CONDITION

Surgical wound infection - treatment

A surgical wound infection occurs when germs infect an incision after an operation.

WHAT IT IS
Infection in or around a surgical incision

BODY SYSTEM
Skin and tissues affected by surgery

MAIN SYMPTOMS
Increasing pain, redness, swelling, pus or cloudy drainage

WHAT CAUSES IT
Germs entering the surgical wound

HOW IT IS DIAGNOSED
Wound examination, sometimes fluid or tissue culture

MAIN TREATMENT
Wound drainage, dressings, antibiotics, or further surgery

CAN IT BE CURED?
Yes - most clear with appropriate treatment

IS IT AN EMERGENCY?
Sometimes - severe illness or rapidly spreading redness

LONG-TERM OUTLOOK
Usually good, though healing may take longer

Overview

A surgical wound infection, also called a surgical site infection, happens when germs infect an incision or deeper tissues after an operation. Most are caused by bacteria that normally live on the skin or in the part of the body where surgery took place.

The infection may involve only the skin and tissue just beneath it. Some infections extend into deeper muscle, an organ, an implanted joint, surgical mesh, or another device. The depth and location of the infection affect how it is treated.

Some redness, tenderness, and swelling are expected soon after surgery. These should generally improve rather than become more intense. Increasing pain, spreading redness, pus, or a wound that starts opening can suggest infection, but another problem may cause similar changes. A healthcare professional needs to examine the wound.

Treatment aims to remove trapped infected fluid, control the germs, protect deeper tissues, and support healing. A mild surface infection may need local wound care, while a deeper infection can require antibiotics like amoxicillin or doxycycline , drainage, or another operation.

Symptoms

Symptoms often begin within days or weeks of surgery. An infection involving an implant can sometimes become noticeable much later.

Changes around the wound may include:

You may also feel generally unwell. Possible symptoms include fever, chills, unusual tiredness, nausea, a fast heartbeat, or reduced appetite.

Drainage is not always infection. A small amount of clear or lightly blood-stained fluid can occur during normal healing. Bruising and mild itching can also be expected. What matters is whether symptoms are worsening, appearing after initial improvement, or occurring with fever or illness.

- Redness that is spreading or becoming more intense
- Increasing warmth, swelling, or pain
- Pus or cloudy, thick, or bad-smelling drainage
- Wound edges separating instead of closing
- Delayed healing or newly damaged skin
- A tender lump or fluid collection near the incision

Causes and risk factors

Surgical wound infections usually happen when bacteria enter the incision. Germs may come from your skin, the body area being operated on, equipment, or the surrounding environment. Hospitals use several safety measures to reduce this risk, but not every infection can be prevented.

Some operations carry a greater risk because they involve the bowel, an existing infection, damaged tissue, emergency surgery, or an implanted device. Longer or more complex operations may also increase risk.

Healing may be more difficult if you have:

Medicines that reduce immune activity can also affect healing. This includes some medicines

used after a transplant or for inflammatory conditions. Do not stop a prescribed medicine unless the team responsible for your care advises it.

An infection is not necessarily a sign that you cared for the wound incorrectly. It can occur even when recommended precautions were followed.

- Diabetes, especially when blood glucose is difficult to control
- Reduced blood flow or poor circulation
- A weakened immune system
- Obesity or poor nutrition
- A history of smoking
- Another infection around the time of surgery

Diagnosis

Diagnosis starts with an examination of the wound. A healthcare professional will look at the incision, surrounding skin, drainage, and any separation of the wound edges. They may gently check whether fluid has collected beneath the surface.

A sample of pus, wound fluid, or tissue may be sent to a laboratory. A culture can identify the germ and show which antibiotics are likely to work. Surface swabs are not always helpful because they may collect bacteria living on the skin rather than the cause of a deeper infection.

Blood tests may look for signs of inflammation or infection. Blood cultures may be taken if you have a fever or appear seriously unwell.

Ultrasound, CT, or another scan may be used when a deeper abscess is suspected. An abscess is a pocket of infected fluid. Imaging can also help assess infections near an organ, joint replacement, mesh, or other implant.

Treatment and management

Treatment is based on where the infection is, how deep it goes, whether infected fluid is trapped, and how unwell you are. A clinician may also consider the operation you had and whether an implant is present.

For a surface infection, part of the incision may need to be opened so pus or fluid can drain. A few stitches, clips, or staples may be removed. The wound may then be cleaned and covered

with a suitable dressing. Some wounds are left open temporarily and heal gradually from the bottom upward.

Dead or heavily infected tissue may need to be removed. This is called debridement. It may be done at the bedside, in a treatment room, or during an operation, depending on the wound.

Antibiotics are commonly used when infection is spreading into surrounding skin, causing general illness, involving deeper tissue, or linked to an implant. They may be given by mouth or into a vein. A laboratory result can help the clinical team change to an antibiotic that targets the germ more precisely.

Antibiotics alone may not cure an abscess because medicine may not reach the centre of the trapped fluid well. Drainage is often an important part of treatment. Serious or deep infections may need hospital care and further surgery to wash out the area or remove damaged tissue.

If an artificial joint, mesh, plate, or other device is infected, specialist treatment is usually needed. In some cases, the device can remain in place while the area is cleaned and antibiotics are given. In others, it may need to be removed or replaced.

