CONDITION

Liposarcoma

Liposarcoma is a rare cancer that forms in soft tissue and has cells resembling fat cells.

WHAT IT IS
Cancer of soft tissue with fat-like tumor cells

BODY SYSTEM
Soft tissues, often limbs or back of the abdomen

MAIN SYMPTOMS
Growing lump, abdominal swelling, pain, reduced movement

WHAT CAUSES IT
Acquired cell DNA changes, usually without a known trigger

HOW IT IS DIAGNOSED
Imaging, core needle biopsy, and specialist pathology

MAIN TREATMENT
Surgery, sometimes radiotherapy or cancer medicines

CAN IT BE CURED?
Sometimes - localized tumors may be removed completely

IS IT AN EMERGENCY?
Sometimes - sudden breathlessness or persistent vomiting with severe swelling

LONG-TERM OUTLOOK
Often treatable; outlook reflects subtype, site, stage, and surgery

Overview

Liposarcoma is a cancer of the soft tissues. Soft tissues include fat, muscle, nerves, tendons, and blood vessels. Under a microscope, liposarcoma contains abnormal cells that resemble cells involved in making or storing fat.

It most often develops in a thigh or behind the abdominal organs, an area called the retroperitoneum. It can occur elsewhere, but it does not usually begin in the fat just under the skin.

Liposarcoma is not the same as a lipoma. A lipoma is a common, non-cancerous fatty lump and does not usually turn into liposarcoma.

There are several subtypes. They differ in where they occur, how quickly they grow, and how likely they are to spread:

The name "atypical lipomatous tumor" is often used for a well-differentiated tumor in a limb, where complete removal is more practical. "Well-differentiated liposarcoma" is more often used for the same tumor type in places such as the retroperitoneum, where local recurrence can be harder to manage.

- Atypical lipomatous tumor or well-differentiated liposarcoma usually grows slowly and tends to return near its original site rather than spread elsewhere
- Dedifferentiated liposarcoma contains a more aggressive area that has lost some fat-like features
- Myxoid liposarcoma has cells in a jelly-like background and may spread to soft tissues or bones as well as the lungs
- Pleomorphic liposarcoma is uncommon and generally behaves more aggressively

Symptoms

A liposarcoma in an arm or leg may first appear as a deep lump. It is often painless at first. The lump may gradually become larger, feel firm, or cause pressure and discomfort.

Possible symptoms include:

A retroperitoneal tumor can become large before causing symptoms because there is room for it to grow. Symptoms may then result from pressure on the bowel, kidneys, bladder, nerves, or major blood vessels.

These symptoms have many causes, most of which are not liposarcoma. A lump that is enlarging, deep, painful, or returning after removal should be assessed rather than identified by appearance alone.

- A new or growing lump, particularly one that feels deep
- Swelling or a feeling of heaviness in a limb
- Pain, numbness, or reduced movement if the tumor presses on nearby structures
- Abdominal swelling, fullness, discomfort, or increasing waist size
- Feeling full after eating a small amount
- Constipation or changes in urination from pressure inside the abdomen

Causes and risk factors

Liposarcoma develops when a soft-tissue cell acquires DNA changes that allow it to grow out

of control. Different subtypes have different genetic changes within their tumor cells. For example, well-differentiated and dedifferentiated tumors commonly have extra copies of a gene called MDM2 .

These changes are usually acquired during life. They are generally present only in the tumor and are not changes that a person was born with or can pass to children.

In most cases, there is no identifiable trigger. Liposarcoma is not caused by body weight, eating fatty foods, or having a lipoma.

Previous radiotherapy can slightly increase the risk of a soft-tissue sarcoma in the treated area many years later. This is uncommon, and the benefits of necessary radiotherapy usually outweigh this future risk.

A small proportion of soft-tissue sarcomas occur in people with an inherited cancer syndrome. Genetic assessment may be considered when there is a strong family history, several cancers in one person, or cancer at an unusually young age. Most people with liposarcoma do not have an inherited syndrome.

Diagnosis

Assessment usually begins with a physical examination and imaging. Ultrasound may help assess a superficial lump, but deeper masses normally require more detailed scans.

MRI gives detailed images of tumors in a limb, pelvis, or body wall. CT is particularly useful for tumors in the abdomen and for checking the lungs or other areas. Imaging shows the tumor's size, position, and relationship to nearby organs, nerves, and blood vessels, but it cannot confirm the diagnosis by itself.

Confirmation requires a biopsy. This usually means a core needle biopsy , in which a radiologist uses a hollow needle to remove small cylinders of tissue. The route of the needle should be planned with the specialist surgical team because it can affect later surgery.

A pathologist examines the tissue under a microscope. Molecular tests may look for characteristic genetic changes, such as extra MDM2 copies or a rearrangement involving the DDIT3 gene. These tests help distinguish liposarcoma from benign fatty tumors and identify its subtype.

Further scans may check whether the cancer has spread. The results are used to describe its grade and stage. Grade reflects how aggressive the cells appear, while stage considers the tumor's size, location, and spread.

Because liposarcoma is uncommon, diagnosis and treatment planning are best reviewed by a

specialist sarcoma team.

Treatment and management

Treatment is based on the subtype, grade, size, location, and whether the tumor has spread. Your general health and the likely effects of treatment also matter.

Surgery is the main treatment for a localized liposarcoma. The aim is to remove the tumor with a rim of healthy tissue around it, known as a clear margin. Limb surgery is usually planned to preserve function whenever possible.

