CONDITION

TORCH syndrome

TORCH syndrome describes health problems caused by certain infections passed to a baby before or around birth.

WHAT IT IS
Effects of certain infections before or around birth

BODY SYSTEM
Brain, eyes, hearing, skin, liver, and blood

MAIN SYMPTOMS
Poor growth, rash, jaundice, hearing or vision problems

WHAT CAUSES IT
Infection passed during pregnancy or birth

HOW IT IS DIAGNOSED
Pathogen-specific blood, urine, saliva, or fluid tests

MAIN TREATMENT
Infection-specific medicines and supportive care

CAN IT BE CURED?
Sometimes - infection clears, lasting effects may remain

IS IT AN EMERGENCY?
Sometimes - seizures or breathing problems need emergency care

LONG-TERM OUTLOOK
Ranges from no effects to lifelong disability

Overview

TORCH syndrome is a general term for health problems caused by certain infections passed from a pregnant person to their baby. Transmission can happen through the placenta, during birth, or shortly after birth.

TORCH is an acronym:

TORCH syndrome is not one disease with one test or treatment. The infections are grouped together because they can cause some similar problems in a developing baby. These may affect growth, the brain, hearing, vision, skin, liver, or blood.

The term is used less precisely than it once was. Healthcare teams often identify and name the specific infection instead. This matters because each infection spreads differently and

requires different testing, treatment, and follow-up.

Some babies are seriously unwell at birth. Others appear healthy but develop hearing, vision, learning, or developmental problems later. Many babies exposed to one of these infections do not become infected or do not develop lasting health problems.

- T - toxoplasmosis
- O - "other" infections, such as syphilis, chickenpox, parvovirus B19, HIV, or Zika
- R - rubella
- C - cytomegalovirus, usually called CMV
- H - herpes simplex virus, or HSV

Symptoms

A pregnant person may have no symptoms even when an infection can affect the pregnancy. When symptoms occur, they may resemble a mild viral illness, with fever, fatigue, swollen glands, muscle aches, or a rash. Genital sores can occur with herpes, but HSV may also spread when no sores are visible.

Possible findings during pregnancy include poor fetal growth, unusual amounts of fluid around the baby, or changes in the brain or other organs seen on ultrasound. These findings can have many causes and do not confirm a TORCH infection.

A baby affected before birth may have:

The pattern can offer clues. Toxoplasmosis may affect the eyes and brain. Congenital CMV commonly affects hearing and development. Rubella can cause hearing loss, cataracts, and heart problems. Syphilis can affect the skin, bones, blood, liver, hearing, or nervous system. Newborn HSV may affect the skin, eyes, mouth, brain, or several organs.

Not every baby has this full pattern. Congenital CMV, for example, may cause no obvious signs at birth, while hearing loss becomes apparent months or years later.

- Poor growth or low birth weight
- Premature birth
- Jaundice, which causes yellow skin or eyes
- A widespread rash, bruising, or tiny red-purple spots
- An enlarged liver or spleen
- A smaller or larger than expected head

- Seizures, unusual sleepiness, or feeding difficulty
- Eye inflammation, cataracts, or other vision problems
- Hearing loss
- Heart abnormalities, especially with congenital rubella

Causes and risk factors

TORCH conditions are caused by infections, not by anything a parent deliberately did. The chance of transmission and the possible effects depend on the organism, when infection occurs, whether it is a first infection or a reactivation, and whether treatment is available.

Toxoplasmosis comes from the parasite Toxoplasma gondii . Exposure can occur through undercooked meat, contaminated soil or food, or cat feces. A first infection during pregnancy may cross the placenta.

CMV spreads through body fluids, including saliva, urine, blood, semen, and breast milk. Close contact with the saliva or urine of young children is a common route of exposure. A first CMV infection during pregnancy carries risk, although reactivation or infection with another CMV strain can also affect a fetus.

Rubella spreads through respiratory droplets. Infection during early pregnancy has the greatest potential to disrupt fetal development. Vaccination has made congenital rubella much less common where vaccination coverage is high.

HSV usually passes to a baby during birth through contact with infected genital tissue or fluids. Transmission before birth is uncommon. The risk is higher when genital HSV is first acquired near the time of delivery.

