CONDITION

Vitamin k deficiency bleeding of the newborn

Vitamin K deficiency bleeding is abnormal bleeding in a young baby who does not have enough vitamin K for normal blood clotting.

WHAT IT IS
Bleeding caused by too little vitamin K

BODY SYSTEM
Blood clotting and nervous system

MAIN SYMPTOMS
Bruising, umbilical bleeding, pale skin, seizures

WHAT CAUSES IT
Low vitamin K and limited newborn stores

HOW IT IS DIAGNOSED
Clotting blood tests and response to vitamin K

MAIN TREATMENT
Vitamin K replacement and supportive bleeding care

CAN IT BE CURED?
Yes, vitamin K corrects deficiency

IS IT AN EMERGENCY?
Yes, with bleeding or neurological symptoms

LONG-TERM OUTLOOK
Usually recovery, but brain bleeding may cause disability

Overview

Vitamin K deficiency bleeding is abnormal bleeding in a newborn or young baby who does not have enough vitamin K. Vitamin K helps the liver make proteins that allow blood to clot. Without these proteins, bleeding may not stop normally.

Babies are born with small vitamin K stores because only a limited amount crosses the placenta during pregnancy. Their intestines also do not yet contain many of the bacteria that later help produce vitamin K. Breast milk naturally contains only small amounts.

The condition can cause visible bleeding from the skin, nose, mouth, or umbilical cord. It can also cause internal bleeding that is not immediately obvious. Bleeding around or inside the brain is the most serious form.

Doctors group the condition according to when it begins:

A vitamin K injection soon after birth makes vitamin K deficiency bleeding much less likely. Babies who did not receive this injection have the greatest risk, particularly if they are exclusively breastfed.

- Early: within the first 24 hours after birth
- Classic: usually between days 2 and 7
- Late: most often from 2 to 12 weeks, but possible up to 6 months

Symptoms

Some babies have mild warning signs, but serious internal bleeding can occur without earlier visible bleeding.

Possible symptoms include:

Blood in vomit or bowel movements sometimes comes from swallowed maternal blood, including blood swallowed during birth or breastfeeding. A healthcare professional can assess the source rather than assuming it is harmless.

Symptoms such as seizures, marked sleepiness, repeated vomiting, or a tense soft spot may indicate bleeding in or around the brain. These require emergency assessment.

- Unexplained bruises, especially when the baby has not had an injury
- Oozing or bleeding from the umbilical cord or circumcision site
- Bleeding from the nose, mouth, or places where blood was taken
- Blood in vomit, urine, or bowel movements
- Black, sticky bowel movements caused by digested blood
- Skin that looks unusually pale
- Unusual sleepiness, irritability, or poor feeding
- Repeated vomiting
- A swollen or tense soft spot on the head
- Seizures or unusual body movements

Causes and risk factors

Newborns normally begin life with less vitamin K than older children and adults. Before birth, little vitamin K passes through the placenta. After birth, a baby's intestinal bacteria are not yet established, and their diet may provide only a small amount.

Vitamin K deficiency bleeding is most strongly associated with not receiving preventive vitamin K after birth. The late form is more common in exclusively breastfed babies because breast milk contains less vitamin K than infant formula. Breastfeeding itself remains beneficial; the vitamin K injection is intended to provide protection while a baby's natural stores are low.

Early bleeding is often associated with medicines taken during pregnancy that interfere with vitamin K or blood clotting. These may include certain anti-seizure medicines, some antibiotics like amoxicillin or doxycycline , or medicines that prevent blood clots. Pregnant people should not stop prescribed medicine without medical advice.

Late bleeding may also be the first sign of a condition that prevents a baby from absorbing or using vitamin K. Examples include liver disease, blockage of bile flow, cystic fibrosis, or long-lasting diarrhea. Bile is a digestive fluid that helps the body absorb vitamin K and other fat-soluble vitamins.

Premature birth may add to the risk because premature babies can have even smaller vitamin K stores and may have feeding or liver problems.

Diagnosis

A healthcare professional will ask about the baby's symptoms, feeding, birth vitamin K, medicines used during pregnancy, and any family history of bleeding disorders.

Blood tests measure how long the blood takes to clot. Vitamin K deficiency usually causes an abnormally long prothrombin time , often reported as the PT or INR . Other tests may measure blood cell counts, liver function, and levels of clotting proteins. These help distinguish vitamin K deficiency from infection, liver disease, inherited bleeding disorders, or other causes.

A rapid improvement in clotting after vitamin K supports the diagnosis. Treatment may begin before every test result is available if significant bleeding is suspected.

Ultrasound, CT, or MRI scans may be needed when internal or brain bleeding is possible.

Treatment and management

Suspected vitamin K deficiency bleeding is treated promptly with vitamin K. It may be given by injection or through a vein, depending on the baby's condition and the clinical setting. This

replaces the missing vitamin and allows the liver to make working clotting proteins.

A baby with major blood loss may also need blood products. These provide red blood cells or clotting proteins while vitamin K begins to work. Care may include breathing support, seizure treatment, and close monitoring in a neonatal or pediatric unit.

If tests find liver disease, poor bile flow, or another absorption problem, that condition also needs treatment. Some babies with ongoing absorption difficulties need continuing specialist care to maintain vitamin levels.

Treatment can correct the vitamin K deficiency, but it cannot always reverse an injury that has already resulted from severe bleeding. Follow-up may therefore include hearing, movement, development, or neurological assessments after bleeding in or around the brain.

