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**Stimulation of orbital fibroblasts by TSH-R Ab has what effects on these cells?**

It induces them to secrete glycosaminoglycans (GAGs), as well as pro-inflammatory cytokines (which attract inflammatory cells to the orbit). Stimulation even causes some fibroblasts to differentiate into adipocytes. Thus, much of the histopathology of TED (ie, an orbit full of ground substance, inflammatory cells, etc) can be traced directly to the effects of TSH-R Ab on orbital fibroblasts.

But to the original question: Note that the above activities are not caused by what’s going on in the thyroid gland itself. Thus, while TED often coincides with thyroid dysfunction, it does not result from it.
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Speaking of thyroid dysfunction…What percent of Graves cases are associated with hyperthyroidism at presentation?
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  About 6%
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What percent are euthyroid at presentation?
About 6

Of the euthyroid presentations, what percent will develop thyroid disease over the next 5 years?
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Can Graves dz present in association with hypothyroidism?
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Can Graves dz present in association with hypothyroidism?
Yes, albeit uncommonly. Most of these pts have disease (two words).
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Graves is associated with MS (multiple sclerosis)
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What does MG stand for?
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Graves is aggravated by smoking  True; Graves patients should be urged to stop smoking

Graves is associated with MS  False; it is associated with **MG**

**Graves (thyroid eye disease): True/False**

**What does MG stand for?**
Myasthenia gravis
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TED: Strabismus

Esotropia

Hypotropia
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'Temporal flare'

What does temporal flare refer to/mean?
The fact that the retraction is more pronounced at the temporal aspect of the lid.

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TED: Lid retraction

*Or highly asymmetric, at least
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- Autoimmune thyroid dz
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Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

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TED: Lid retraction with temporal flare
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- If the pt has concurrent myasthenia gravis.

**What one word best characterizes the clinical course of ptosis in MG?**

Variable.

That is, one would expect the degree of ptosis to vary from exam to exam.
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What is/are the diagnostic criteria for TED? Pt must have at least two of the following:

- Autoimmune thyroid dz
- Typical orbital signs of TED
- Imaging findings c/w TED

There is an important exception to the ‘absence of lid retraction indicates it isn’t Graves dz’ contention--in fact, such pts can present with ptosis. Under what circumstance might a Graves pt present with no lid retraction, or even frank ptosis?
If the pt has concurrent myasthenia gravis

What one word best characterizes the clinical course of ptosis in MG? Variable. That is, one would expect the degree of ptosis to vary from exam to exam.
Graves (thyroid eye disease): True/False

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Graves orbitopathy is secondary to thyroid disease.

How is this defined? Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

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- Eyelid retraction
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Is the proptosis unilateral, or bilateral?

TED ranks as a cause of unilateral proptosis in adults: #1.

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TED: Proptosis

*Or highly asymmetric, at least
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What about in the pediatric population--is the relationship between proptosis and Graves dz as strong?

No. Graves is rare in children, and when it does occur, only about 10% of pts present with proptosis. (Rule of thumb: In children, proptosis is more likely to be infection or neoplastic than to be inflammatory.)
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What are the typical orbital signs?
- Eyelid retraction
- Proptosis
- Restrictive strabismus (in a manner c/w TED myopathy)
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What does this mean, ‘in a manner c/w TED myopathy’?
It means in this order.
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How is this defined? Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

- Graves is not associated with MG.
- Graves myopathy usually results in hypotropia.
- The medial rectus is more likely than the inferior rectus to be affected.

Which of these is the most common orbital sign in TED?

What are the typical orbital signs?

- Eyelid retraction
- Proptosis
- Restrictive strabismus (in a manner c/w TED myopathy)
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What percent of TED pts will demonstrate lid retraction at presentation?

- About 75% at presentation.
- Over 90% at some point during the disease process.
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- Graves is associated with MG
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**What are the typical orbital signs?**
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**Autoimmune thyroid dz**

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Graves (thyroid eye disease): True/False

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**In the present context, to what does the term lid lag refer?**

When a person who doesn’t have TED moves into downgaze, their upper lid margin will follow the globe. In contrast, when a TED pt looks down, their upper lid remains elevated, ie, it ‘lags.’ This is a classic TED finding.