The "other" group has several routes of transmission. Syphilis is sexually transmitted and can cross the placenta. Chickenpox spreads through the air or contact with blister fluid. Parvovirus B19 usually spreads through respiratory droplets.

Diagnosis

There is no single TORCH test that reliably confirms or rules out every infection. Broad "TORCH panels" can produce unclear or misleading results, especially when they detect antibodies from an old infection rather than a current one.

Testing is usually selected according to symptoms, pregnancy history, ultrasound findings, known exposures, and routine prenatal screening results.

During pregnancy, testing may include blood tests for antibodies or for material from a specific organism. IgG and IgM are types of antibodies made by the immune system. Their results must be interpreted carefully because IgM can remain positive or give a false-positive result. Additional testing, such as IgG avidity, can sometimes help estimate when infection occurred.

For selected infections, a sample of amniotic fluid may be tested with PCR. PCR looks for genetic material from the organism. The timing of this procedure matters, so it is arranged by a specialist rather than used as a general screening test.

After birth, testing may use the baby's blood, urine, saliva, spinal fluid, or samples from skin or eye lesions. Congenital CMV must be identified early in life to distinguish infection before birth from CMV acquired later. A positive saliva result may need confirmation with urine testing.

The baby may also have:

The placenta may be examined in some cases. Diagnosis usually combines laboratory results with the pregnancy history, physical examination, and imaging.

- Hearing and eye examinations
- Blood counts and liver tests
- Ultrasound or MRI scans of the brain
- Heart tests when congenital rubella or another heart problem is suspected
- Developmental assessment

Treatment and management

Treatment is based on the specific infection and how it has affected the baby. There is no general treatment for "TORCH syndrome."

Syphilis is treated with penicillin. Prompt treatment during pregnancy can greatly reduce the risk to the fetus. Babies with confirmed or possible congenital syphilis are assessed and treated according to their findings and their parent's testing and treatment history.

Antiparasitic medicines may be used for toxoplasmosis during pregnancy or for congenital toxoplasmosis after birth. The choice of medicines depends on pregnancy timing and whether fetal infection has been established.

Babies with symptomatic congenital CMV may be considered for antiviral treatment. Treatment is not appropriate for every baby with CMV and requires specialist assessment. Blood counts, liver function, growth, hearing, and development may need monitoring.

Possible newborn HSV is treated urgently with antiviral medicine, often before every test

result is available. HSV affecting the brain or several organs can become severe quickly.

There is no medicine that removes congenital rubella or reverses changes that developed before birth. Care focuses on hearing, vision, heart, growth, and developmental needs.

Supportive care is often as important as infection treatment. It may include feeding support, seizure treatment, hearing devices, eye care, heart procedures, physiotherapy, speech and language therapy, and help with learning or movement.

Complications

Possible complications depend on the infection, timing, and organs affected. They can include:

Structural changes that occurred during fetal development may not be reversible even after the infection has cleared. However, early recognition of hearing, vision, movement, or learning needs can help a child access useful support.

- Hearing loss that is present at birth or develops later
- Reduced vision or blindness
- Seizures or cerebral palsy
- Delays in movement, speech, learning, or social development
- Heart disease
- Ongoing liver or blood problems
- Poor growth or feeding difficulties
- Pregnancy loss, stillbirth, or serious newborn illness

Prevention

TORCH syndrome cannot be prevented in every case. Some infections cause no symptoms, and infections such as CMV can occur despite reasonable precautions. Prevention focuses on reducing specific infection risks and identifying treatable infections early.

Rubella and chickenpox vaccination before pregnancy can prevent these infections. These are live vaccines and are not given during pregnancy. Routine prenatal screening for infections such as syphilis and HIV allows treatment to begin when needed.

Practical measures include:

People with a history of genital herpes should tell their maternity team. Management near

delivery is based on symptoms, infection history, and whether genital lesions are present.

- Washing hands after contact with young children's saliva or urine
- Avoiding shared food, cups, and utensils with young children
- Cooking meat thoroughly and washing produce
- Wearing gloves for gardening or contact with soil
- Avoiding handling cat litter when possible, or using gloves and washing hands
- Using barrier protection to reduce sexually transmitted infections
- Avoiding contact with active chickenpox or rubella when not immune

Living with it and what to expect

The course differs widely because TORCH syndrome includes several infections. A child's future is shaped more by the specific infection and organ effects than by the TORCH label.

