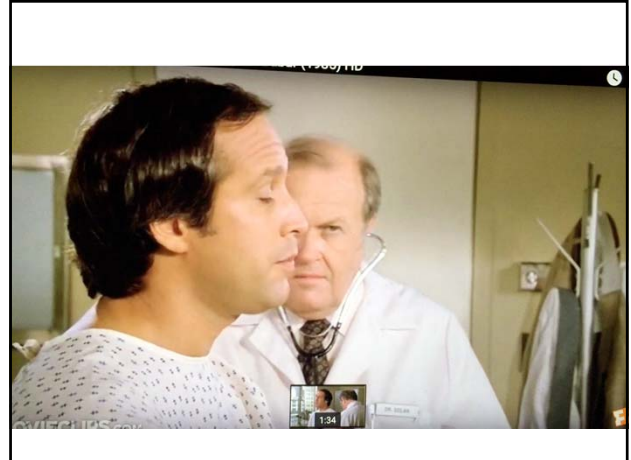




## GALLO EYE AND FACIAL PLASTIC SURGERY



## What was going on

- A. She found out the increase to her Premium and Deductible for employee health care next year
- B. She is getting an over aggressive Physical Exam by Fletch's doctor
- C. She has Graves Disease
- D. All of the above

## Thyroid Related Orbitopathy

Samuel A Gallo MD

## Definition

An [autoimmune](#) inflammatory disorder affecting the [orbit](#) around the eye

characterized by upper eyelid retraction, lid lag, swelling (edema), redness (erythema), conjunctivitis, and bulging eyes (proptosis)

part of a systemic process with variable expression in the eyes, thyroid, and skin, caused by autoantibodies that bind to tissues in those organs

## Pathophysiology

- The autoantibodies target the fibroblasts in the eye muscles, and those fibroblasts can differentiate into fat cells (adipocytes).
- The [thyroid-stimulating hormone receptor](#) (TSH-R) is an [antigen](#) found in orbital fat and [connective tissue](#), and is a target for autoimmune assault
- Fat cells and muscles expand and become inflamed. Veins become compressed, and are unable to drain fluid, causing edema.

## Pathophysiology cont.

- On histological examination, there is an infiltration of the orbital connective tissue by [lymphocytes](#), [plasmacytes](#), and [mastocytes](#).
- The inflammation results in a deposition of [collagen](#) and [glycosaminoglycans](#) in the muscles, which leads to subsequent enlargement and [fibrosis](#).
- There is also an induction of the [lipogenesis](#) by [fibroblasts](#) and [preadipocytes](#), which causes orbital volume enlargement due to fat deposition.

## Presentation

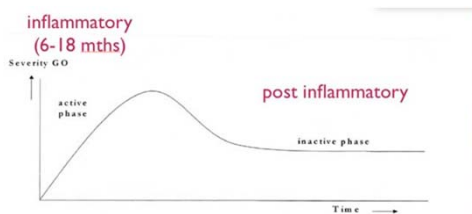
- Non-specific symptoms
  - include irritation, grittiness, photophobia, tearing, and blurred vision. Pain is not typical, but patients often complain of pressure in the orbit.

## Diagnosis

- Clinically by the presenting ocular signs and symptoms
  - positive tests for [antibodies](#)
    - (anti-thyroglobulin, anti-microsomal and anti-thyrotropin receptor)
  - and abnormalities in [thyroid hormones](#) level (T3, T4, and TSH) help in supporting the diagnosis.
- @10% are laboratory negative

## Presentation

- Signs
  - Lid retraction - Upper most common
  - Proptosis
  - Decreased EOM / Diplopia
  - Inflamed red eyes
  - periorbital swelling



## Rundel's Curve

## Work Up

- Physical Exam
  - Examine hair, skin, nails
  - palpate thyroid
  - examine shins - pretibial edema

## Signs of Hyperthyroidism

- Tachycardia/palpitations
- Nervousness
- Diaphoresis
- Heat intolerance
- Skeletal muscle weakness
- Tremor
- Weight loss
- Hair loss
- Irritability
- Goiter

