Meet the Professor

CASE 2
Case One

- ID: 60 year old man

- Chief Complaint: Altered sensorium and abdominal distension for 2 days
History of Present Illness

● Over the past 3 months
  • slow mentation
  • inattention
  • word finding difficulties
  • agitation
  • hallucinations
  • delusions of persecution

● Over the past several weeks
  • unable to perform activities of daily living

Summary

• 60 year old male
• altered sensorium
• abd. distension
History of Present Illness

• No additional collateral history

Summary

• 60 year old male
• altered sensorium
• abd. distension
Review of Systems

- **General**
  - Unknown weight changes

- **HEENT**
  - No headache or neck pain

Summary

- 60 year old male
- altered sensorium
- abd. distension
- slow mentation
- inattention
- word finding prob.
- agitation
- hallucinations
- delusions
Review of Systems

- Heart
  - No chest pain

- Lungs
  - No shortness of breath

Summary

- 60 year old male
- altered sensorium
- abd. distension
- slow mentation
- inattention
- word finding prob.
- agitation
- hallucinations
- delusions
Review of Systems

- Abdomen
  - Constipation
  - Distension

Summary

- 60 year old male
- altered sensorium
- abd. distension
- slow mentation
- inattention
- word finding prob.
- agitation
- hallucinations
- delusions
Review of Systems

- Genitourinary
  - No dysuria

- Extremities
  - Mild chronic swelling

Summary

- 60 year old male
- altered sensorium
- abd. distension
- slow mentation
- inattention
- word finding prob.
- agitation
- hallucinations
- delusions
- constipation
Review of Systems

• Skin – no rash

Summary

• 60 year old male
• altered sensorium
• abd. distension
• slow mentation
• inattention
• word finding prob.
• agitation
• hallucinations
• delusions
• constipation
• edema
Past Medical History

- HTN (diet controlled)
- Seasonal allergies
- No abdominal surgeries

Summary

- 60 year old male
- altered sensorium
- abd. distension
- slow mentation
- inattention
- word finding prob.
- agitation
- hallucinations
- delusions
- constipation
- edema
Allergies

- No drug allergies

Summary

- 60 year old male
- altered sensorium
- abd. distension
- slow mentation
- inattention
- word finding prob.
- agitation
- hallucinations
- delusions
- constipation
- edema
- no abd. Surgeries
Medications

- Loratadine 10mg qd prn allergies
- No reported OTC or herbal medications

Summary

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- inattention
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- agitation
- hallucinations
- delusions
- constipation
- edema
- no abd. Surgeries
Social History

- Alcohol - none
- Tobacco – none
- Drugs – none (ever)
- Single – married, single partner
- No recent travel history
- Works in a printing press

Summary

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- agitation
- hallucinations
- delusions
- constipation
- edema
- no abd. Surgeries
- loratadine
Family History

Father
- HTN, depression

Mother
- COPD, depression

Brother
- Depression
Physical Exam

- Temperature: 97.5 Fahrenheit
- Blood Pressure 110/64
- Pulse 57
- Respirations 12
- BMI = 31

Summary
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- delusions
- constipation
- edema
- no abd. Surgeries
- loratadine
- printing press work
- fam hx depression
Physical Exam

General

- Appears drowsy
- Somewhat responsive
- No oriented to place or time

Summary

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- fam hx depression
Physical Exam

• HEENT

Summary

- 60 year old male
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- inattention
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- agitation
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- constipation
- edema
- no abd. Surgeries
- loratadine
- printing press work
- Fam hx depression
- Drowsy
- Not oriented
Physical Exam

- Neck
  - No lymphadenopathy
  - No thyromegaly
  - No bruits

- Heart
  - No murmurs or gallops

Summary

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- loratadine
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- drowsy
- not oriented
Physical Exam

- **Lungs**
  - Clear

- **Abdomen**
  - Not tender
  - No HSM

**Summary**

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Physical Exam

- Extremities
  - 2+ soft pitting edema
  - Cooler distally than proximally

- Skin:

