



GRAVES' DISEASE & THYROID FOUNDATION

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Thyroid Eye Disease and the Role of the TED Specialist

by Dr. Geoffrey J. Gladstone and Dr. Frank A. Nesi

Introduction

Not all people with thyroid disease have problems with their eyes. It is a common enough problem, however, that many people have expressed a desire to have more information about how their thyroid condition is related to their eye problems and what can be done about it.

The eye changes associated with thyroid disease are referred to as Thyroid Related Orbitopathy (TRO). Although TRO is seen in all types of thyroid disorders, it is most common in patients that are or were hyperthyroid. TRO occurs in about 1 out of 20 people that were hyperthyroid. It can also rarely occur in those who are hypothyroid and even when there is an absence of thyroid abnormalities in the body.

Thyroid disease can cause many different eye problems. These include redness and swelling, double vision, decreased vision, eyelid

retraction and a protrusion of the eye itself. It is important to realize that if one of these occurs, that it does not mean others will occur.

Eye problems will usually occur and frequently change in type and severity for between 6 months and 2 years. Once stabilized, it is unusual for the eye to start changing again. In some patients the eyes return to normal. Others are left with some type of permanent changes. A great deal can be done to improve these problems, but this may require surgery.

Medical Aspects of Thyroid Disease

Graves disease is caused by what is described as an autoimmune process. Autoimmune disease may be understood as a process by which the body sees some part of itself as being foreign and reacts to it much the same ways that it would with any bacteria or virus.

In the case of Graves' disease, the body sees the thyroid gland as the foreign object and produces antibodies that attack the thyroid gland. This will often (but not in all cases) cause the thyroid gland to become over active.

Graves' eye disease is currently believed to be due to a similar autoimmune reaction. However, in the case of Graves' eye disease, different antibodies attack the muscles associated with eye and eyelid movement. Although the thyroid gland and the eye may be under attack by the same immune system, it is felt that both conditions remain independent of one another. The antibodies that attack the eye can cause inflammation and swelling of the muscles around the eye, which is what can eventually cause protrusion of the eyes, double vision and retraction of the eyelids.

The Thyroid Puzzle

Even after decades of research there are mysteries associated

with thyroid disease that we don't understand. One of the more puzzling is the relationship between TRO and your body's thyroid disease. A common misconception is that once your medical doctor treats your body's thyroid problem the eyes would go back to normal. This is often not the case. In some patients the eyes worsen in the months and years after medical treatment despite the body being stabilized. We have seen patients whose eyes first showed signs of TRO 30 years after being stabilized medically. Even though good medical treatment may not prevent or cure TRO, it is extremely important to treat the thyroid abnormality and keep your body in proper thyroid balance.

Smoking and Thyroid Eye Disease

As far as we know, smoking does not lead to the development of TRO. However, if you already have TRO smoking increases your risk of developing more severe forms of the condition. It does increase your chance of suffering visual loss from TRO. If you need surgery to restore your vision, the surgery is more successful if you do not smoke. If you need one more good reason

to quit smoking this may help you.

The Role of the Thyroid Specialist

An ophthalmologist specializing in TRO has several roles in treating a patient that has eye problems. The first is to help you get through the time when your eyes are changing and provide simple solutions to the irritation, tearing and swelling often associated with TRO. Often this involves something as simple as using artificial tears frequently during the day and lubricating ointment at night. Additionally, elevating your head at night, by using several pillows, will often help decrease swelling around the eyes. The second role is to help determine when your eyes have stopped changing so that corrective surgery can commence if necessary. A third role is to help you watch for the rare serious problems associated with TRO that need prompt treatment.

Thyroid Related Problems:

Dry Irritated Eyes

Dry feeling, irritated and often teary eyes are frequently seen in TRO. This is usually due to retraction of the eyelids that do not close completely at night, the cornea (clear

front portion of the eyes) dries out and becomes quite uncomfortable. The use of lubricating ointment for the eye at night and artificial tears during the day can provide a great deal of relief. Do not be afraid to use the tears as much as every ½ to one hour if necessary.