## Signs of Hypothyroidism

- Bradycardia
- Drowsiness
- Poor mentation
- Muscle cramps
- Weight gain
- Dry skin
- Husky voice
- Depression
- Cold intolerance

## Work Up Cont.

- Ophthalmic exam
- External exam
  - Check for proptosis - Hertel exophthalmometry
  - Note shape and position of lids - retraction most common sign
  - periorbital swelling
  - The "I'm irritated look"
  - Resistance to retropulsion
  - Loss of lateral 1/3 of eyebrow hairs



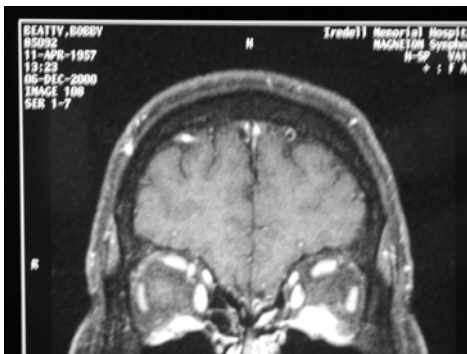
Hertel exophthalmometry

## Work Up Cont.

- EOM
- Lid lag w downgaze - Von Graefe sign
- SLE
  - Corneal exposure signs, chemosis, SLK
- Look for Engorgement of extraocular muscles
- Pupillary exam/ Color vision —> look for RAPD

## Work Up Cont.

- Laboratory work up as mentioned earlier
- Orbital Imaging
  - enlarged Extraocular muscles w tendon sparing
- proptosis
- fat compartment enlargement



## Treatment

- medically treat to achieve Euthyroid state
- Not sure if helps
- Therapy depends on the severity of the disease activity and temporal place on Rundle's curve
- Minimal disease require supportive care with lubricants, AFTS, Head up bed positioning, and patience

## Treatment Cont.

- The mainstay of Medical treatment is Corticosteroids
  - Prednisone orally
  - Pulse intravenous steroids (eg, methylprednisolone 1 g every other day for 3-6 cycles) can be considered but may only marginally improve long-term disease outcome

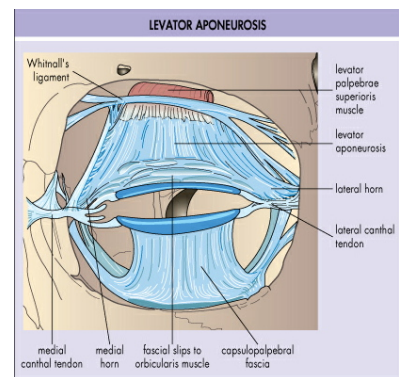
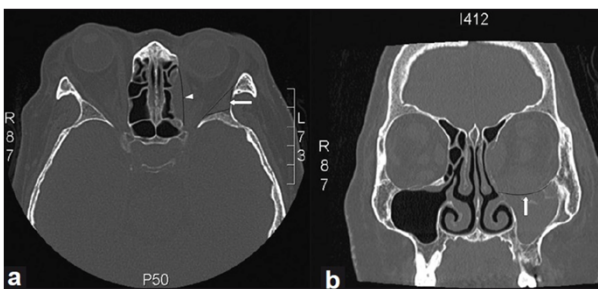
## Treatment Cont.

- Other drug therapies include:
  - Methotrexate
  - Immuno modulating drugs

## Treatment Cont.

- Orbital irradiation is sometimes prescribed for moderate to severe inflammatory symptoms, diplopia, and visual loss in patients with thyroid-associated orbitopathy (TAO). The radiation (1500-2000 cGy fractionated over 10 d) is usually administered via lateral fields with posterior angulation.
- Radiation is believed to damage orbital fibroblasts or perhaps lymphocytes.
- The radiation requires several weeks to take effect, and it may transiently cause increased inflammation.

## Surgical Rehabilitation



## Myasthenia Gravis

- Hallmarks
  - Variable Ptosis
  - Diplopia
  - Often responds to ice glove test

- Tensilon test is the definitive clinical test
- Laboratory tests may include:
  - Anti-striated muscle Ab
  - Anti-Acetylcholine receptor Antibody

## Myasthenia Gravis and Graves Disease

- @ 10 % coexistence
- Thyroid disease usually precedes the Myasthenia

