Stump the Professor

ACP MONTANA CHAPTER SCIENTIFIC MEETING
SEPTEMBER 30 2017
Stump the Professor

- Disclosures: none
The patient is a 30 y.o. male with no significant medical history who presents with expressive aphasia.

Per his wife, the patient had been complaining of stomach pains, cramping and diarrhea starting the evening before admission.

He also reported a headache, which he had been experiencing on and off for one week.
At 3:30 AM on the day of admission, he was trying to communicate with his wife. She states that he "wasn't making any sense, he started counting numbers back from 10." She was concerned and called his parents to bring him into the ED.

Since arriving in the emergency department, she states he has not been able to say her name, which he could do previously. She also notes a decline in his balance, saying that he was able to walk to the truck to come to the ED but doesn't not appear as steady now.
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- Temp: 37 °C (98.6 °F)  BP: 152/71 mmHg  Pulse: 81 Resp: 20 SpO2: 100%
on room air
- CONSTITUTIONAL: Pale, ill-appearing young man, stuporous, opens eyes to voice with multiple commands, when eyes open does not localize to voice or movement
- SKIN: No obvious rash, abrasion, or lacerations
- NEURO: Moves all four limbs spontaneously, although unable to follow commands for additional testing, patient unable to participate with cranial nerve testing. Reflexes 2+ in BLE, 1+ BUE. Babinski sign downgoing b/l. Patient unable to participate in sensory or cerebellar testing.
WBC 6.6  4.0-11.0 K/uL
Hgb 16.2  13.7-16.7 g/dL
Platelets 194  150-400 K/uL
CT angio head and neck negative

BILIRUBIN TOTAL 0.30  0.1-1.5 mg/dL
Total protein 7.8  6.3-8.0 g/dL
ALBUMIN 4.13  5.5-5.0 g/dL
AST 13  5-40 U/L
ALT 23  6-50 U/L
ALK PHOS 77  38-110 U/L
GLOBULIN 3.7 (H)  2.3-3.6 g/dL
COLOR CSF Colorless
CSF Color, Supernatant Colorless
CSF Appearance Clear
RBC CSF 1 cells/µL
NUCLEATED CELLS CSF 151 (HH)
CSF Lymphocytes % 96%
CSF Macro/Mono % 4%
Started on Ceftriaxone, Doxycyclin, Acyclovir
Rapid resolution of aphasia
MRI of brain normal
Additional history revealed no sick contact, no obvious tick bite, no recent travel outside of Montana, no animal contacts except for the family dog, no fresh water exposure
Patient just restarted work after staying at home with his wife and their newborn child
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1. Norovirus
2. West Nile
3. HSV 1/2 meningoencephalitis
4. RMSF
5. Neurosyphilis
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1. Norovirus: PCR negative
2. West Nile: CSF IgG and IgM, NAAT negative
3. HSV 1/2 meningoencephalitis: PCR negative
4. RMSF: Serology negative
5. Neurosyphilis: CSF VDRL negative/ RPR negative
“Abnormal EEG characterized by mild diffuse slowing of the background consistent with a mild diffuse encephalopathy. In addition there was at times focal slowing over the left temporal lobe as well as the left hemisphere which could indicate an underlying structural or functional lesion. No epileptiform features seen. No seizures were recorded. Both clinical and radiographic correlation is recommended”

Repeat LP shows increased white cell count, with neutrophil predominance, but patient is clinically much improved

Patient discharged home to finish 2-3 weeks of acyclovir
2 weeks later, while on acyclovir, the patient developed a progressive headache, which was bifrontal, throbbing, associated with photophobia, with subsequent development of intractable nausea and vomiting. Headache did not respond to Fioricet and oxycodone. He also developed entire right sided numbness, but there was no aphasia at this time. No fever or chills. No chest pain, shortness of breath, palpitation, diarrhea, muscle aches, joint aches. No vision changes.
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- **Temp:** 36.6 °C (97.9 °F)  
  **BP:** (!) 155/92 mmHg  
  **Pulse:** 74  
  **Resp:** 18  
  **SpO2:** 100 % on 2 liters

- **CONSTITUTIONAL:** VS as above. severe distress, looking severely ill.