Double Vision

TRO can cause swelling, irritation and scarring of the muscles that move the eyes. This can lead to double vision. Sometimes the double vision is noticeable only when looking in certain directions, while in other patients it is always present. Often the amount of double vision will change week to week. At times it can disappear completely without treatment. Once the double vision has been stable for at least several months, surgery can be performed to correct it if necessary.

Eyelid Retraction

The "stare" that people commonly associate with thyroid disease is due to retraction of the upper or lower eyelids or both. TRO can cause scarring in the eyelid muscles. This scar tissue contracts or shortens, leading to retraction of the eyelids and white showing above and below the colored

part of the eye. The amount of retraction tends to be variable, often changing week to week. In some patients the retraction will disappear with time. In addition to contributing to an unusual appearance of the eyes, the eyelid retraction can cause significant dryness, irritation and tearing. Light sensitivity is another common complaint. Severe drying of the front of the eye can occasionally lead to vision loss. Whenever possible, we wait for the eyelid position to stop changing before proceeding with surgery. Surgery involves moving the eyelids into a more normal position. In the upper eyelids this is usually performed by removing or stretching the scarred muscles. In the lower eyelids, a graft is often needed to help push the eyelid upward. Eyelid repositioning can make a tremendous difference in both the feel and appearance of the eyes.

Eye Protrusion

TRO can cause an accumulation of fluid in the fat and muscles around and behind the eye. This can push the eye itself outward making it much more prominent. Coupled with eyelid retraction this can alter the appearance and comfort of

the eye. Although less variable than eyelid retraction, the protrusion of the eye can return to normal on its own. After being stable for several months or more, it is sometimes desirable to surgically move the eye into a more normal position. This can be accomplished by removing a portion of the bone below and on the inner side of the eye. The swollen fat and muscles around the eye can then fall into the extra space, allowing the eye to move backward. This can go a long way toward returning the eye to their pre-thyroid appearance.

Vision Loss

Decreased vision can occur in TRO for several reasons. Exposure and irritation of the cornea (clear front portion of the eye) occurs secondary to eyelid retraction and eye protrusion. Drops, ointment, eyelid repositioning or eye repositioning may be needed depending on the patient's needs to improve vision. The other cause of decreased vision is compression of the main nerve from the eye to the brain. This occurs behind the eye when the muscles that move the eye become extremely swollen and press on the nerve. This will happen in only 1 in 300 patients. If your vision decreases significantly bring this to your

TRO specialist's attention promptly. Often medications taken by mouth will return vision to normal. Surgery with or without radiation treatments are occasionally necessary to restore vision.

Cosmetic Considerations

Many people with TRO have eyes that appear to have prematurely aged. Swelling of the eyelids is one of the reasons for this. Additionally, a fluid accumulation in the normal fat around the eyes causes this fat to bulge outward becoming visible as "bags" of the eyelids. If this does not go away on its own it can be surgically removed. Often this can be done at the same time as other surgeries saving repeat visits to the operating room.

Although thyroid disease can play many nasty tricks on the eyes, there is quite a bit that can be done to help. Patience is important until stability of your eyes occurs. Once this happens your doctor can plan a course of treatment to correct the problems you find to be the most troublesome. It will often be necessary to come to his office several times over several months so that your eyes can be measured and examined. Bring old photographs that show your face since they can be very useful during your

initial office visit. Photographs from before your eyes were affected by the thyroid condition and more recent ones that show how long your eyes have looked abnormal can be very helpful. Your doctor and you can do a lot, with patience and perseverance, to return your eyes to a more normal appearance and comfort level.

About the Authors:

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They both completed residency training in Ophthalmology and the served distinguished fellowships in Ophthalmic Plastic and Reconstructive Surgery. They are frequent lecturers both nationally and

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