**What is the eponymous name for lid lag?**
von Graefe’s sign
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Unilateral* Bilateral

TED: Lid lag

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Graves myopathy usually results in an ET and/or hypotropia. True.

The medial rectus is more likely than the inferior rectus to be affected. False; the order (most to least likely) is IR>MR>SR>LR.

It may be classic for TED, but is it pathognomonic?

How is this defined?
Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

What are the typical orbital signs?
- Lid retraction
- Proptosis
- Restrictive strabismus (in a manner c/w TED myopathy)
- Compressive optic neuropathy
- Edema of the lids and/or conj (ie, chemosis)

What is/are the diagnostic criteria for TED?
- Pt must have at least two of the following:
  - Autoimmune thyroid dz
  - Typical orbital signs of TED
  - Imaging findings c/w TED

In the present context, to what does the term lid lag refer?
When a person who doesn’t have TED moves into downgaze, their upper lid margin will follow the globe. In contrast, when a TED pt looks down, their upper lid remains elevated, ie, it ‘lags.’ This is a classic TED finding.

What is the eponymous name for lid lag?
von Graefe’s sign

Is it pathognomonic?
No.
Graves (thyroid eye disease): True/False

What is/are the diagnostic criteria for TED? Pt must have at least two of the following:

- Autoimmune thyroid dz
- Typical orbital signs of TED
- Imaging findings c/w TED

Sort of, but not really. Graves is an autoimmune disease that is strongly associated with thyroid dysfunction, but it is not caused by it.

Graves is aggravated by smoking. True; Graves patients should be urged to stop smoking.

Graves is associated with MS. False; it is associated with MG.

Graves myopathy usually results in an ET and/or a hypotropia. True

The medial rectus is more likely than the inferior rectus to be affected. False; the order (most to least likely) is IR>MR>SR>LR.

How is this defined?

Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

What are the typical orbital signs?

- Eye lid retraction
- Proptosis
- Restrictive strabismus (in a manner c/w TED myopathy)
- Compressive optic neuropathy
- Edema of the lids and/or conj (ie, chemosis)

What is/are the diagnostic criteria for TED?

Pt must have at least two of the following:

- Autoimmune thyroid dz
- Typical orbital signs of TED
- Imaging findings c/w TED

It may be classic for TED, but is it pathognomonic?

No

What are the typical orbital signs of TED?

- Eyelid retract
- Proptosis

In the present context, to what does the term lid lag refer?

When a person who doesn’t have TED moves into downgaze, their upper lid margin will follow the globe. In contrast, when a TED pt looks down, their upper lid remains elevated, ie, it ‘lags.’ This is a classic TED finding.

What is the eponymous name for lid lag?

von Graefe’s sign

Pseudo-von Graefe’s sign

No
Graves orbitopathy is secondary to thyroid disease

Sort of, but not really. Graves is an autoimmune disease that is strongly associated with thyroid dysfunction, but it is not caused by it.

Graves is aggravated by smoking. True; Graves patients should be urged to stop smoking.

Graves is associated with MS. False; it is associated with MG.

Graves myopathy usually results in an ET and/or a hypotropia. True.

The medial rectus is more likely than the inferior rectus to be affected. False; the order (most to least likely) is IR > MR > SR > LR.

Graves (thyroid eye disease): True/False

What is/are the diagnostic criteria for TED? Pt must have at least two of the following:

Autoimmune thyroid dz

Typical orbital signs of TED

Imaging findings c/w TED

How is this defined?
Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

- Graves is associated with MG
- Graves is not associated with MG
- Graves is associated with MG
- Graves is not associated with MG

What are the typical orbital signs?

- Eye lid retraction
- Proptosis
- Restrictive strabismus (in a manner c/w TED myopathy)
- Compressive optic neuropathy
- Edema of the lids and/or conj (ie, chemosis)

What is/are the diagnostic criteria for TED?

Pt must have at least two of the following:

Autoimmune thyroid dz

Typical orbital signs of TED

Imaging findings c/w TED

It may be classic for TED, but is it pathognomonic?

No

What is the eponymous name for lid lag when it is present in a non-TED pt?

