CONDITION

Birthmarks - pigmented

Learn about pigmented birthmarks, including congenital moles, café-au-lait spots, and blue-gray birthmarks, as well as diagnosis, monitoring, and treatment.

WHAT IT IS
Areas of skin with extra pigment

BODY SYSTEM
Skin

MAIN SYMPTOMS
Discolored skin patches, raised marks, blue-gray areas, coarse hair

WHAT CAUSES IT
Developmental pigment-cell changes, often by chance

HOW IT IS DIAGNOSED
Skin examination, dermoscopy, sometimes biopsy

MAIN TREATMENT
Observation, sometimes surgery or laser treatment

CAN IT BE CURED?
Sometimes - removal may be incomplete

IS IT AN EMERGENCY?
Sometimes - seizure or sudden vision loss

LONG-TERM OUTLOOK
Most are harmless, but some need monitoring

Overview

Pigmented birthmarks are areas of skin that contain more pigment than the surrounding skin. Pigment called melanin gives skin, hair, and eyes much of their color. These birthmarks may result from extra pigment or from a collection of melanocytes, the cells that make melanin.

A pigmented birthmark may be present at birth or appear during infancy. Its color can range from light tan or brown to dark brown, black, blue, or gray. The appearance may be different across skin tones.

Common types include:

Most pigmented birthmarks are harmless and do not need treatment. Their location, size, number, and pattern can still matter. Some need monitoring because they may be associated

with an eye condition, a genetic disorder, or, less often, melanoma. Melanoma is a cancer that begins in pigment-producing cells.

- Congenital melanocytic nevus: A mole present at birth or shortly afterward. It may be flat or raised, and hair may grow from it.
- Café-au-lait macule: A flat, evenly colored patch that is usually light to medium brown.
- Congenital dermal melanocytosis: A flat blue-gray area, often on the lower back or buttocks. It was previously called a Mongolian spot.
- Speckled lentiginous nevus: A tan patch that develops darker spots within it.
- Nevus of Ota: Blue-gray pigmentation, usually on one side of the face around the eye. Pigment may also involve the eye.

Symptoms

A pigmented birthmark is usually noticed because of how it looks rather than because it causes physical symptoms. It may be a single spot or one of several marks.

Congenital melanocytic nevi can vary greatly in size. They may be smooth, bumpy, thick, or covered with coarse hair. Some become more raised or textured with age. They generally grow as the child grows, so an increase in size alone does not necessarily mean that something is wrong.

Café-au-lait macules are flat and usually have an even color. Their borders may be smooth or less regular. One or two may occur without any other health issue. Several such patches, especially with other skin, eye, bone, or developmental findings, may lead a clinician to look for an associated condition.

Congenital dermal melanocytosis appears blue, slate gray, or gray-brown because pigment cells are deeper in the skin. These patches are commonly found over the lower back and buttocks, although other areas can be involved. Many fade during childhood. They do not behave like bruises, even though their color can look similar.

A nevus of Ota may affect the forehead, temple, cheek, eyelid, or skin around the eye. The white part of the eye or other eye tissues may also contain pigment. The skin change itself is usually painless.

Most pigmented birthmarks do not itch, hurt, bleed, or form sores. Persistent symptoms or a change that is out of proportion to the child's general growth should be assessed.

Causes and risk factors

Pigmented birthmarks develop when pigment cells form, collect, or remain in an area of skin during early development. The exact process differs by birthmark type.

Many congenital melanocytic nevi result from a genetic change that occurs after conception in a group of developing cells. This is called mosaicism , meaning only some cells carry the change. It usually happens by chance and is not inherited from a parent. Nothing a person does during pregnancy is known to cause it.

Café-au-lait macules also reflect increased skin pigment. An isolated patch may occur without an underlying illness. Multiple patches can sometimes be part of a genetic condition, such as neurofibromatosis type 1 or Legius syndrome. Their number alone does not establish a diagnosis; clinicians consider size, age, family history, and other findings.

Congenital dermal melanocytosis occurs when pigment cells remain in a deeper layer of skin during development. It can occur in any skin tone but is more often seen in people with Asian, African, Indigenous, Hispanic, or Pacific Island ancestry.

A person generally cannot prevent a pigmented birthmark. Sun exposure does not cause a congenital birthmark, although tanning or sunburn can make pigment differences more noticeable and can make skin changes harder to evaluate.

Diagnosis

A clinician can diagnose many pigmented birthmarks by examining the skin. They will ask when the mark was first seen, whether it has changed, and whether there are related symptoms or a family history of skin or genetic conditions.

The examination may include measuring the mark and checking its color, border, surface, and location. A dermatologist may use a dermatoscope, a handheld magnifying device with special lighting that shows structures beneath the skin surface.

Photographs with a ruler can create a useful baseline. For a large congenital nevus, clinicians may estimate its expected adult size and look for smaller nearby moles, sometimes called satellite nevi.

A skin biopsy is not routinely needed for every birthmark. During a biopsy, a clinician removes a small sample for examination under a microscope. It may be considered if the diagnosis is uncertain or if an area develops a concerning lump, sore, or other change.

Some findings call for a broader assessment. A child with several café-au-lait macules may be examined for other signs of an associated genetic condition. Genetic testing may be helpful in

selected cases, but it is not required for every person with these spots.

