Myasthenia Gravis

WHAT IS MYASTHENIA GRAVIS?

Myasthenia gravis is a disease that makes muscles weak. It starts when the body's immune system attacks the link between nerves and muscles. It can affect people of any age. It may cause double vision, droopy eyelids, tired muscles, or trouble with chewing, swallowing, or breathing. Weakness often gets worse as muscles are used throughout the day. Rest often helps. Myasthenia gravis often affects the eyes and eyelids. When it only affects the eyes, it is called ocular myasthenia gravis. When it affects other muscles too, it is called generalized myasthenia gravis [see Figure 1].



Fig. 1: Droopy left upper eyelid.



Fig. 2: Left upper eyelid elevated during Tensilon test.

WHAT CAUSES MYASTHENIA GRAVIS?

Your nerves send signals to your muscles to make them move. They do this with a substance called acetylcholine. Muscles have spots that take in this substance. In myasthenia gravis, the immune system makes proteins called antibodies. These proteins block or harm those spots. So the signals do not reach the muscles well. This causes weakness and tired muscles.

HOW COMMON IS MYASTHENIA GRAVIS?

Myasthenia gravis is rare. About 20 in 100,000 people have it. It can affect people of any race or sex. It is rare for myasthenia gravis to run in a family.

WHAT ARE THE SYMPTOMS OF MYASTHENIA GRAVIS?

About 9 in 10 people with myasthenia gravis have eye symptoms. For about half of them, eye symptoms are the first sign. These can include double vision and droopy eyelids. Double vision can occur when the eyes do not line up. This is called strabismus. A droopy eyelid is called ptosis. Signs may change each day. They often get worse later in the day. A person may see well in the morning but have double vision at night. Myasthenia gravis can also make the face, arms, and legs weak. It can make it hard to chew, swallow, or breathe. Call 911 if you have trouble breathing or cannot swallow.

HOW IS MYASTHENIA GRAVIS DIAGNOSED?

Myasthenia gravis can be hard to find. No one test works for all people. An eye doctor (ophthalmologist) may check your eyelids and eye movements. The doctor may put an ice pack on a droopy lid. If the lid lifts, myasthenia gravis may be the cause. A nerve doctor (neurologist) may order blood or nerve tests. Blood tests look for antibodies linked to the disease. Nerve tests, such as EMG, check how muscles respond to nerve signals. Some people have myasthenia gravis even when blood tests are normal. The Tensilon test shown in Figure 2 was used in the past. It is rarely used today.

WHAT OTHER CONDITIONS ARE SEEN IN PEOPLE WITH MYASTHENIA GRAVIS?

Some people with myasthenia gravis also have other diseases in which the immune system attacks the body. These include some forms of thyroid disease, rheumatoid arthritis, and type 1 diabetes. Some have a growth in the thymus gland in the chest. This growth is called a thymoma. Some thymomas can be cancerous. Thymomas are rare in children. A chest X-ray or CT scan can help doctors check the thymus.

HOW IS MYASTHENIA GRAVIS TREATED?

There is no known cure for myasthenia gravis. Yet, treatment can make muscles stronger and ease symptoms. Some drugs help nerve signals reach the muscles. Other drugs slow the immune attack.

Mestinon (pyridostigmine) helps acetylcholine last longer. This can make muscles stronger. Prednisone can slow the immune attack. Other drugs may help do the same.

Plasmapheresis removes harmful antibodies from the blood. Its effects may not last, so it may need to be done again. IVIG uses antibodies from donors. It is given through a vein. It can help calm the immune attack.

Some people need surgery to remove the thymus gland or a thymoma. If other treatments do not help, doctors may use drugs such as rituximab.

WHEN SHOULD EYE SURGERY BE CONSIDERED?

Surgery may help with droopy eyelids (ptosis) or eyes that do not line up (strabismus). Doctors may advise it when the disease is well controlled and eye symptoms have stayed the same for one to two years. But surgery can cause dry eyes, worse double vision, or a change in how the eyes line up. Talk with your eye doctor about the risks and benefits.

How can I find out more information about myasthenia gravis?

- Contact the Myasthenia Gravis Foundation of America, Inc.
- Visit: https://eyewiki.org/Myasthenia_Gravis

Summary

Myasthenia gravis is a disease that makes muscles weak. It starts when the immune system blocks signals from nerves to muscles. It often leads to double vision, droopy eyelids, or tired muscles. It can also make it hard to chew, swallow, or breathe. Weakness often gets worse with use and better with rest. Doctors use eye exams, blood tests, and nerve tests to find the disease. There is no known cure, but drugs, IVIG, filtering antibodies from blood (plasmapheresis), and surgery can help. Keep follow-up visits with your care team. Get help right away if you cannot breathe or swallow well.

Updated 10/2026