Pseudo-von Graefe’s sign

What is the eponymous name for lid lag?

von Graefe’s sign

In the present context, to what does the term lid lag refer?

When a person who doesn’t have TED moves into downgaze, their upper lid margin will follow the globe. In contrast, when a TED pt looks down, their upper lid remains elevated, ie, it ‘lags.’ This is a classic TED finding.

This is a classic TED finding.
Graves orbitopathy is secondary to thyroid disease. Sort of, but not really. Graves is an autoimmune disease that is strongly associated with thyroid dysfunction, but it is not caused by it.

Graves is aggravated by smoking. True; Graves patients should be urged to stop smoking.

Graves is associated with MS. False; it is associated with MG.

Graves myopathy usually results in an ET and/or a hypotropia. True.

The medial rectus is more likely than the inferior rectus to be affected. False; the order (most to least likely) is IR > MR > SR > LR.

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What is/are the diagnostic criteria for TED? Pt must have at least two of the following:

- Autoimmune thyroid dz
- Typical orbital signs of TED
- Imaging findings c/w TED

---

How is this defined?
Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

Graves is associated with MG.

Graves is associated with MG.

The medial rectus is more likely than the inferior rectus to be affected.

The medial rectus is more likely than the inferior rectus to be affected.

---

It may be classic for TED, but is it pathognomonic?
No.

What are the typical orbital signs of TED?
- eye lid retraction
- proptosis
- restrictive strabismus (in a manner c/w TED myopathy)
- compressive optic neuropathy
- edema of the lids and/or conj (ie, chemosis)

What is the eponymous name for lid lag when it is present in a non-TED pt?
Pseudo-von Graefe's sign

In the present context, to what does the term lid lag refer?
When a person who doesn't have TED moves into downgaze, their upper lid margin will follow the globe. In contrast, when a TED pt looks down, their upper lid remains elevated, ie, it 'lags.' This is a classic TED finding.

What is the eponymous name for lid lag?
von Graefe's sign

---

What is/are the diagnostic criteria for TED? Pt must have at least two of the following:

- Autoimmune thyroid dz
- Typical orbital signs of TED
- Imaging findings c/w TED

---

How is this defined?
Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

Graves is associated with MG.

Graves is associated with MG.

The medial rectus is more likely than the inferior rectus to be affected.

The medial rectus is more likely than the inferior rectus to be affected.

---

It may be classic for TED, but is it pathognomonic?
No.

What are the typical orbital signs of TED?
- eye lid retraction
- proptosis
- restrictive strabismus (in a manner c/w TED myopathy)
- compressive optic neuropathy
- edema of the lids and/or conj (ie, chemosis)

What is the eponymous name for lid lag when it is present in a non-TED pt?
Pseudo-von Graefe's sign

In the present context, to what does the term lid lag refer?
When a person who doesn't have TED moves into downgaze, their upper lid margin will follow the globe. In contrast, when a TED pt looks down, their upper lid remains elevated, ie, it 'lags.' This is a classic TED finding.

What is the eponymous name for lid lag?
von Graefe's sign
Graves orbitopathy is secondary to thyroid disease, but it is not caused by it. Graves is aggravated by smoking and patients should be urged to stop smoking.

- Graves is associated with MS: False; it is associated with MG.
- Graves myopathy usually results in an ET and/or a hypotropia: True.
- The medial rectus is more likely than the inferior rectus to be affected: False; the order (most to least likely) is IR > MR > SR > LR.
**Graves (thyroid eye disease): True/False**

- Sort of, but not really. Graves is an autoimmune disease that is strongly associated with thyroid dysfunction, but it is not caused by it.
- Graves is aggravated by smoking. True; Graves patients should be urged to stop smoking.
- Graves is associated with MS. False; it is associated with MG.
- Graves myopathy usually results in an ET and/or a hypotropia. True.
- The medial rectus is more likely than the inferior rectus to be affected. False; the order (most to least likely) is IR>MRI>SRI>LR.

