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, plasmocytes, 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 / Diploia
  - Inflamed red eyes
  - periorbital swelling

Work Up

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

Rundel’s Curve
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

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.
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

Myaesthenia Gravis and Graves Disease

- @ 10 % coexistence
- Thyroid disease usually proceeds the Myaesthenia