Some babies remain healthy after exposure or infection. Others need treatment for weeks or months. A child with hearing, vision, brain, or heart involvement may need long-term follow-up across several specialties.

Certain effects remain stable, while others become clearer as a child grows. Hearing loss from congenital CMV can appear later or worsen over time. Learning, language, coordination, or attention differences may not be obvious in infancy. Regular hearing, vision, growth, and developmental checks can identify changes early.

Families may work with pediatric infectious disease specialists, audiologists, eye specialists, neurologists, cardiologists, and early-development services. Most day-to-day care still centers on ordinary childhood needs, with extra support tailored to the child.

Having one affected pregnancy does not automatically mean another pregnancy will be affected. Future risk depends on the infection, immunity, whether infection remains active, and any new exposure. Pre-pregnancy review may help clarify vaccination, testing, or monitoring needs.

When to get medical help

During pregnancy, seek prompt medical advice after a known exposure to rubella, chickenpox, toxoplasmosis, parvovirus B19, syphilis, or another infection that may affect pregnancy. Do not wait for symptoms, since infection can be silent.

Arrange same-day assessment for fever with a new rash, new genital blisters, or a noticeable reduction in fetal movement. These symptoms do not necessarily mean a TORCH infection, but they should be assessed.

For a newborn or young infant, seek urgent medical care for poor feeding, worsening jaundice, unusual sleepiness, a new blistering or purple-spotted rash, fever, or repeated vomiting.

Call emergency services if a baby:

Routine follow-up is appropriate for concerns such as delayed speech, not responding consistently to sounds, unusual eye movements, poor growth, or missed developmental milestones. These deserve assessment but are not usually emergencies.

- Has a seizure
- Has difficulty breathing or turns blue or grey
- Is very difficult to wake
- Becomes limp or suddenly unresponsive

Common questions

Does a positive TORCH test mean my baby is infected?

Not necessarily. Some tests detect antibodies from an old infection or antibodies passed through the placenta. False-positive results can also occur. Confirmation usually requires infection-specific testing interpreted alongside timing, symptoms, and imaging.

Can ultrasound detect TORCH syndrome?

Ultrasound can show findings that raise concern, such as poor growth, fluid buildup, or changes in the brain or organs. It cannot usually identify the exact infection or rule one out. Laboratory testing is needed for confirmation.

Can a baby with a TORCH infection be healthy?

Yes. Some infected babies have no symptoms or lasting effects. Others develop health needs later, especially hearing loss after congenital CMV. The outlook depends on the organism, timing, and organs affected.

Is TORCH syndrome contagious?

The syndrome itself is not contagious. The infections that cause it may be contagious in different ways. Some spread through respiratory droplets, sexual contact, body fluids, food, soil, or contact during birth.

Why do clinicians avoid ordering one TORCH panel?

A single panel may miss important infections or produce antibody results that are difficult to interpret. Targeted tests are more useful because they look for a specific organism at the appropriate time.

Can TORCH syndrome happen again in another pregnancy?

It can, but recurrence is not automatic. Risk depends on the specific infection and whether there is a new exposure, lasting immunity, reactivation, or untreated infection. A pre-pregnancy review can address the relevant risk.

Sources

- Neu N, Duchon J, Zachariah P. TORCH infections . Clinics in Perinatology . 2015;42(1):77-103.
- US Centers for Disease Control and Prevention. CMV and congenital CMV infection: clinical overview . Updated 2024.
- US Centers for Disease Control and Prevention. Congenital syphilis: STI treatment guidelines . 2021.
- US Centers for Disease Control and Prevention. Clinical overview of toxoplasmosis . Updated 2024.
- World Health Organization. Rubella . Fact sheet, updated 2024.
- American College of Obstetricians and Gynecologists. Practice Bulletin No. 151: Cytomegalovirus, parvovirus B19, varicella zoster, and toxoplasmosis in pregnancy . Obstetrics & Gynecology . 2015;125(6):1510-1525.
- Kimberlin DW, Baley J; American Academy of Pediatrics Committee on Infectious Diseases and Committee on Fetus and Newborn. Guidance on management of asymptomatic neonates born to women with active genital herpes lesions . Pediatrics . 2013;131(2):e635-e646.