Surgery for a retroperitoneal liposarcoma can be complex. The tumor may be attached to or closely surround nearby organs. Removing it completely may require removal of an adjacent organ, such as a kidney or part of the bowel, when this can be done safely.

Radiotherapy uses high-energy radiation to damage cancer cells. It may be given before or after surgery in selected cases to improve control near the original site. Its role is influenced by the tumor's location and the possible effects on nearby healthy tissue. It is not routinely suitable for every liposarcoma.

Cancer medicines may be used when the tumor cannot be removed, has spread, or has returned. Options can include chemotherapy and, in certain situations, medicines with activity against particular soft-tissue sarcomas. The expected benefit differs by subtype; myxoid liposarcoma, for example, can respond differently from well-differentiated disease.

Some slowly growing tumors may be monitored for a time if immediate treatment is unlikely to help more than it harms. This is a planned approach using examinations and scans, not a lack of care.

Clinical trials may provide access to newer treatments. Supportive care can also address pain, nausea, swelling, fatigue, mobility, and emotional wellbeing during any stage of treatment.

Complications

Liposarcoma can press on muscles, nerves, blood vessels, or abdominal organs. This may cause pain, weakness, leg swelling, bowel problems, or kidney problems.

Local recurrence means the tumor grows again in or near the original area. This is an important concern with retroperitoneal and well-differentiated tumors, including after apparently complete surgery. Dedifferentiated, myxoid, and pleomorphic tumors have a greater ability to spread to distant sites.

Possible treatment effects include reduced movement, numbness, limb swelling, changes in bowel or kidney function, and fatigue. Radiotherapy can cause changes in skin and deeper tissues within the treated area. Cancer medicines have different side effects depending on the medicine used.

Cancer and major surgery can also raise the risk of a blood clot. New one-sided leg swelling, chest pain, or sudden shortness of breath needs urgent assessment.

Prevention

Liposarcoma usually cannot be prevented. Its tumor-cell changes generally arise without a known avoidable cause, and there is no routine screening test for people without symptoms.

A previous lipoma does not need to be removed to prevent liposarcoma. However, a new or changing lump should be assessed so that its cause can be identified.

People who have received radiotherapy should continue the follow-up recommended for their original condition. Avoiding medically necessary radiotherapy is not considered a practical prevention strategy because treatment decisions already balance its benefits and risks.

Living with it and what to expect

Life after diagnosis can look very different from one person to another. A localized tumor that can be removed completely may require a period of treatment followed by regular surveillance. Rehabilitation can help restore strength and movement after limb or abdominal surgery.

Follow-up usually includes examinations and imaging. The schedule is based on the tumor's subtype, grade, location, treatment, and time since treatment. Chest imaging may be included because some subtypes can spread to the lungs. Myxoid liposarcoma may require attention to other soft tissues and bones as well.

Some liposarcomas return months or years later. Retroperitoneal tumors may recur several times and sometimes require further surgery or other treatment. A well-differentiated tumor may remain localized for years, while higher-grade subtypes can progress more quickly. No single course applies to everyone.

If the cancer has spread or cannot be removed, treatment may aim to shrink it, slow its growth, relieve symptoms, and maintain day-to-day function. Some people live with advanced liposarcoma as a long-term condition managed through periods of treatment and monitoring, although control cannot always be maintained.

Changes in appearance, mobility, work, fertility, or bowel function can affect daily life. Rehabilitation, pain care, psychological support, and practical help are reasonable parts of sarcoma care, not signs that treatment has failed.

When to get medical help

Arrange a routine medical assessment for:

Contact your sarcoma team promptly if an existing tumor seems to be growing or if you develop new pain, weakness, numbness, swelling, or problems with eating, bowel movements, or urination.

Seek urgent or emergency care for sudden shortness of breath, chest pain, coughing up blood, or a painful and swollen leg, as these can be signs of a blood clot.

Severe abdominal pain with persistent vomiting, marked swelling, or an inability to pass stool or gas also needs emergency assessment because it may indicate a blocked bowel.

- A new lump that is growing or feels deep
- A lump that is painful, firm, or returns after removal
- Unexplained abdominal swelling, fullness, or persistent discomfort
- New symptoms between planned sarcoma follow-up visits

Common questions

Is liposarcoma the same as a lipoma?

No. A lipoma is a benign fatty lump. Liposarcoma is a cancer diagnosed by examining biopsy tissue. Ordinary lipomas do not usually become liposarcomas.

How fast does liposarcoma grow?

Growth differs by subtype and grade. Well-differentiated tumors often grow slowly, while dedifferentiated or pleomorphic tumors may grow more quickly. Size alone does not reveal the subtype.

Can liposarcoma be cured?

Sometimes. A localized tumor that can be completely removed may be cured. The chance of lasting control is affected by its site, subtype, grade, surgical margins, and whether it has spread.

Where does liposarcoma spread?

When it spreads, the lungs are a common site for several subtypes. Myxoid liposarcoma may also spread to other soft tissues or bones. Well-differentiated tumors rarely spread unless they develop dedifferentiated areas.

Is liposarcoma inherited?

Usually not. Most genetic changes are found only in the tumor cells and are not passed through families. An inherited cancer syndrome is considered only in a small minority of people with relevant personal or family histories.

Does a painful fatty lump mean cancer?

Not necessarily. Many benign conditions can cause painful lumps. Pain, depth, and growth are reasons to arrange an assessment, but only imaging and, when needed, a biopsy can establish the cause.

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