CONDITION

Toxic shock syndrome

Toxic shock syndrome is a sudden, life-threatening reaction to toxins made by certain bacteria.

WHAT IT IS
Severe whole-body reaction to bacterial toxins

BODY SYSTEM
Whole body, especially circulation and major organs

MAIN SYMPTOMS
Sudden fever, rash, dizziness, vomiting or diarrhea

WHAT CAUSES IT
Toxins from Staphylococcus or group A Streptococcus bacteria

HOW IT IS DIAGNOSED
Clinical assessment, blood tests, and cultures; no single confirmatory test

MAIN TREATMENT
Emergency antibiotics, infection control, and organ support

CAN IT BE CURED?
Yes - rapid treatment can control infection and organ effects

IS IT AN EMERGENCY?
Yes - every suspected case needs immediate hospital care

LONG-TERM OUTLOOK
Most recover; severe or delayed illness can be fatal

Overview

Toxic shock syndrome, often shortened to TSS, is a rare but serious condition caused by toxins released by certain bacteria. These toxins can trigger intense inflammation throughout the body. Blood pressure may fall, and organs such as the kidneys, liver, lungs, heart, or brain may stop working normally.

TSS can become severe within hours. It always needs emergency hospital treatment.

The two main forms are:

Staphylococcal TSS is sometimes linked to tampon use, but it can affect anyone. It may also follow surgery, childbirth, burns, skin infections, or the use of wound packing or nasal packing.

Streptococcal TSS often starts with an infection in a wound or deeper body tissue. It may

occur alongside necrotizing fasciitis, a rapidly spreading infection that damages tissue under the skin.

TSS is not simply an allergy to tampons. Tampons do not contain the toxin. In menstrual TSS, certain conditions may allow toxin-producing bacteria already present in the vagina to grow and release toxins.

- Staphylococcal TSS , caused by toxin-producing Staphylococcus aureus
- Streptococcal TSS , usually caused by group A Streptococcus

Symptoms

Symptoms usually begin suddenly and may worsen quickly. They can resemble flu, food poisoning, or another infection at first.

Possible symptoms include:

The classic rash is more common in staphylococcal TSS. Its absence does not rule out the condition. Streptococcal TSS may instead cause severe pain at the site of an infection, sometimes before the skin looks seriously affected.

The skin on the palms or soles may peel one to two weeks after symptoms begin. This is a later feature and should not be awaited before seeking help.

A person may not have every symptom. Fever can also be less obvious in older people, people with weakened immune systems, or people who have already taken fever-reducing medicine.

- A high temperature or feeling feverish and shivery
- Dizziness, fainting, unusual weakness, or low blood pressure
- Vomiting or watery diarrhea
- A widespread red rash that may look like sunburn
- Severe muscle aches
- Headache
- Confusion, unusual sleepiness, or difficulty staying alert
- Redness of the eyes, mouth, or throat
- Reduced urination
- Breathing difficulty
- Severe pain, swelling, or redness around a wound

Causes and risk factors

TSS happens when bacterial toxins enter the bloodstream or surrounding tissues and cause an extreme immune response.

Many people carry Staphylococcus aureus on their skin or in their nose without becoming ill. Group A Streptococcus can also cause mild infections, such as strep throat, as well as deeper infections. Only some strains produce the toxins associated with TSS.

Menstrual TSS has been associated with tampon use, especially prolonged use and higher-absorbency products. However, it can occur while using other internal menstrual products or without using one.

Other situations linked to TSS include:

Sometimes there is no obvious entry point for the bacteria.

TSS itself does not usually spread from one person to another. The bacteria that can cause it may spread through close contact, respiratory droplets, or contact with infected wounds, depending on the type of bacteria.

- An infected cut, burn, blister, insect bite, or surgical wound
- Recent surgery or childbirth
- Nasal or wound packing
- A skin or soft-tissue infection
- Chickenpox sores that become infected
- A retained object inside the vagina
- Previous TSS

Diagnosis

There is no single test that confirms every case of TSS. Hospital clinicians diagnose it from the pattern of symptoms, low blood pressure, signs of organ problems, examination findings, and laboratory results.

Blood tests may check:

Samples may be taken from blood, a wound, the vagina, the throat, or another possible infection site. These are sent for culture, which means allowing bacteria to grow in a laboratory so they can be identified.

Blood cultures are often negative in staphylococcal TSS because the toxin may cause illness without many bacteria entering the blood. Blood cultures are more likely to detect bacteria in streptococcal TSS.

Scans or surgery may be needed to look for a deep infection, abscess, or damaged tissue. Treatment often begins before all test results are available because waiting could allow the condition to worsen.

Formal case definitions published by public health agencies are mainly used for surveillance and reporting. A person can still need urgent treatment without meeting every surveillance criterion.

- Kidney and liver function
- Blood cell and platelet counts
- Muscle injury
- Blood clotting
- Inflammation and acid levels

Treatment and management

TSS is treated in hospital, often in an intensive care unit. Treatment begins as soon as the condition is suspected.

Antibiotics like amoxicillin or doxycycline are given through a vein. Initial treatment usually covers several possible bacteria. It can then be adjusted when cultures or other findings identify the cause. Some antibiotics may also help reduce toxin production.

The source of the infection must be addressed. This may involve removing a tampon or packing material, draining an abscess, cleaning a wound, or removing badly infected or dead tissue. Streptococcal TSS associated with a deep tissue infection may require urgent surgery.