**What is/are the diagnostic criteria for TED?** Pt must have at least two of the following:
- Autoimmune thyroid dz
- Typical orbital signs of TED
- Imaging findings c/w TED

**How is this defined?**
Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

**What are the typical orbital signs?**
- Eyelid retraction
- Proptosis
- Restrictive strabismus (in a manner c/w TED myopathy)
- Compressive optic neuropathy
- Edema of the lids and/or conj (ie, chemosis)

**What are these findings?**
- Enlargement of the EOMs (in a manner c/w TED myopathy)
Graves (thyroid eye disease): True/False

What is/are the diagnostic criteria for TED? Pt must have at least two of the following:
- Autoimmune thyroid dz
- Typical orbital signs of TED
- Imaging findings c/w TED

How is this defined?
Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies

What are the typical orbital signs?
- Eyelid retraction
- Proptosis
- Restrictive strabismus (in a manner c/w TED myopathy)
- Compressive optic neuropathy
- Edema of the lids and/or conj (ie, chemosis)

What does this mean, ‘in a manner c/w TED myopathy’?
- Enlargement of the EOMs is fusiform or ‘tendon sparing’
- Involvement of the EOMs occurs in this order:
  - IR > MR > SR > LR

Graves is secondary to thyroid disease
Sort of, but not really. Graves is an autoimmune disease that is strongly associated with thyroid dysfunction, but it is not caused by it. Graves is aggravated by smoking so patients are urged to stop smoking.

- Graves is associated with MG
- Graves myopathy usually results in an ET and/or a hypotropia
- The medial rectus is more likely than the inferior rectus to be affected False; the order (most to least likely) is IR>MR>SR>LR
Graves (thyroid eye disease): True/False

What is/are the diagnostic criteria for TED? Pt must have at least two of the following:

- Autoimmune thyroid dz
- Typical orbital signs of TED
- Imaging findings c/w TED

How is this defined? Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

What are the typical orbital signs of TED?

- Eyelid retraction
- Proptosis
- Restrictive strabismus (in a manner c/w TED myopathy)
- Compressive optic neuropathy
- Edema of the lids and/or conj (ie, chemosis)

What does this mean, ‘in a manner c/w TED myopathy’? It means two things:

- Enlargement of the EOMs is fusiform or ‘tendon sparing’
- Involvement of the EOMs occurs in this order:

  shape
  - IR > MR > SR > LR
  ‘two words’

The medial rectus is more likely than the inferior rectus to be affected. False; the order (most to least likely) is:

IR > MR > SR > LR

Graves orbitopathy is secondary to thyroid disease

Sort of, but not really. Graves is an autoimmune disease that is strongly associated with thyroid dysfunction, but it is not caused by it. Graves is aggravated by smoking. True; Graves patients should be urged to stop smoking.

Graves is associated with MS

False; it is associated with MG.

Graves myopathy usually results in an ET and/or a hypotropia

True.
Graves orbitopathy is secondary to thyroid disease, but it is not caused by it. Graves is an autoimmune disease that is strongly associated with thyroid dysfunction, but it is not caused by it.

- Graves is aggravated by smoking: True; Graves patients should be urged to stop smoking.
- Graves is associated with MS: False; it is associated with MG.
- Graves myopathy usually results in an ET and/or a hypotropia: True.
- The medial rectus is more likely than the inferior rectus to be affected: False; the order (most to least likely) is IR>MR>SR>LR.

### Graves (thyroid eye disease): True/False

**What is/are the diagnostic criteria for TED? Pt must have at least two of the following:**

- Autoimmune thyroid dz
- Typical orbital signs of TED
- Imaging findings c/w TED

**How is this defined?**

Either the pt has a known autoimmune thyroid condition, or s/he tests positive for one (or more) of a host of anti-thyroid antibodies.

**What are the typical orbital signs of TED?**

- Eyelid retraction
- Proptosis
- Restrictive strabismus (in a manner c/w TED myopathy)
- Compressive optic neuropathy
- Edema of the lids and/or conj (ie, chemosis)

**What are these findings?**

- Enlargement of the EOMs (in a manner c/w TED myopathy)

**What does this mean, ‘in a manner c/w TED myopathy’?**

It means two things:

- Enlargement of the EOMs is fusiform or ‘tendon sparing’
- Involvement of the EOMs occurs in this order:

  IR>MR>SR>LR
Graves (thyroid eye disease): True/False

TED: Tendon-sparing EOM enlargement
Graves orbitopathy is secondary to thyroid disease

Sort of, but not really. Graves is an autoimmune disease that is strongly associated with thyroid dysfunction, but it is not caused by it.