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- loratadine
- printing press work
- fam hx depression
- drowsy
- not oriented
- exam as noted
Physical Exam

- Neurologic
  - Drowsy but arousable
  - Oriented to self only
  - Agitated and Hallucinating (“hospital staff is out to get me”)
  - Moves all 4 extremities on command, but not able to do formal strength testing
  - Sensation appeared grossly intact
  - DTR’s diminished/sluggish
  - Unable to walk

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- loratadine
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- fam hx depression
- drowsy
- not oriented
- exam as noted
**Initial Laboratory Exam**

<table>
<thead>
<tr>
<th>A.</th>
<th>B.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CBC</td>
<td>1. CXR</td>
</tr>
<tr>
<td>2. Renal</td>
<td>2. Abd X-ray</td>
</tr>
<tr>
<td>3. LFT’s</td>
<td>3. CK, troponin</td>
</tr>
<tr>
<td>4. Blood Culture</td>
<td>4. ABG</td>
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<tr>
<td>5. UA</td>
<td>5. Head CT</td>
</tr>
<tr>
<td>6. EKG</td>
<td>6. ESR</td>
</tr>
<tr>
<td>7. Drug Screen</td>
<td>7. Folate</td>
</tr>
<tr>
<td></td>
<td>8. B12 level</td>
</tr>
</tbody>
</table>

**Summary**

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**CBC**

- WBC 3.9 K/UL
- RBC 4.41 M/UL
- HGB 9.1 G/DL
- HCT 26.2 %
- MCV 100.1 FL
- MCH 25.5 PG
- MCHC 33.1 G/DL
- RDW 14.5 %
- PLT 289 K/UL

To initial labs

**Summary**

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<table>
<thead>
<tr>
<th>Renal</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>140 MEQ/L</td>
</tr>
<tr>
<td>Potassium</td>
<td>4.1 MEQ/L</td>
</tr>
<tr>
<td>Chloride</td>
<td>100 MEQ/L</td>
</tr>
<tr>
<td>CO2</td>
<td>24 MEQ/L</td>
</tr>
<tr>
<td>BUN</td>
<td>12 MG/DL</td>
</tr>
<tr>
<td>Creatinine</td>
<td>1.1 MG/DL</td>
</tr>
<tr>
<td>Glucose</td>
<td>78 MG/DL</td>
</tr>
</tbody>
</table>

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To initial labs
**LFT’s**

- AST = 22 U/L (11-35)
- ALT = 35 U/L (7-46)
- Alkaline Phosphatase = 129 U/L (46-240)
- Bilirubin, total = 0.8 MG/DL (0.0-1.0)
- Albumin 3.5 GM/DL (3.5-5.0)

To initial labs

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Blood Cultures

- Negative

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- exam as noted
Urinalysis

- Specific Gravity = 1.020
- Yellow
- pH = 6.0
- Protein = 0
- RBC = 0 per hpf
- WBC = 0 per hpf
- No casts
- Nitrite negative
- Leukocyte esterase negative

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To initial labs
ABG (on room air)

- pH = 7.41
- pCO2 = 38
- PO2 = 89

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To initial labs
To initial labs
Summary

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To initial labs

AXR

Supine

Upright
Folate

- Normal

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To initial labs
ESR

• 16 mm/hr

Summary

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• exam as noted
Head CT

- Negative (non contrast)

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- exam as noted

To initial labs
To initial labs

B12 level

- Normal

Summary

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- drowsy
- not oriented
- exam as noted
CK, Troponins

- CK = 43 mg/dl
- Troponin 0.00 mcg/L

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To initial labs
Toxicology

- Negative

Summary

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- drowsy
- not oriented
- exam as noted

To initial labs
Secondary Laboratory Exam

- 1. Abdomen US
- 2. CT Abdomen
- 3. ECHO (TTE)
- 4. MRI Brain
- 5. Skin biopsy
- 6. Lumbar Puncture
- 7. Iron Studies
- 8. EEG
- 9. RF
- 10. ANA

- 11. WNV titers
- 12. Lead level
- 13. Gut manometry
- 14. Glucose/H+ breath test
- 15. 14-3-3 protein
- 16. RPR
- 17. HIV
- 18. MMSE
- 19. ANCA
- 20. Copper level

Summary

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- exam as noted
Abdominal US

- Gaseous distention with dilated bowel loops.