Large or numerous congenital melanocytic nevi can occasionally be associated with pigment cells affecting the brain or spinal cord, known as neurocutaneous melanocytosis. A specialist may consider magnetic resonance imaging, or MRI, based on the birthmark pattern, age, and neurological findings. MRI is not automatically needed for every congenital mole.

A nevus of Ota involving the eye or nearby skin generally warrants an eye examination. The eye specialist may check eye pressure and examine pigmented structures inside the eye.

Treatment and management

Most pigmented birthmarks can be observed without treatment. Management depends on the type, size, location, symptoms, expected natural course, and the person's preferences.

Regular skin care is usually straightforward. Gentle cleansing and moisturizing can help if a raised birthmark becomes dry or irritated. Hair growing from a mole can generally be trimmed carefully. Picking, cutting, or using home mole-removal products can cause burns, infection, or scarring.

Sun protection does not remove a birthmark or eliminate melanoma risk. It does help protect all skin from ultraviolet damage. Options include shade, protective clothing, and broad-spectrum sunscreen used according to its label.

Surgery may be considered for some congenital melanocytic nevi. Reasons can include repeated irritation, difficulty monitoring the area, appearance-related concerns, or features that require tissue diagnosis. The decision may involve a dermatologist and plastic surgeon.

Removal may be simple for a small mark but more complex for a large one. More than one procedure may be needed, and surgery leaves a scar. Complete removal may not be possible when pigment cells extend deeply or cover a large area. Surgery also cannot remove pigment cells in the brain or spinal cord, so it does not guarantee that melanoma will never occur.

Laser treatment can lighten certain birthmarks, including some cases of nevus of Ota or café-au-lait pigmentation. Results vary, and pigment can return. Possible effects include lighter or darker skin, incomplete clearing, and scarring. Treatment near the eye requires suitable specialist expertise and eye protection.

Cosmetic camouflage products may reduce the visibility of a mark without a procedure. Counseling or peer support can also help if a visible birthmark affects self-confidence, social experiences, or quality of life.

Complications

Most pigmented birthmarks do not cause complications. The possible concerns depend on the specific type.

Congenital melanocytic nevi carry some risk of melanoma, but that risk is not the same for every person. Larger nevi, numerous satellite nevi, and certain patterns are associated with greater concern than a single small congenital mole. Melanoma can sometimes develop deep within a thick nevus or, in people with neurocutaneous melanocytosis, within the nervous system. This can make detection more difficult.

Neurocutaneous melanocytosis may cause no symptoms. When it does cause problems, possible signs include seizures, developmental changes, persistent headaches, weakness, or repeated vomiting. These symptoms can have many other causes and need medical assessment rather than self-diagnosis.

Multiple café-au-lait macules may be an early clue to a genetic condition, but the marks themselves are not harmful. Any complications would relate to the associated condition rather than to the pigment patch.

A nevus of Ota involving eye tissues can be associated with increased pressure inside the eye, known as glaucoma. It is also linked to a higher risk of melanoma in the eye, although this remains uncommon. Ongoing eye care helps monitor for these problems.

Visible birthmarks may lead to unwanted attention, teasing, anxiety, or concerns about body image. These effects are medically important and can be discussed with the care team.

Follow up

Follow-up should match the birthmark type and the person's level of risk. A small, stable mark may only need checks during routine health visits. Larger congenital nevi, marks that are difficult to examine, or birthmarks linked to an eye or genetic condition may need specialist follow-up.

At home, it can help to become familiar with the mark's usual appearance. Take occasional photographs in similar lighting, with a ruler for scale. Avoid checking so often that normal variation causes unnecessary worry.

Arrange a routine or prompt medical appointment if a birthmark develops:

Pigmented birthmarks rarely cause an emergency. Seek emergency care for a seizure, sudden weakness, confusion, loss of consciousness, sudden loss of vision, or a severe headache with repeated vomiting. These symptoms do not necessarily come from a birthmark, but they need

immediate evaluation.

- Growth that is much faster than the person's overall growth
- A new firm or rapidly enlarging lump
- A lasting change in color, shape, or surface
- Persistent pain, itching, crusting, or tenderness
- A sore that does not heal
- Bleeding without a clear injury
- New vision symptoms in someone with pigment around or in an eye

Sources

- American Academy of Dermatology Association. "Birthmarks: Signs and symptoms" and "Birthmarks: Diagnosis and treatment." Patient education resources. Accessed March 8, 2025.
- British Association of Dermatologists. "Congenital melanocytic naevi." Patient Information Leaflet. Accessed March 8, 2025.
- DermNet New Zealand. "Congenital melanocytic naevi," "Café-au-lait macule," "Lumbosacral dermal melanocytosis," and "Naevus of Ota." Clinician-reviewed dermatology resources. Accessed March 8, 2025.
- Kinsler VA, O'Hare P, Bulstrode N, et al. "Melanoma in congenital melanocytic naevi." British Journal of Dermatology . 2017;176(5):1131-1143.
- Legius E, Messiaen L, Wolkenstein P, et al. "Revised diagnostic criteria for neurofibromatosis type 1 and Legius syndrome: An international consensus recommendation." Genetics in Medicine . 2021;23(8):1506-1513.
- Waelchli R, Aylett SE, Atherton D, et al. "Classification of neurological abnormalities in children with congenital melanocytic naevus syndrome identifies magnetic resonance imaging as the best predictor of clinical outcome." British Journal of Dermatology . 2015;173(3):739-750.