provided by your team.

Seek emergency medical help for:

These symptoms can indicate pressure on important structures, a severe infection or another complication requiring immediate assessment.

- Severe or rapidly worsening difficulty breathing
- Swelling of the face or neck with breathing problems
- New leg weakness, numbness or loss of bladder or bowel control
- A seizure, collapse or new severe confusion
- Heavy bleeding that does not stop

Common questions

Is non-hodgkin lymphoma curable?

Some types can be cured, including several aggressive lymphomas. Slow-growing lymphomas are less often considered curable when widespread, but treatment may control them for long periods. Outlook depends most strongly on the subtype, extent, biological features and response to treatment.

Is non-hodgkin lymphoma always cancer?

Yes. The term describes cancers of lymphocytes. However, different subtypes behave very differently. Some grow so slowly that monitoring may be safer than immediate treatment.

What is the difference between Hodgkin and non-hodgkin lymphoma?

They contain different abnormal cells and have different patterns of spread and treatment. Hodgkin lymphoma has characteristic cells called Reed-Sternberg cells. A biopsy is needed to

tell the types apart.

Does a swollen lymph node mean lymphoma?

Usually not. Infections are a much more common cause of swollen lymph nodes. A node that persists, grows, feels unusually hard or occurs with unexplained systemic symptoms should be assessed.

Can non-hodgkin lymphoma come back after treatment?

It can. The chance and timing depend on the subtype and response to treatment. A recurrence may be treated with different medicines, cell therapy, radiation or a stem cell transplant. Recurrence does not automatically mean that no effective options remain.

Can I live normally with non-hodgkin lymphoma?

Many people continue work, relationships, exercise and travel during monitoring or after recovery from treatment. Others need temporary or lasting adjustments because of fatigue, infection risk or repeated treatment. Your likely course is best understood from the exact subtype rather than the general name alone.

Sources

- National Cancer Institute: Adult Non-Hodgkin Lymphoma Treatment - Patient Version
- National Institute for Health and Care Excellence: Non-Hodgkin's lymphoma-diagnosis and management, guideline NG52
- Alaggio R, Amador C, Anagnostopoulos I, et al. The 5th edition of the World Health Organization Classification of Haematolymphoid Tumours: Lymphoid Neoplasms. Leukemia . 2022;36:1720-1748
- Cheson BD, Fisher RI, Barrington SF, et al. Recommendations for initial evaluation, staging, and response assessment of Hodgkin and non-Hodgkin lymphoma: the Lugano classification. Journal of Clinical Oncology . 2014;32:3059-3068
- NHS: Non-Hodgkin lymphoma