CONDITION

Factor X deficiency

Factor X deficiency is a rare condition in which the blood cannot form stable clots normally.

WHAT IT IS
Rare bleeding condition caused by too little working factor X

BODY SYSTEM
Blood and clotting

MAIN SYMPTOMS
Easy bruising, nosebleeds, heavy periods, prolonged bleeding

WHAT CAUSES IT
Usually inherited; sometimes liver disease, vitamin K deficiency, or amyloidosis

HOW IT IS DIAGNOSED
Clotting tests and a factor X activity assay

MAIN TREATMENT
Factor replacement and treatment of acquired causes

CAN IT BE CURED?
No - inherited deficiency remains lifelong

IS IT AN EMERGENCY?
Sometimes - uncontrolled bleeding or significant head injury

LONG-TERM OUTLOOK
Often manageable; severe deficiency needs lifelong specialist planning

Overview

Factor X deficiency is a rare bleeding condition. Factor X, pronounced "factor ten," is a protein that helps the body make thrombin and fibrin, which form a stable clot after an injury.

When factor X is missing or does not work properly, clots form more slowly. This can cause prolonged bleeding after an injury, dental procedure, surgery, or childbirth. Severe deficiency may also cause bleeding without a clear injury.

The condition may be inherited because of a genetic change present from birth. Less commonly, it develops later because another condition or medicine affects clotting.

Factor X activity often influences bleeding severity, but laboratory results do not predict every episode. Factor X deficiency is different from factor X inhibitors, which are immune proteins that block factor X, and from factor Xa inhibitor medicines used to prevent unwanted clots.

Symptoms

Symptoms may begin at any age. Mild deficiency may not be discovered until unusual bleeding occurs after surgery or appears on a blood test.

Possible symptoms include:

Babies with severe inherited deficiency may bleed from the umbilical cord stump or after circumcision. Severe deficiency can also cause bleeding into joints, muscles, the digestive tract, or the brain.

A joint bleed can cause pain, warmth, swelling, and reduced movement. A muscle bleed may cause pain, swelling, weakness, or pressure on nearby nerves.

These symptoms overlap with other conditions. Bruising or a heavy period alone does not confirm factor X deficiency.

- Frequent or difficult-to-stop nosebleeds
- Easy or large bruises
- Bleeding gums
- Heavy or prolonged periods
- Prolonged bleeding after cuts
- Excessive bleeding after dental work, surgery, or childbirth

Causes and risk factors

Inherited factor X deficiency is caused by changes in the F10 gene, which provides instructions for making factor X.

It usually has an autosomal recessive inheritance pattern. A person generally inherits an altered gene copy from each parent. Parents carrying one altered copy usually do not have significant symptoms. A family history increases the chance of the condition, although relatives may be unaware that they are carriers.

Acquired factor X deficiency develops after birth and is not inherited. Causes include:

Identifying the cause matters because inherited and acquired deficiency may require different treatment.

- Severe liver disease
- Vitamin K deficiency

- Amyloidosis, in which abnormal proteins build up in tissues and can remove factor X from the bloodstream
- Medicines that reduce vitamin K activity, including warfarin
- Rarely, an immune inhibitor that interferes with factor X

Diagnosis

Diagnosis considers your symptoms, bleeding history, family history, medicines, and previous surgical or dental experiences.

Initial tests usually include prothrombin time, or PT, and activated partial thromboplastin time, or aPTT. Both are often prolonged in factor X deficiency, although other conditions can produce the same pattern.

A mixing study may be performed by combining your plasma with normal plasma. Improvement in clotting time suggests a missing clotting factor. Failure to improve as expected may indicate an inhibitor or another problem.

A factor X activity assay confirms reduced activity. Other clotting factors may be tested to help rule out liver disease, vitamin K deficiency, or another factor deficiency.

Genetic testing may identify an F10 gene change and help with family testing or pregnancy planning, but it is not always required. Suspected acquired deficiency may prompt tests for liver problems, vitamin K deficiency, amyloidosis, or an immune inhibitor.

Treatment and management

Treatment depends on factor X activity, your bleeding history, and the situation. Care is often coordinated through a specialist bleeding-disorders or haemophilia centre.

Plasma-derived factor X concentrate can replace the missing factor in inherited deficiency. It may treat active bleeding, prevent bleeding around surgery, or provide regular preventive treatment for severe disease. A specialist must choose and monitor the schedule.

If factor X concentrate is unavailable or unsuitable, fresh frozen plasma or prothrombin complex concentrate may be considered. These contain several clotting factors and require careful specialist use because they can cause fluid overload or unwanted blood clots.

Antifibrinolytic medicines, which slow clot breakdown, may help with some mouth, nose, dental, or menstrual bleeding. Hormonal treatments may help heavy periods. These options do not replace factor X for every type of major bleeding.

Acquired deficiency also requires treatment of its cause, such as correcting vitamin K deficiency, reviewing medicines, or treating liver disease or amyloidosis. Do not stop an anticoagulant or other prescribed medicine without medical guidance.

