CONDITION

Acquired lipodystrophy

Learn how acquired lipodystrophy causes abnormal fat loss, how it affects metabolism, and how specialists diagnose, monitor, and manage it.

WHAT IT IS
Rare acquired conditions causing fat tissue loss

BODY SYSTEM
Hormones and metabolism

MAIN SYMPTOMS
Fat loss beneath the skin, prominent muscles and veins, increased hunger, increased thirst or urination

WHAT CAUSES IT
Autoimmune, infection, medicines or injury, sometimes unknown

HOW IT IS DIAGNOSED
Clinical history and physical examination, with DEXA or MRI

MAIN TREATMENT
Management of the cause and metabolic complications

CAN IT BE CURED?
No, treatment focuses on management

IS IT AN EMERGENCY?
Sometimes, severe persistent upper abdominal pain

LONG-TERM OUTLOOK
Variable, with serious metabolic complications when fat loss is widespread

Overview

Acquired lipodystrophy is a group of rare conditions in which the body loses fat tissue after birth. "Acquired" means the condition is not caused by an inherited change present from conception. "Lipoatrophy" is another term for the loss of fat tissue.

Body fat does more than store energy. It also releases hormones, including leptin, that help regulate appetite, blood sugar, and how the body processes fats. When large amounts of fat tissue are missing, fat may build up in places where it does not belong, such as the liver, muscles, or bloodstream. This can lead to diabetes, very high triglycerides, and fatty liver disease.

The pattern and health effects depend on the type:

Widespread fat loss is more likely than localized fat loss to disrupt metabolism. Because acquired lipodystrophy is uncommon and can resemble ordinary weight loss or other illnesses, evaluation by a clinician familiar with endocrine or metabolic disorders may be helpful.

- Acquired generalized lipodystrophy , also called Lawrence syndrome, causes fat loss over most of the body.
- Acquired partial lipodystrophy , also called Barraquer-Simons syndrome, usually affects the face, arms, chest, and upper abdomen while sparing or increasing fat around the hips and legs.
- Localized acquired lipodystrophy affects one or a few small areas, often after repeated injections, inflammation, pressure, or injury.
- HIV-associated lipodystrophy may involve fat loss, fat accumulation, or both. It has been linked to HIV infection and certain older antiretroviral medicines.

Symptoms

The most visible feature is loss of the soft layer of fat beneath the skin. This may develop gradually or over a shorter period. The person's muscles and veins can appear unusually prominent even without increased exercise.

In acquired generalized lipodystrophy, fat loss may involve the face, arms, legs, trunk, palms, and soles. Some people develop increased hunger because low fat stores can lead to low leptin levels. Children may grow quickly or appear muscular.

Acquired partial lipodystrophy usually begins in the face and progresses downward to the neck, shoulders, arms, chest, and upper abdomen. Fat around the hips, thighs, and legs may remain unchanged or become more noticeable.

Other symptoms can result from insulin resistance, which means the body does not respond normally to insulin:

Localized lipodystrophy may appear as a dent or shallow area under the skin. It often causes cosmetic concerns but may not produce whole-body metabolic problems.

Changes in appearance can also affect emotional health. Some people experience unwanted attention, low self-esteem, anxiety, or social isolation.

- Dark, thick, velvety skin, often around the neck or underarms
- Increased thirst or urination from high blood sugar
- Fatigue or blurred vision

- Irregular menstrual periods, excess facial or body hair, or fertility problems
- An enlarged abdomen from an enlarged liver
- Small yellow skin bumps caused by very high triglycerides

Causes and risk factors

The exact cause is not always identified. In some cases, the immune system may mistakenly attack fat cells. This is called an autoimmune process.

Acquired generalized lipodystrophy sometimes begins after an infection or an episode of panniculitis, which is painful inflammation in the fat beneath the skin. It may also occur with autoimmune conditions such as juvenile dermatomyositis. Some cases have no clear trigger.

Acquired partial lipodystrophy is associated with abnormal activity of the complement system, a group of blood proteins involved in immune defense. Many affected people have low levels of a complement protein called C3. This pattern may also be connected with a rare kidney disorder called C3 glomerulopathy.

Localized fat loss can develop after:

Some older HIV medicines, particularly certain nucleoside reverse transcriptase inhibitors, were strongly associated with fat loss. Current HIV treatment is less likely to cause this pattern, but body-composition changes can still occur. A person should not stop or change HIV treatment without speaking with their HIV clinician.

Acquired lipodystrophy is different from inherited lipodystrophy, malnutrition, an eating disorder, or weight loss caused by another medical condition. Those possibilities may need to be considered during diagnosis.

- Repeated insulin or other medicine injections into the same location
- Corticosteroid injections
- Injury, prolonged pressure, or surgery
- Inflammation of the skin or underlying fat
- Certain infections or autoimmune skin disorders

Diagnosis

There is no single test that confirms every form of acquired lipodystrophy. Diagnosis usually begins with a detailed history and physical examination.

The clinician may ask when the changes started, which body areas were affected first, and whether an infection, medication, injection, or inflammatory illness came before the fat loss. Childhood photographs or older medical images can sometimes help show how body composition changed over time.

