

Bleeding Disorders

When tissues are injured, blood cell fragments called **platelets** gather at the wound, providing a foundation for **coagulation** (clotting). Platelets are bound together by a glue-like protein named **von Willebrand factor**. Once the initial platelet plug is built, clotting factors gather at the injury site to seal the wound, stop bleeding, and begin the healing process. The clotting factors work in a carefully timed sequence, resulting in a sturdy clot and healed wound.

TYPES OF BLEEDING DISORDERS

Bleeding problems can result from diseased platelets or clotting factor abnormalities. Some bleeding problems are **congenital** (present at birth) while others are **acquired** (develop at any time during a person's life). Congenital bleeding is often associated with a family history of bleeding and results from missing or poorly functioning clotting factors. Hemophilia is an example of an inherited bleeding disorder caused by abnormal genes on the X chromosome, mostly affecting males. There are 2 types of hemophilia, resulting from missing factor VIII or factor IX. Deficiency of either of these factors can result in a severe bleeding disorder characterized by bleeding into joints and muscles. Von Willebrand disease occurs when some or all of the von Willebrand protein is missing or does not work correctly. It is the most common inherited bleeding disorder and generally results in only mild bleeding. Infections, liver and nutritional diseases (vitamin K deficiency), and some drugs can cause abnormal bleeding by interfering with clotting factor function and production.

Platelets can cause bleeding when there are not enough of them or if the platelets do not function properly. Otherwise normal platelets may function abnormally when diseases like leukemia or kidney failure are present or because of certain medications such as aspirin or nonsteroidal anti-inflammatory drugs like ibuprofen. Over-the-counter supplements such as fish oil, ginkgo, and turmeric can also cause platelet function problems. This issue of *JAMA* includes an article on hemophilia and one on neonatal blood transfusion.

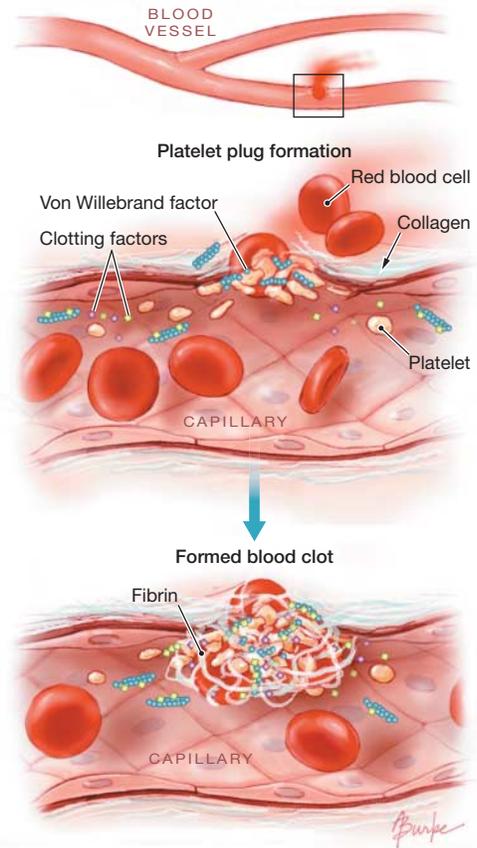
SYMPTOMS

- Bruising
- Nosebleeds
- Bleeding from the gums
- Blood in urine or stool
- Heavy or abnormal menstrual periods
- Prolonged bleeding with cuts
- Bleeding into joints or muscles
- Bleeding into critical organs

The cause of abnormal bleeding can be found by blood tests for the number and function of platelets and the levels of the clotting factors. Sometimes tests for other diseases are necessary if the bleeding disorder is one of the acquired types.

TREATMENT

Treatment depends on the underlying cause. Sometimes patients receive transfusions of platelets or one of the clotting factors. In other situations, a medication may improve clotting function. If the bleeding problem is caused by an underlying illness such as leukemia, kidney failure, or liver disease, that problem must be addressed to reduce bleeding.



FOR MORE INFORMATION

- National Library of Medicine MedlinePlus www.nlm.nih.gov/medlineplus/ency/article/001304.htm
- American Society of Hematology www.hematology.org/Patients/Blood-Disorders/5219.aspx

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Sources: National Library of Medicine MedlinePlus; American Society of Hematology; Goldman's Cecil Medicine, 24th ed

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