Summary

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- exam as noted
CT Abdomen

- Dilated bowel loops

Summary
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- loratadine
- printing press work
- fam hx depression
- drowsy
- not oriented
- exam as noted
### To Secondary Tests

**Summary**

- Not done

<table>
<thead>
<tr>
<th>ECHO</th>
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<tbody>
<tr>
<td>60 year old male</td>
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<tr>
<td>altered sensorium</td>
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<td>abd. distension</td>
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<tr>
<td>edema</td>
</tr>
<tr>
<td>no abd. Surgeries</td>
</tr>
<tr>
<td>printing press work</td>
</tr>
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<td>loratadine</td>
</tr>
<tr>
<td>drowsy</td>
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<tr>
<td>fam hx depression</td>
</tr>
<tr>
<td>constipation</td>
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<tr>
<td>delusions</td>
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<td>word finding prob.</td>
</tr>
<tr>
<td>inattention</td>
</tr>
<tr>
<td>slow mentation</td>
</tr>
</tbody>
</table>

- exam as noted
MRI Brain

- 60 year old male
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- not oriented
- exam as noted

Fluid-attenuated inversion recovery sequence showing prominent bilateral cortical sulci and Sylvian fissures with bilateral periventricular ooze

T2 magnetic resonance imaging image showing hyperintensities in periventricular areas
**Skin Biopsy**

- Not done

---

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- exam as noted

---

To Secondary Tests
Lumbar Puncture

- Initial studies:
  - Normal glucose
  - Elevated protein
  - No WBC
  - No RBCs
  - HSV PCR negative

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- exam as noted
Iron Studies

- Normal

Summary

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- exam as noted
**EEG**

- Normal

---

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- exam as noted

To Secondary Tests
WNV titers

- Not done

Summary

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- exam as noted

To Secondary Tests
Lead level

- 2.19 mcg/dL (nl < 25 mcg/dL)

Summary

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To Secondary Tests
Gut Manometry

- change in the frequency of the slow wave oscillations of smooth muscle electric potential features suggestive of intestinal dysmotility

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**Summary**

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**Glucose Hydrogen Breath Test**

- Negative

To Secondary Tests
14-3-3 Protein

- Negative

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- exam as noted
- **RPR**
  - Negative

- **Summary**
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  - edema
  - no abd. Surgeries
  - loratadine
  - printing press work
  - fam hx depression
  - drowsy
  - not oriented
  - exam as noted

- To Secondary Tests
HIV

- Negative

Summary

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- exam as noted

To Secondary Tests
MMSE

- 14/30

Summary

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- fam hx depression
- drowsy
- not oriented
- exam as noted
Rheumatoid Factor

- Negative

Summary

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- not oriented
- exam as noted
## Summary

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---

### Negative

- Negative
ANCA

- Negative

Summary

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- edema
- no abd. Surgeries
- loratadine
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- fam hx depression
- drowsy
- not oriented
- exam as noted
Copper Level

● Not done

Summary

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- exam as noted
Next Steps

- Start antibiotics
- Start acyclovir
- Psychiatry consult
- Colonoscopy
- TFT’s
- Sleep deprived EEG
- Fat pad biopsy
- Brain biopsy
- CRP

Get travel history
- Ophtho consult
- Neuro consult
- Anti-NMDA ab
- Fentanyl screen
- Anti-TTG ab
- Calcium
- Heavy metals
- Observe

To Secondary Tests
To Answer

Summary

- 60 year old male
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- exam as noted
Next Steps

No.