The physical examination looks at the distribution of fat, muscle prominence, skin changes, and signs of liver enlargement. Height, weight, waist size, and skinfold measurements may be recorded. Dual-energy X-ray absorptiometry, often called a DEXA or DXA scan, can measure body fat distribution. MRI may provide more detailed images in selected cases.

Blood and urine testing may check for health effects associated with lipodystrophy, including:

Leptin levels may be measured, but a low or normal result cannot establish or exclude the diagnosis by itself. Leptin levels often reflect the amount of remaining body fat.

Genetic testing may help distinguish an acquired condition from an inherited form. A skin or fat biopsy is sometimes used if panniculitis, an autoimmune disorder, or another tissue disease is suspected.

- Fasting glucose or A1C to look for diabetes or prediabetes
- Cholesterol and triglycerides
- Liver enzymes and other measures of liver function
- Kidney function, urine protein, and blood in the urine
- Complement proteins, especially when acquired partial lipodystrophy is suspected

Treatment and management

Treatment focuses on the cause when one can be identified, the metabolic effects of fat loss, and the person's physical and emotional well-being. Care may involve an endocrinologist, dietitian, liver specialist, kidney specialist, dermatologist, or other clinicians.

A balanced eating plan can help manage blood sugar, triglycerides, and fatty liver disease. The plan should provide appropriate nutrition for age and growth. Extreme calorie restriction is not a safe substitute for professional care, especially for children or people with very little fat tissue.

Regular physical activity may improve insulin sensitivity and cardiovascular health. The type and intensity should account for the person's health, fitness, and any heart, liver, or kidney complications.

Diabetes is treated with established glucose-lowering approaches. Severe insulin resistance

can make diabetes harder to control, and some people require several types of treatment. High triglycerides and cholesterol may be managed with dietary measures and standard lipid-lowering medicines. Treatment decisions depend on laboratory results and other medical conditions.

Metreleptin is a laboratory-made form of leptin. In the United States, it is approved as an addition to diet for complications of leptin deficiency in people with congenital or acquired generalized lipodystrophy. It is not approved in the United States for partial lipodystrophy or for ordinary obesity. Access and approved uses differ between countries.

Metreleptin requires specialist supervision. Its prescribing information includes warnings about antibodies that may reduce leptin activity and about T-cell lymphoma, a cancer of immune cells. Lymphoma has also occurred in people with acquired generalized lipodystrophy who were not taking metreleptin, so the relationship is complex. Potential benefits and risks must be reviewed individually.

Treating an associated autoimmune or inflammatory disorder may help control that disease, but immune-suppressing treatment does not reliably restore lost fat. For injection-related fat loss, rotating injection sites and avoiding damaged areas may prevent further injury.

Reconstructive procedures, fillers, or fat grafting may improve facial or localized changes in selected people. Results vary, and treatment is usually considered after the pattern has become stable. Mental health support or peer support may also help with body-image concerns.

Complications

Complications are most common when fat loss is widespread. Insulin resistance can progress to type 2 diabetes, which may affect the eyes, nerves, kidneys, and cardiovascular system if it remains poorly controlled.

Very high triglycerides can cause acute pancreatitis, a painful inflammation of the pancreas. Fat accumulation in the liver can lead to metabolic dysfunction-associated steatotic liver disease. In some people, this progresses to liver inflammation, scarring, or cirrhosis.

Acquired partial lipodystrophy can be associated with C3 glomerulopathy and other kidney problems. Warning signs can include blood or protein in the urine, foamy urine, high blood pressure, or swelling around the eyes and legs.

Other possible complications include reproductive hormone problems, pregnancy complications, cardiovascular disease, and emotional distress. The risks differ greatly among generalized, partial, and localized forms.

Seek emergency care for severe or persistent upper abdominal pain, especially with vomiting; chest pain; major breathing difficulty; fainting; confusion; or signs of stroke such as sudden facial drooping, weakness, or trouble speaking.

Contact a clinician promptly for new jaundice, rapidly increasing swelling, very high glucose readings with vomiting or deep breathing, or a major change in urine output. These concerns are different from routine monitoring visits.

Follow up

Routine follow-up is important even when the person feels well because high blood sugar, liver disease, or kidney disease may not cause early symptoms. The timing of visits depends on the type of lipodystrophy and any existing complications.

Monitoring may include blood pressure, growth in children, body-fat changes, glucose or A1C, triglycerides, cholesterol, and liver tests. Urine and kidney testing are particularly important for people with acquired partial lipodystrophy. Imaging or specialist testing may be needed if liver disease, heart disease, or other complications are suspected.

People receiving metreleptin need ongoing specialist monitoring for treatment response and adverse effects. Those using injectable medicines should have their injection sites examined and should review site-rotation technique.

Between routine visits, contact the care team if fat loss spreads quickly, thirst or urination increases, menstrual patterns change, abdominal swelling develops, or treatment side effects appear. Medication changes should be made with the prescribing clinician rather than independently.

Sources

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