Graves is aggravated by smoking  True; Graves patients should be urged to stop smoking

Graves is associated with MS  False; it is associated with MG

Graves myopathy usually results in an ET and/or a hypotropia  True

The medial rectus is more likely than the inferior rectus to be affected  False; the order (most to least likely) is IR>MR>SR>LR

What is the natural history of TED?

It is a self-limited disease that tends to ‘burn itself out’ over time

How is TED managed?

Other than smoking cessation (which all TED pts should do), management depends upon disease severity:

--Mild disease can be managed symptomatically (ie, maneuvers to lessen surface dryness/irritation)

--Moderate disease requires more aggressive surface protection (eg, moisture goggles), and PO steroids

--Severe disease involves sight-threatening complications such as corneal decompensation, and/or optic neuropathy. This necessitates more aggressive steroid therapy, and consideration should be given to the use of steroid-sparing IMT and/or orbital radiation therapy. Orbital decompression surgery while the pt has floridly active TED is not ideal, and should be considered only as a last resort.

What about treating the concurrent thyroid disease?

Rendering the pt euthyroid is an important goal for TED pts (to be pursued by Endo/IM, of course). However, it is important to note that some treatments in this regard can aggravate the TED by increasing immune activity against the TSH-receptor antigens that are responsible for TED.
Graves orbitopathy is secondary to thyroid disease 

Sort of, but not really. Graves is an autoimmune disease that is strongly associated with thyroid dysfunction, but it is not caused by it.

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What is the natural history of TED? 
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae.

How is TED managed? 
Other than smoking cessation (which all TED pts should do), management depends upon disease severity: 
--Mild disease can be managed symptomatically (ie, maneuvers to lessen surface dryness/irritation)
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Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to 'burn itself out' over time, but may leave disfiguring sequelae.

On average, how long does it take to burn itself out?

rectus to be affected False; the order (most to least likely) is IR>MR>SR>LR
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Sort of, but not really. Graves is an autoimmune disease that is strongly associated with thyroid dysfunction, but it is not caused by it.

Graves is aggravated by smoking. True; Graves patients should be urged to stop smoking.

Graves is associated with MS. False; it is associated with MG.

Graves myopathy usually results in exotropia (ET) and/or hypotropia. True.

The medial rectus is more likely than the inferior rectus to be affected. False; the order (most to least likely) is IR>MR>SR>LR.

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae.

On average, how long does it take to burn itself out?
That depends on whether the pt is a smoker.

How long for nonsmokers? ~1 year.
How long for smokers? 2-3 years.

What about treating the concurrent thyroid disease?
Rendering the pt euthyroid is an important goal for TED pts (to be pursued by Endo/IM, of course). However, it is important to note that some treatments in this regard can aggravate the TED by increasing immune activity against the TSH-receptor antigens that are responsible for TED.
Graves (thyroid eye disease): True/False

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How long for nonsmokers?
How long for smokers?

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What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae

How is TED managed?

rectus to be affected  False; the order (most to least likely) is IR>MR>SR>LR
Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae.

How is TED managed?
Other than smoking cessation (which all TED pts should do), management depends upon disease severity:

--Mild disease can be managed (?)

rectus to be affected  False; the order (most to least likely) is IR>MR>SR>LR
Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae.

How is TED managed?
Other than smoking cessation (which all TED pts should do), management depends upon disease severity:

--Mild disease can be managed symptomatically (ie, maneuvers to lessen surface dryness/irritation)
rectus to be affected False; the order (most to least likely) is IR>MR>SR>LR
Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae.

How is TED managed?
Other than smoking cessation (which all TED pts should do), management depends upon disease severity:

--Mild disease can be managed symptomatically (ie, maneuvers to lessen surface dryness/irritation)

--Moderate disease requires (?)
Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae

How is TED managed?
Other than smoking cessation (which all TED pts should do), management depends upon disease severity:

--Mild disease can be managed symptomatically (ie, maneuvers to lessen surface dryness/irritation)

--Moderate disease requires more aggressive surface protection (eg, moisture goggles), and PO steroids

rectus to be affected False; the order (most to least likely) is IR>MR>SR>LR
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Graves is associated with MS False; it is associated with MG.

