Bildgebung bei endokriner Orbitopathie

Imaging in dysthyroid orbitopathy

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Dysthyroid Orbitopathy

- Prevalence 1/1000 per year
- 10% of all pts w thyroid disorders
- 90% w hyperfunktion
- Genetics + Environment + Autoimmune process
- Auto-antibodies against TSH receptors
Imaging is mandatory...
A. to establish the diagnosis
B. for staging
C. to detect optic neuropathy
D. for A – C
E. for none of those
A short quiz about dysthyroid orbitopathy

What is correct?
A. ultrasound is very efficient
B. CT with contrast is a good alternative in claustrophobia
C. normal eye muscles don’t enhance with contrast
D. orbital fat is white on MRI T1 and T2
E. typically the muscular insertion is swollen
A short quiz about dysthyroid orbitopathy

Which MRI would you like to have, of course T1 + T2 and...?

A. diffusion weighted images
B. contrast enhanced only
C. T2 FLAIR, contrast enh.
D. T1 STIR, contrast enh.
E. TOF (shows vessels)
Why Imaging?

- Confirm diagnosis?
- Exclude DD?
- Staging?
- Therapy planning?
Werner classification

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>MRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>eyelid retraction, reduced blinking</td>
<td>no correlate</td>
</tr>
<tr>
<td>2</td>
<td>lidoedema, chemosis, conjunctivitis</td>
<td>lidoedema maybe visible</td>
</tr>
<tr>
<td>3</td>
<td>protrusio bulbi</td>
<td>visible</td>
</tr>
<tr>
<td>4</td>
<td>motility disorder</td>
<td>eye muscles congested, T2 hyperintense, CE</td>
</tr>
<tr>
<td>5</td>
<td>corneal involvement</td>
<td>no correlate</td>
</tr>
<tr>
<td>6</td>
<td>optic neuropathy</td>
<td>4 + maybe optic nerve contrast enhancement</td>
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## Werner classification

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Imaging modalities

- **Sonography**
  - instantly available
  - needs experience, takes time, apex out of reach

- **CT**
  - fast, no claustrophobia, shows bones
  - x-rays, soft tissues poor, contrast critical

- **MRI**
  - soft tissues good, contrast no problem
  - expensive, claustrophobia, overloaded, metal
MRI

45, m
Which MRI Images?

- T1 with contrast
- T2 + Fat suppression
Contrast enhancement of orbital fat

Daubner et al., Radiologe 2012 · 52:550–559
44 year old woman: Optic neuropathy?
OCT: no oedema
Differential diagnoses

• ocular myositis
• orbital pseudotumor
• orbital lymphoma
Ocular myositis

- only 1 muscle
- only 1 side
- more pain

12 female
Pseudotumor orbitae

- usually unilateral
- more pain

59, female
Lymphoma

- 75% unilateral
- usually anterior

like muscle!

37, female
A short quiz about dysthyroid orbitopathy

Imaging is mandatory...

A. to establish diagnosis
B. for staging
C. early dg of optic neuropathy
D. for A – C
E. for none of those
A short quiz about dysthyroid orbitopathy

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A short quiz about dysthyroid orbitopathy

Which MRI would you like to have, of course T1 + T2 and...?

A. diffusion weighted  
B. T1/T2 contrast enhanced  
C. T2-FLAIR, contrast enh.  
D. T1-STIR, contrast enh.  
E. TOF (shows vessels)
Dysthyroid Orbitopathy – Take Home

- Diagnosis is clinical
- Grading is clinical
- Optic neuropathy is diagnosed clinically
- Favor MRI
- Fat suppression, T1 contrast enhanced
- DD Myositis, Pseudotumor orbitae, Lymphoma