To Secondary Tests
To Next Steps

Summary

- 60 year old male
- altered sensorium
- abd. distension
- slow mentation
- inattention
- word finding prob.
- agitation
- hallucinations
- delusions
- constipation
- edema
- no abd. Surgeries
- loratadine
- printing press work
- fam hx depression
- drowsy
- not oriented
- exam as noted
Next Steps

- TSH = 76.52 μIU/mL
- FT4 = 0.1 ng/dL
- FT3 = 0.42 ng/dL

Now what do you want?

- Thyroid CT
- Uptake Scan
- Anti-TPO antibodies
- Thyroid Binding Globulin
- TRH Test
- Thyroid Biopsy

To Secondary Tests
To Answer

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Next Steps

Nope.

To Thyroid Tests
To Answer

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Next Steps

Blood Anti-TPO antibodies = 580 units/mL (normal: <60 units/mL)

CSF Anti-TPO antibodies positive

To Thyroid Tests
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Mental status changes, constipation, bradycardia, madarosis, xerosis, delayed reflexes due to:

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Hashimoto encephalopathy with gut pseudo-obstruction
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Hashimoto's Encephalopathy

• Lord Brain described Hashimoto’s encephalopathy (HE) in a patient with Hashimoto’s thyroiditis as characterized by cloudiness of consciousness, tremors, cognitive loss and stroke-like episodes (1966)

Hashimoto’s Encephalopathy

- Also known as:
  - myxedema madness
  - encephalopathy associated with autoimmune thyroid disease
  - steroid responsive encephalopathy associated with autoimmune thyroiditis

Hashimoto's Encephalopathy

- Controversial diagnosis – not everyone believes in it

- most often characterized by a subacute onset of confusion with altered level of consciousness, seizures, and myoclonus

- believed to be an immune-mediated disorder rather than representing the direct effect of an altered thyroid state on the central nervous system
Hashimoto's Encephalopathy

- bulk of evidence points to an autoimmune vasculitis or other inflammatory process, perhaps associated with immune complex deposition, and possibly disrupting the cerebral microvasculature
- nature of the relationship between Hashimoto thyroiditis (HT) and HE is unclear
  - Some argue that the association is entirely spurious
- symptoms of HE are not paralleled by symptoms of thyroiditis. In addition, changes in antithyroid autoantibody levels do not consistently correspond with neurologic symptoms or improvement with treatment.
Hashimoto's Encephalopathy

- These findings lead some to propose that steroid-responsive encephalopathy associated with autoimmune thyroiditis (SREAT) is a more appropriate designation for this disorder.
Hashimoto’s Encephalopathy

Any disease associated with a syndrome of delirium or rapidly progressive dementia may be confused with Hashimoto encephalopathy (HE). These include:

- Creutzfeldt-Jakob disease
- Acute disseminated encephalomyelitis
- Toxic metabolic encephalopathies (table 1)
- Meningoencephalitis
- Psychiatric disease (depression, anxiety, psychosis)
- Carcinomatous meningitis
- Paraneoplastic or autoimmune encephalitis
- Degenerative dementia (Alzheimer disease, dementia with Lewy bodies, frontotemporal dementia)
- Stroke or transient ischemic attack
- Basilar or hemiplegic migraine
- Cerebral vasculitis
Hashimoto’s Encephalopathy

Take Home Points

1. It is rare
2. It is an autoimmune disorder, and not due to the thyroiditis
3. Presence of elevated antithyroid antibody titres and the exclusion of other causes of encephalopathy support the diagnosis of HE.
4. If you suspect the diagnosis, steroids are in order
5. With proper treatment most recover
The Patient

- He received hydrocortisone – improved almost immediately
- He started levothyroxine on day 2
- His abdominal symptoms took 1 month to resolve
- After 6 weeks of steroids his MMSE was 28/30