Supportive care helps maintain blood flow and protect affected organs. It may include:

Intravenous immunoglobulin, made from antibodies collected from donated plasma, may be considered in some severe cases, particularly streptococcal TSS. Evidence about its benefit is limited, so its use is assessed case by case.

After the emergency phase, treatment may include wound care, physical rehabilitation, and follow-up tests for affected organs.

- Fluids through a vein

- Medicines to raise dangerously low blood pressure
- Oxygen or breathing support
- Dialysis if the kidneys cannot filter the blood adequately
- Treatment for abnormal blood clotting

Complications

Low blood pressure can reduce blood flow to vital organs. This is called shock and can lead to failure of one or more organs.

Possible complications include:

Streptococcal TSS is often associated with a deep and aggressive infection, which can make it especially severe.

Many complications improve as the infection and inflammation are controlled. Some people have lasting kidney, lung, nerve, muscle, or mobility problems. The risk depends on how severe the illness was and which organs were affected.

- Acute kidney injury
- Liver injury
- Heart problems
- Severe breathing failure
- Abnormal bleeding or blood clots
- Seizures or changes in mental function
- Tissue damage requiring surgery or, rarely, amputation
- Death

Prevention

Not every case of TSS can be prevented. The bacteria involved are common, and an infection may develop without a clear cause. There is no vaccine against TSS.

If you use tampons, follow the product instructions. Use the lowest absorbency that manages your flow, wash your hands before and after insertion, and change tampons at the recommended intervals. Do not leave one in longer than the product instructions allow. Alternate with external menstrual products if that suits you, and do not use tampons when you

are not menstruating.

Remove a tampon and get urgent medical advice if you become unwell while using it. Anyone who has previously had menstrual TSS is generally advised to avoid tampons and discuss other internal menstrual products with a healthcare professional.

Keep cuts and surgical wounds clean and follow the wound-care instructions you receive. Seek medical advice if a wound becomes increasingly painful, hot, swollen, red, or starts draining pus. Rapidly increasing pain can be important even when the skin changes appear minor.

Good hand hygiene and covering infected wounds can reduce the spread of the bacteria that sometimes cause TSS.

Living with it and what to expect

TSS is usually a sudden illness rather than a lifelong condition. Most people who receive timely treatment survive, but recovery can take weeks or months after a severe episode.

Weakness, tiredness, reduced stamina, poor appetite, or difficulty concentrating can continue after leaving hospital. These symptoms often improve gradually, though the pace is different for each person. A long intensive care stay can also lead to muscle loss, sleep problems, anxiety, or distressing memories.

Follow-up depends on the organs affected. Blood tests may be needed to check kidney or liver recovery. Wound care, physiotherapy, occupational therapy, or support after surgery may also be part of recovery.

TSS can happen again, particularly staphylococcal menstrual TSS. Before leaving hospital, you should receive advice about the suspected source, menstrual products if relevant, wound care, and symptoms that need immediate attention.

Routine follow-up is important if tiredness, pain, weakness, breathing problems, reduced urination, or wound symptoms are not improving. These concerns are different from a sudden return of fever, faintness, confusion, or rapidly worsening illness, which needs emergency assessment.

When to get medical help

TSS is an emergency. Call emergency services or go to an emergency department if you develop a sudden fever or feel severely unwell along with symptoms such as:

This is especially urgent during menstruation with a tampon or other internal product in place,

or after surgery, childbirth, a burn, wound packing, or a skin infection.

If a tampon or removable menstrual product is in place, remove it if you can do so easily. Do not delay emergency help while trying to remove something that is stuck.

After treatment, arrange routine follow-up for persistent fatigue, weakness, wound concerns, or questions about returning to work, exercise, or menstrual products. Seek emergency help again if severe symptoms return suddenly.

- Faintness, collapse, confusion, or extreme weakness
- A widespread red rash
- Repeated vomiting or diarrhea
- Breathing difficulty
- Very little urine
- Rapidly worsening pain, swelling, or redness around a wound

Common questions

Can you get toxic shock syndrome from a tampon?

Yes, but tampon-associated TSS is uncommon. Risk is linked to leaving a tampon in too long and using more absorbency than needed. TSS can also occur without tampon use and can affect people of any sex or age.

How quickly does toxic shock syndrome develop?

It can progress over hours. Early symptoms may seem like flu or a stomach infection, but dizziness, low blood pressure, confusion, severe pain, or a rapidly worsening general condition are warning signs.

Do you always get a rash with toxic shock syndrome?

No. A sunburn-like rash is a well-known feature of staphylococcal TSS, but it may be absent or appear later. Streptococcal TSS often causes severe pain and signs of a deep infection instead.

Is toxic shock syndrome contagious?

TSS itself is not generally passed between people. However, the staphylococcal or streptococcal bacteria involved can sometimes spread. Handwashing, covering wounds, and avoiding contact with wound drainage help reduce this risk.

Can toxic shock syndrome come back?

Yes. Recurrence is possible, especially after menstrual TSS. Follow the prevention advice given

after treatment and seek emergency help if similar symptoms return.

Can you fully recover from toxic shock syndrome?

Many people recover fully, particularly with early treatment. Severe cases may cause lasting organ, tissue, or mobility problems. Recovery after intensive care can also be slow even when organ tests have returned to normal.

Sources

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