- **EYES:** Conjunctiva noninjected. Pupils equal/round.

- **SKIN:** Warm, no rash.

- **NEURO:** strength intact. Extra movements intact. No sensory deficit to light touch.

- **PSYCHIATRIC:** Awake, alert and oriented to person, place and time.
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- Basic labs normal
- Repeat MRI of the brain normal

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<td>CSF Lymphocytes %</td>
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1. HSV 2 meningitis (Mollaret meningitis)
2. RMSF
3. Cryptococcal meningitis
4. Tuberculosis
5. Something else?
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- Syndrome of transient headache and neurologic deficits with cerebrospinal fluid lymphocytosis (HaNDL)

- **Diagnostic criteria** — In the International Classification of Headache Disorders, 3d edition (ICHD-3), HaNDL is classified as a "Headache attributed to noninfectious inflammatory disease" [30]. The diagnostic criteria are:
  - **A)** Episodes of migraine-like headache fulfilling criteria B and C
  - **B)** Both of the following:
    - Accompanied or shortly preceded by the onset of at least one of the following transient neurologic deficits lasting >4 hours:
      - Hemiparesthesia/ Dysphasia/ Hemiparesis
    - Associated with cerebrospinal fluid (CSF) lymphocytic pleocytosis (>15 white cells/ml), with negative etiologic studies
  - **C)** Evidence of causation demonstrated by either or both of the following:
    - Headache and transient neurologic deficits have developed or significantly worsened in temporal relation to the CSF lymphocytic pleocytosis, or led to its discovery
    - Headache and transient neurologic deficits have significantly improved in parallel with improvement in the CSF lymphocytic pleocytosis
  - **D)** Not better accounted for by another ICHD-3 diagnosis
The patient is a 89 y.o. male with history of chronic kidney disease, bilateral hip replacements, previous history of right hip joint infection on chronic suppressive antibiotics (amoxicillin), hypothyroidism, BPH who presents with headaches, nausea, vomiting, generalized weakness. Patient also sleeping more than usual.
Symptoms started about a week prior to admission.

The patient and his wife live in Boston, but spend the summer in their house in Sula, MT.

Patient complaining of hip pain. Patient seen in the emergency room on the day prior to admission. Imaging study showing a fluid collection around the chronically infected hip, fluid aspirated, looking benign. Treated symptomatically for pain and nausea.

Due to worsening symptom, patient comes back to the emergency room.
Additionally, the patient reports that his highest measured temperature this week has been 99.6. He denies any chest pain or shortness of breath, denies dyspnea on exertion, orthopnea, PND. He denies abdominal pain and constipation. Patient reports that he chronically has soft stools but denies change in his bowel habits recently. He denies any dysuria. He reports having a weak urinary stream and having trouble with incomplete bladder emptying at times. He reports some lower extremity cramps which are chronic and actually improved recently. He denies any other joint pains or rashes. He denies any neck stiffness or soreness. Denies cough
Other findings from his past medical history include chronic bilateral neuropathic leg pain for which he has received 2 epidurals, the most recent of which was about 6 weeks ago. Patient denies any back pain and says that his leg pain is better than it's been a long time. His wife reports that in January or February he had an episode of double vision and had an MRI at Marcus Daly hospital for possible TIA which was normal. Patient also had a tick embedded in the skin in May while he was on the East Coast and received 3 weeks of doxycycline. He did not have any fever, rash, or joint pains that episode.
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- Temp: 37 °C (98.6 °F)  BP: 113/62
- Pulse: 81  Resp: 16  SpO2: 90
- % on room air

- Physical exam reveals a frail elderly gentleman, physical exam otherwise unremarkable.
- CMP, urinalysis, chest x-ray, head CT unremarkable
- Patient admitted for symptomatic treatment and hydration.