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--Severe disease involves sight-threatening complications such as corneal decompensation, and/or optic neuropathy. This necessitates (?)
Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae.

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Other than smoking cessation (which all TED pts should do), management depends upon disease severity:

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--Severe disease involves sight-threatening complications such as corneal decompensation, and/or optic neuropathy. This necessitates more aggressive steroid therapy, and consideration should be given to the use of steroid-sparing IMT and/or orbital radiation therapy. Orbital decompression surgery while the pt has floridly active TED is not ideal, and should be considered only as a last resort.

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If surgery during active TED is relatively contraindicated, when should it be considered?
Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae.

How is TED managed?
Other than smoking cessation (which all TED pts should do), management depends upon disease severity:

--Mild disease can be managed symptomatically (ie, maneuvers to lessen surface dryness/irritation).

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If surgery during active TED is relatively contraindicated, when should it be considered?
Once the pt is euthyroid, and his/her orbital condition has been stable for at least six months.
Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae

How is TED managed?
Other than smoking cessation (which all TED pts should do), management depends upon disease severity:

--Mild disease can be managed symptomatically (ie, maneuvers to lessen surface dryness/irritation)

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If surgery during active TED is relatively contraindicated, when should it be considered?
Once the pt is euthyroid, and his/her orbital condition has been stable for at least 6 months
Graves (thyroid eye disease): True/False

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If surgery during active TED is relatively contraindicated, when should it be considered?
Once the pt is euthyroid, and his/her orbital condition has been stable for at least 6 months

Suppose a pt meeting those criteria needs orbital decompression, has strabismus, and also has malpositioned eyelids. What should the overall surgical strategy be?
Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae.

How is TED managed?
Other than smoking cessation (which all TED pts should do), management depends upon disease severity:

--- Mild disease can be managed symptomatically (ie, maneuvers to lessen surface dryness/irritation)

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--- Severe disease involves sight-threatening complications such as corneal decompensation, and/or optic neuropathy. This necessitates more aggressive steroid therapy, and consideration should be given to the use of steroid-sparing IMT and/or orbital radiation therapy. **Orbital decompression surgery while the pt has floridly active TED is not ideal, and should be considered only as a last resort.**

If surgery during active TED is relatively contraindicated, when should it be considered?
Once the pt is euthyroid, and his/her orbital condition has been stable for at least 6 months.

Suppose a pt meeting those criteria needs orbital decompression, has strabismus, and also has malpositioned eyelids. **What should the overall surgical strategy be?**
Because orbital-decompression surgery will affect both EOM and lid position, the decompression surgery must precede strabismus and/or lid surgery. Likewise, because strabismus surgery will affect lid position, the strabismus surgery must precede the lid surgery. Putting it all together, the surgical order is as follows:
1. Decompression
2. Strabismus
3. Eyelids
Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae.

How is TED managed?
Other than smoking cessation (which all TED pts should do), management depends upon disease severity:

--Mild disease can be managed symptomatically (ie, maneuvers to lessen surface dryness/irritation)

--Moderate disease requires more aggressive surface protection (eg, moisture goggles), and PO steroids

--Severe disease involves sight-threatening complications such as corneal decompensation, and/or optic neuropathy. This necessitates more aggressive steroid therapy, and consideration should be given to the use of steroid-sparing IMT and/or orbital radiation therapy. Orbital decompression surgery while the pt has floridly active TED is not ideal, and should be considered only as a last resort.

What about treating the concurrent thyroid disease?
Graves (thyroid eye disease): True/False

What is the natural history of TED?
It is a self-limited disease that tends to ‘burn itself out’ over time, but may leave disfiguring sequelae

How is TED managed?
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What about treating the concurrent thyroid disease?
Rendering the pt euthyroid is an important goal for TED pts (to be pursued by Endo/IM, of course). However, it is important to note that some treatments in this regard can aggravate the TED by increasing immune activity against the TSH-receptor antigens that are responsible for TED.