Tell dental and surgical teams about the condition well before a procedure. Your bleeding team can provide a written plan for tests, factor replacement, and monitoring.

Avoid aspirin and non-steroidal anti-inflammatory drugs such as ibuprofen unless a clinician familiar with your condition says they are appropriate. They can interfere with platelets and increase bleeding. Check before using supplements or non-prescription medicines that may affect bleeding.

Complications

The main complication is excessive bleeding. Internal bleeding may be hidden and can become serious when it affects the brain, digestive tract, muscles, or another organ.

Repeated blood loss, including from heavy periods, can cause iron-deficiency anaemia, with tiredness, weakness, breathlessness, headaches, or pale skin. Repeated joint bleeding can cause chronic pain, stiffness, and damage.

Plasma products may cause allergic reactions or fluid overload. Products containing several clotting factors may increase clotting risk. Specialist monitoring helps balance these risks.

Prevention

Inherited factor X deficiency cannot currently be prevented. It is caused by genetic changes present from birth, not by diet, exercise, or anything a parent did during pregnancy.

Bleeding complications can often be reduced by:

Genetic counselling can explain inheritance, testing, and pregnancy options if you or your partner has the condition or carries an F10 gene change.

Some acquired causes are treatable but not always preventable. Do not take vitamin K specifically for bleeding without medical advice; it will not correct inherited factor X deficiency.

- Keeping a written emergency plan
- Attending specialist follow-up
- Arranging treatment before surgery, dental work, or childbirth
- Using protective equipment for activities with an injury risk

- Maintaining good dental care
- Avoiding medicines that worsen bleeding unless recommended

Living with it and what to expect

Inherited factor X deficiency is lifelong. The genetic change does not worsen over time, but bleeding risks can change with injuries, periods, pregnancy, illnesses, medicines, and procedures.

People with mild deficiency may mainly need treatment plans for dental care, surgery, or childbirth. Those with severe deficiency may have spontaneous bleeding and require regular preventive factor replacement.

With suitable care, many people can attend school, work, travel, exercise, and have families. Activities with a high risk of head injury or major trauma may need adjustment. A physiotherapist familiar with bleeding conditions can help after joint or muscle bleeds.

Keep condition details and your emergency plan on your phone, a medical alert card, or identification jewellery. When travelling, carry enough prescribed treatment and a letter explaining your medicine and supplies.

Regular follow-up should review bleeding episodes, treatment effectiveness, joint health, menstrual bleeding, iron levels, and upcoming procedures. Discuss new or changing bleeding even when it is not an emergency.

When to get medical help

Call emergency services or go to an emergency department for:

Tell emergency staff that you have factor X deficiency and show them your bleeding plan. Do not wait for visible bleeding after a significant head injury because bleeding inside the skull may not be obvious at first.

Contact your usual healthcare or bleeding-disorders team promptly for blood in the urine, a painful swollen joint, a suspected muscle bleed, unusually heavy periods, repeated nosebleeds, or increasing bruising.

Use routine follow-up to review medicines, plan pregnancy, arrange dental work or surgery, and discuss increasingly frequent bleeding without emergency features.

- A significant head injury, even if you initially feel well

- A sudden severe headache, confusion, fainting, seizure, weakness, or trouble speaking
- Heavy bleeding or bleeding that does not stop with firm pressure
- Vomiting or coughing up blood, or passing black, tar-like stools
- Severe abdominal pain or rapidly increasing swelling
- Breathing difficulty or bleeding after a major injury

Common questions

Is factor X deficiency the same as haemophilia?

No. Haemophilia A affects factor VIII, haemophilia B affects factor IX, and factor X deficiency affects a different part of clotting. They can cause similar symptoms but require different tests and treatment.

Can factor X deficiency cause heavy periods?

Yes. Periods may last longer, require frequent product changes, include large clots, or interfere with daily life. Ongoing bleeding can cause iron deficiency. Treatment may include factor replacement, antifibrinolytic medicines, hormonal options, or iron.

Can I have surgery or dental work?

Usually, with advance planning. Your bleeding team may arrange factor testing, replacement treatment, or medicines that protect the clot. Tell them early rather than waiting until the procedure. Minor procedures and routine injections may also require individual planning.

Can I take aspirin or ibuprofen?

These medicines may increase bleeding by affecting platelets. Do not start them unless a clinician familiar with your condition has reviewed the benefits and risks. Acetaminophen, or paracetamol, does not affect platelets in the same way but must still be used according to its label and your medical circumstances.

Will my child inherit factor X deficiency?

This depends on both biological parents' genetic status. A child usually needs an altered F10 gene copy from each parent to have the condition. If only one parent carries an altered copy, children may be carriers instead. Genetic counselling and testing can provide family-specific information.

Can I exercise with factor X deficiency?

Many people can exercise, and regular movement supports muscles and joints. Appropriate activities depend on your bleeding history and treatment plan. Lower-impact exercise may be

preferred after joint bleeding or with severe deficiency. Discuss contact sports and activities with a high risk of head injury with your specialist.

Sources

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