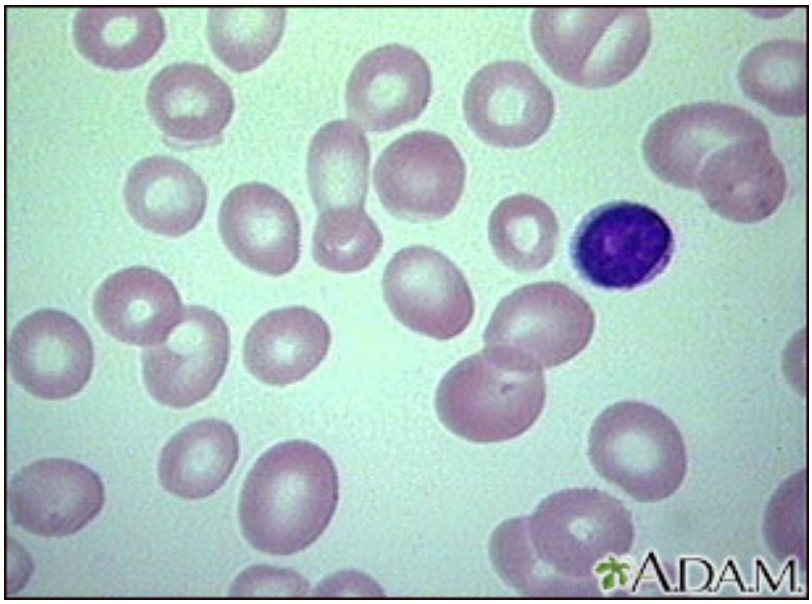
Pernicious anemia

Macrocytic achylic anemia; Congenital pernicious anemia; Juvenile pernicious anemia; Vitamin B12 deficiency (malabsorption); Anemia - intrinsic factor; Anemia - IF; Anemia - atrophic gastritis

Anemia is a condition in which the body does not have enough healthy red blood cells. Red blood cells provide oxygen to body tissues. There are many types of anemia.

Pernicious anemia is a decrease in red blood cells that occurs when the intestines cannot properly absorb vitamin B12.



This picture shows large, dense, oversized, red blood cells (RBCs) that are seen in megaloblastic anemia. Megaloblastic anemia can occur when there is a deficiency of vitamin B-12.

Causes

Pernicious anemia is a type of vitamin B12 anemia. The body needs vitamin B12 to make red blood cells. You get this vitamin from eating foods such as meat, poultry, shellfish, eggs, and dairy products.

A special protein, called intrinsic factor (IF), helps your intestines absorb vitamin B12. This protein is released by cells in the stomach. When the stomach does not make enough intrinsic factor, the intestine cannot properly absorb vitamin B12.

Common causes of pernicious anemia include:

- Weakened stomach lining (atrophic gastritis)
- An autoimmune condition in which the body's immune system attacks the actual intrinsic factor protein or the cells in the lining of your stomach that make it.

Very rarely, pernicious anemia is passed down through families. This is called congenital pernicious anemia. Babies with this type of anemia do not make enough intrinsic factor. Or they cannot properly absorb vitamin B12 in the small intestine.

In adults, symptoms of pernicious anemia are usually not seen until after age 30. The average age of diagnosis is age 60.

You are more likely to develop this disease if you:

- Are Scandinavian or Northern European
- Have a family history of the condition

Certain diseases can also raise your risk. They include:

- Addison disease (/health-library/diseases-conditions/addison-disease)
- Chronic thyroiditis (/health-library/diseases-conditions/chronic-thyroiditis-hashimoto-disease)
- Graves disease (/health-library/diseases-conditions/graves-disease)
- Hypoparathyroidism (/health-library/diseases-conditions/hypoparathyroidism)
- Hypopituitarism (/health-library/diseases-conditions/hypopituitarism)
- Myasthenia gravis (/health-library/diseases-conditions/myasthenia-gravis)
- Secondary amenorrhea (/health-library/diseases-conditions/absent-menstrual-periods-secondary)
- Type 1 diabetes (/health-library/diseases-conditions/type-1-diabetes)
- Testicular dysfunction
- Vitiligo (/health-library/diseases-conditions/vitiligo)

Symptoms

Some people do not have symptoms. Symptoms may be mild.

They can include:

- Desire to eat ice or other non-food things (pica (/health-library/diseases-conditions/pica))
- Diarrhea (/health-library/symptoms/diarrhea-overview) or constipation
- Fatigue (/health-library/symptoms/fatigue), lack of energy, or lightheadedness when standing up or with exertion
- Loss of appetite (/health-library/symptoms/appetite-decreased)
- Pale skin
- Problems concentrating
- Shortness of breath (/health-library/symptoms/breathing-difficulty), mostly during exercise
- Swollen, red tongue or bleeding gums

If you have a low vitamin B12 level for a long time, you can have nervous system damage. Symptoms can include:

- Confusion
- Depression
- Loss of balance
- Numbness and tingling in the hands and feet

Exams and Tests

The health care provider will perform a physical exam. Tests that may be done include:

- Bone marrow examination (/health-library/tests/bone-marrow-aspiration) (only needed if diagnosis is unclear)
- Complete blood count (/health-library/tests/cbc-blood-test) (CBC)
- Reticulocyte count (/health-library/tests/reticulocyte-count)
- Schilling test (/health-library/tests/schilling-test)
- LDH (/health-library/tests/lactate-dehydrogenase-test) level
- Methylmalonic acid (MMA (/health-library/tests/methylmalonic-acid-blood-test)) level

- Vitamin B12 level (/health-library/tests/vitamin-b12-level)
- Levels of antibodies against IF or the cells which make IF

Treatment

The goal of treatment is to increase your vitamin B12 level:

- Treatment involves a shot of vitamin B12 once a month. People with severely low levels of B12 may need more shots in the beginning.
- Some people may also need to take vitamin B12 supplements by mouth.
- A certain type of vitamin B12 may be given through the nose.

Your provider will also recommend eating a variety of foods.

Outlook (Prognosis)

Most people often do well with treatment.

It is important to start treatment early. Nerve damage can be permanent if treatment does not start within 6 months of symptoms.

Possible Complications

People with pernicious anemia may have gastric polyps. They are also more likely to develop gastric cancer (/health-library/diseases-conditions/stomach-cancer) and gastric carcinoid tumors.

Brain and nervous system problems may continue or be permanent if treatment is delayed.

A woman with a low B12 level may have a false positive Pap smear. This is because vitamin B12 deficiency affects the way certain cells (epithelial cells) in the cervix look.

When to Contact a Medical Professional

Call your provider if you have symptoms of vitamin B12 deficiency.

Prevention

There is no known way to prevent this type of vitamin B12 anemia. However, early detection and treatment can help reduce complications.

References

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Related Articles

- Anemia (/health-library/diseases-conditions/anemia)
- Endocrine glands (/health-library/special-topic/endocrine-glands)
- Type 1 diabetes (/health-library/diseases-conditions/type-1-diabetes)
- Hypoparathyroidism (/health-library/diseases-conditions/hypoparathyroidism)
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