During recovery:

Pain relief may be offered. If coughing or movement strains the incision, you may be shown how to support the area safely.

- Follow the wound-cleaning and dressing instructions you were given
- Wash your hands before and after touching the dressing
- Take prescribed antibiotics exactly as directed
- Do not squeeze the wound or insert anything into it
- Avoid unapproved creams, powders, or antiseptics
- Attend planned wound checks, even if symptoms are improving

Complications

Most surgical wound infections improve with treatment. Healing often takes longer than it would after uncomplicated surgery.

An infection can cause the wound edges to separate, known as wound dehiscence. A deeper abscess may form, or infection may spread into muscle, an organ, bone, or an implanted device. Further procedures may then be needed.

Bacteria can occasionally enter the bloodstream and cause sepsis, a dangerous whole-body response to infection. Rapid assessment reduces the risk of serious harm.

Other possible effects include a larger scar, a longer hospital stay, reduced movement during recovery, and the need for repeated dressings. Infections involving bone or an implant may require treatment over a longer period.

Prevention

Not every surgical wound infection can be prevented. Risk can be reduced through measures taken before, during, and after surgery.

The surgical team may use preventive antibiotics for operations where evidence shows a benefit. These are usually timed around the operation rather than continued automatically afterward. The team also prepares the skin, uses sterile equipment, and follows measures to protect the incision.

Before surgery, tell the team about diabetes, smoking, allergies, skin infections, and all medicines or supplements you take. Follow instructions about washing and hair removal. Do not shave the planned surgical area yourself unless specifically instructed, because small cuts can allow germs to enter.

After surgery, keep the dressing and wound as instructed. Wash your hands before wound care, and ask anyone helping you to do the same. Avoid touching the incision unnecessarily.

Follow the advice you were given about showering, bathing, exercise, and returning to work. Advice differs according to the location of the wound, the type of closure, and whether drains are present.

Living with it and what to expect

A minor surface infection may start improving within several days of drainage, wound care, or antibiotics. Redness and pain should gradually settle, although the incision itself may take weeks to close fully.

An open wound often needs regular dressing changes while new tissue grows from the base. This can take longer than healing of the original closed incision. The time needed is influenced by the wound's size and depth, blood flow, nutrition, diabetes, and the type of surgery.

You may need routine appointments with a surgical clinic, wound-care nurse, primary care clinician, or specialist service. These visits are used to check healing, change the care plan, and review culture results. Routine follow-up remains important even when you feel better.

Deeper infections can interrupt rehabilitation or delay a return to usual activities. Recovery

may take months if bone, an organ, or an implant is involved. Some people need further surgery or a longer course of follow-up. Others recover without lasting effects beyond a different or more noticeable scar.

After the infection has cleared, it does not usually become a permanent condition. However, infection linked to retained hardware or an artificial joint can sometimes return and requires specialist monitoring.

When to get medical help

Contact the surgical team or another healthcare professional promptly if the wound is becoming more painful, red, warm, or swollen rather than improving. Also seek advice for pus, a bad smell, new drainage, fever, wound separation, or symptoms that return after getting better.

Do not wait for a routine follow-up appointment if these changes are progressing. Early assessment may allow simpler treatment.

Seek urgent medical assessment if redness is spreading quickly, pain is severe or suddenly worse, the wound becomes dark or blistered, or you have a high fever with shaking chills.

Call emergency services if you have signs of severe infection or sepsis, such as:

These symptoms require emergency care rather than a routine wound appointment.

- Difficulty breathing
- New confusion, fainting, or extreme drowsiness
- Cold, mottled, or unusually pale skin
- A very fast heartbeat with severe weakness
- Rapid deterioration or a feeling that something is seriously wrong

Common questions

Is redness around a surgical wound normal?

Mild redness close to the incision can be part of early healing. It should not keep spreading or become increasingly painful, hot, or swollen. Expanding redness, pus, fever, or worsening pain needs prompt assessment.

Can a surgical wound infection heal without antibiotics?

Some small surface infections improve after the wound is opened and drained, without

antibiotics. Antibiotics are more likely to be needed when infection is spreading, deep, linked to an implant, or making you unwell. The wound should be assessed rather than treated at home based on appearance alone.

How long does a surgical wound infection take to heal?

A mild infection may improve within days, but the wound can take several weeks to close. Deep infections, large open wounds, and infections involving bone or an implant may take months to treat. Progress is judged by decreasing pain, redness, drainage, and wound size.

Can I shower with an infected surgical wound?

This depends on the dressing, wound location, drains, and treatment plan. Showering may be allowed with some dressings, while soaking in a bath or swimming is often restricted until healing is further along. Follow the specific instructions from your surgical or wound-care team.

Is a surgical wound infection contagious?

The condition itself is not usually passed from person to person. However, bacteria in wound drainage can spread through hands, dressings, or shared items. Keep the wound covered as advised, wash your hands, and dispose of used dressings according to your care instructions.

Will the wound have to be opened again?

Not always. Opening part of the incision may be necessary if pus or infected fluid is trapped underneath. Deeper infections may require an operation to wash out the area or remove damaged tissue. The decision is based on examination, imaging, and the type of surgery.

Sources

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