Graves’ Ophthalmopathy

Understanding Thyroid Eye Disease

Graves’ ophthalmopathy, which is also known as thyroid eye disease or TED, is an eye disorder that can accompany hyperthyroidism in patients with Graves’ disease. Using sophisticated imaging techniques, such as magnetic resonance imaging (MRI), eye changes attributed to Graves’ ophthalmopathy such as swelling are seen in nearly 80 percent of patients with Graves’ disease.

Incidence of Clinically Significant Disease

Clinically significant eye changes requiring treatment intervention are seen in about 30 percent of patients with Graves’ disease. Overall, 80 percent of all clinically significant TED is seen in patients with Graves’ disease. Another 10 percent of cases are seen in patients with Hashimoto’s thyroiditis and the remaining 10 percent of cases are seen in patients with no evidence of thyroid dysfunction (euthyroid Graves’ disease).

Symptoms

Many different symptoms of TED can occur although most patients develop several predominant symptoms. Common symptoms include:

- Exophthalmos (proptosis or bulging)
- Dryness
- Redness (erythema)
- Eyelid lag
- Eyelid retraction
- Blurred vision
- Tearing
- Grittiness
- Foreign body sensation
- Double vision (diplopia)
- Staring appearance

Subtypes of TED

Symptoms of TED can occur as a result of abnormal thyroid hormone levels or as an autoimmune process, which runs its own course independent of the thyroid condition. Most conditions of TED are caused when levels of thyroid hormone are too high (hyperthyroidism). These eye conditions resolve spontaneously shortly after thyroid hormone levels return to the normal range.

Autoimmune TED is thought to be caused by a combination of genetic and environmental factors. TSH receptor antibodies and immune system chemicals known as
cytokines both contribute to the autoimmune mechanism in TED. Environmental triggers include cigarette smoke, low selenium levels and stress.

**Phases of TED**

The autoimmune subtype of TED presents in stages or phases. In the active disease phase, which is characterized by inflammation, orbital muscles enlarge and symptoms of TED tend to wax and wane without resolving. The active phase of TED can last from several months to 5 years. The active phase is followed by a resolution phase in which symptoms tend to spontaneously resolve.

**Treatment of TED**

Corticosteroids, immunosuppressants such as methotrexate and external beam irradiation are all used to reduce inflammation during the active phase. However, because all of these treatments have the potential for serious side effects and symptoms can return when medications are stopped, therapies are usually reserved for patients who have complications or the potential for orbital nerve compression, a condition that can result in vision loss. Color vision loss is a symptom of orbital nerve compression.

Once the active and resolution phases of TED have ended, orbital decompression surgery can be used to cosmetically treat any permanent changes. However, decompression surgery is rarely needed today because of spontaneous healing. If decompression surgery is performed during the active phase of TED, which was customary twenty years ago, spontaneous healing becomes impaired. Furthermore, surgical changes interfere with healing, resulting in further abnormalities and the need for further surgeries.

**Natural Therapies**

Various natural therapies including selenium supplements, the herb bugleweed, low dose naltrexone, and stress reduction techniques have been reported to improve symptoms in TED. Antioxidant vitamins, particularly vitamins B2, D, E, and C have also been reported to help. The plant bioflavinoids, such as dark chocolate and resveratrol in red wine, are also rich in antioxidants and reported to offer improvement in TED.

Avoiding environmental toxins such as cigarette smoke, aspartame in artificial sweeteners, and excess iodine in fast and processed foods also helps TED. Avoiding fans and drafts helps to prevent eye dryness. Avoiding sugar, salt, and saturated fats is also important for reducing inflammation. Drinking adequate water also helps to prevent dehydration, which exacerbates dryness and tearing. Because stress is particularly crippling to the immune system, yoga, tai chi, meditation, and forms of light aerobic exercise all help the healing process.