Complications

Heavy bleeding can cause anemia, meaning there are too few red blood cells to carry oxygen normally. Severe blood loss can affect circulation and may require intensive care.

Bleeding inside the skull can injure the brain. Possible long-term effects include seizures, movement difficulties, problems with hearing or vision, and delays in development. The outcome depends on the location and amount of bleeding and how quickly effective care begins.

Although life-threatening bleeding is possible, prompt recognition and treatment improve the chance of recovery.

Prevention

Vitamin K deficiency bleeding can usually be prevented. A vitamin K injection into the thigh soon after birth is the most reliable protection. It supplies vitamin K during the months when a baby's stores are naturally low.

Oral vitamin K is used as an alternative in some countries or when parents decline an injection. It usually requires several doses and does not provide the same reliable protection, especially if doses are missed, vomited, or poorly absorbed. Available products and schedules differ by location, so parents choosing this option need clear instructions from their baby's maternity or pediatric team.

Breastfeeding does not need to be stopped. Maternal diet or supplements cannot be relied on to provide the baby with enough vitamin K through breast milk. Formula contains more vitamin

K, but routine newborn prophylaxis is still recommended.

If you are unsure whether your baby received vitamin K, check the birth or discharge record or contact the birth facility promptly. Do not give an infant a vitamin supplement unless it has been recommended specifically for them.

Living with it and what to expect

Once vitamin K has been replaced, clotting often improves quickly. A baby who had no major internal bleeding may recover without lasting effects, although follow-up blood tests may be needed.

The longer-term course is shaped mainly by whether serious bleeding caused an injury and whether an underlying condition is present. Babies with liver, bile duct, or absorption problems may need ongoing specialist reviews and additional vitamin monitoring.

After brain bleeding, follow-up may continue through infancy and childhood. Developmental checks can identify problems with movement, learning, hearing, vision, or communication early. Some children need rehabilitation or seizure care, while others have few or no lasting difficulties. An individual outcome cannot be predicted from the diagnosis alone.

Vitamin K deficiency bleeding does not usually return once the deficiency has been corrected and the reason for it has been addressed. Recurrence is more of a concern when an ongoing liver or absorption disorder remains.

When to get medical help

Seek emergency medical care now if a baby has:

Unexplained bleeding in a baby also needs urgent medical assessment, even if the baby appears comfortable. This includes blood in vomit, urine, or bowel movements; new bruising; or oozing from the umbilical cord, circumcision site, or a needle site.

For routine follow-up, contact your baby's healthcare team if you are uncertain whether vitamin K was given after birth, an oral dose was missed, or your baby has ongoing jaundice, pale stools, poor growth, or feeding difficulties. These symptoms do not always mean vitamin K deficiency, but they may require assessment for liver or absorption problems.

- A seizure, collapse, or difficulty waking
- Trouble breathing or blue, grey, or very pale skin

- Bleeding that is heavy or does not stop with gentle pressure
- Repeated vomiting with unusual sleepiness or irritability
- A swollen or tense soft spot
- Sudden weakness, abnormal movements, or reduced responsiveness

Common questions

How late can vitamin K deficiency bleeding happen?

The late form is most common between 2 and 12 weeks of age, but it can occur up to 6 months. The risk is highest when a baby did not receive the vitamin K injection, particularly with exclusive breastfeeding or an unrecognized liver or absorption condition.

Can a breastfed baby get enough vitamin K from breast milk?

Breast milk naturally contains only a small amount of vitamin K. Changing the breastfeeding parent's diet or taking supplements does not reliably protect the baby. The newborn vitamin K injection allows breastfeeding to continue while providing protection.

Is the vitamin K injection safe?

The injection may cause brief pain, redness, swelling, or a small bruise where it was given. Serious reactions are rare. Research has not supported an earlier concern that newborn vitamin K injections might cause childhood leukemia.

What if my baby missed the vitamin K injection?

Contact the baby's healthcare team promptly to discuss protection. The appropriate next step is influenced by the baby's age, feeding, health, and whether any oral vitamin K has been given. Any current bleeding or neurological symptom needs emergency care rather than a routine appointment.

Will vitamin K stop the bleeding?

Vitamin K corrects the deficiency and helps the body produce working clotting proteins. Significant bleeding may still require blood products and other hospital treatment. Vitamin K cannot undo a brain or organ injury that has already occurred.

Is this an inherited bleeding disorder?

Usually not. It results from low vitamin K rather than an inherited change in clotting proteins. Doctors may test for inherited disorders when clotting does not improve as expected or the medical and family history suggests another cause.

Sources

- Centers for Disease Control and Prevention. About Vitamin K Deficiency Bleeding
- Centers for Disease Control and Prevention. Frequently Asked Questions About Vitamin K Deficiency Bleeding
- American Academy of Pediatrics, Committee on Fetus and Newborn. "Vitamin K and the Newborn Infant." Pediatrics . 2022;149(3):e2021056036
- Canadian Paediatric Society. Guidelines for vitamin K prophylaxis in newborns
- Shearer MJ. "Vitamin K deficiency bleeding in early infancy." Blood Reviews . 2009;23(2):49-59
- Sankar MJ, Chandrasekaran A, Kumar P, Thukral A, Agarwal R, Paul VK. "Vitamin K prophylaxis for prevention of vitamin K deficiency bleeding: a systematic review." Journal of Perinatology . 2016;36(Suppl 1):S29-S35