- WBC 7.7  4.0 - 11.0 K/μL
- Hgb 14.2  13.7 - 16.7 g/dL
- MCV 104.8 (H)  80.0 - 100.0 fL
- MCH 35.2 (H)  27.0 - 34.0 pg
- Platelet Count 139(L)150-400 K/μL
- % Neutrophils 82.7(H)38.0 - 78.0 %
- % Lymphocytes 6.1 (L)21.0 - 49.0 %
Patient overall stable the next day, MRI of brain ordered.

No intracranial hemorrhage identified.

2. There is elevated FLAIR signal in the symmetric extra-axial fluid (which may have slightly increased in volume since 7/21/2017). This suggest proteinaceous CSF. In addition, there is a suggestion of some asymmetric pachymeningeal enhancement without associated leptomeningeal enhancement. Differential diagnosis includes meningitis and intracranial hypotension.

3. Probable microangiopathy in the white matter.
After the lumbar puncture, patient feeling better, with less confusion, and improved headache.

Preliminary CSF cytology compatible with CNS lymphoma
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1. CNS Lyme
2. Cryptococcus
3. CNS lymphoma
4. Tuberculosis
5. Viral meningoencephalitis
Patient started empirically on ceftriaxone in the afternoon

Patient worse the following day in the morning, with increased confusion and headache

Empiric acyclovir added

Patient improves again in the afternoon, and the next day, test results start to come back....
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1. CNS Lyme: Antibody negative
2. Cryptococcus: Antigen negative
3. CNS lymphoma: Immunostains negative
4. Tuberculosis: AFB stain negative
5. Viral meningoencephalitis: PCR for HSV-2 positive
6. Exserohilum spp: Culture negative
The patient is a 67 y.o. male who underwent aortic valve replacement due to severe aortic stenosis 2 months prior to admission with a 29 mm pericardial Edwards Magna Ease valve. A Talon device was used for sternal closure. A PFO was closed as well. The procedure was complicated by mediastinal bleeding requiring redo sternotomy later that day. Patient discharged at day 9, with slow recovery, and a significant weight loss.
3 weeks prior to admission, he began deteriorating with progressive weakness, malaise and low energy. He was dizzy when he stood up. He got so weak he was having some urinary incontinence. He also noted progressive swelling in his bilateral lower extremities. One prior to admission, he began having significant fevers and some sweats. Appetite has been very poor. He has been sleeping most of the day.
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**Past Medical History**

- Hypertension
- Asthma
- Aortic stenosis
- Chronic pain
- Bilateral primary osteoarthritis of knee
- Bilateral ankle pain
- Alcohol abuse
- COPD (chronic obstructive pulmonary disease) (HCC)
- Ascending aortic aneurysm (HCC)
- Hypothyroidism
- Pre-diabetes
- Carotid artery plaque, bilateral
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- Temp: 37 °C (98.6 °F)  
  BP: 137/75 mmHg  
  Pulse: 74  
  Resp: 26  
  SpO2: 95 % on liters via room air

- CONSTITUTIONAL: VS as above. Talkative with pressured speech, but can reign it in when reminded


- Mucous membranes moist.

- NECK: No lymphadenopathy. Full range of motion.

- RESPIRATORY: Normal effort, lungs clear to auscultation bilaterally.

- CV: Regular rate and rhythm with mech S1/S2, no gallop

- ABDOMEN: Positive bowel sounds. Nontender, no palpable masses. Moderately distended on top of some rounded obesity

- MSK/EXTREMITIES: 1+ edema up to below knee

- SKIN: No rash; warm and well perfused.

- NEURO: Moves all four extremities equally.

- PSYCHIATRIC: Awake, alert and oriented to person, place and time.
WBC  5.3  
RBC  4.39  
Hgb  12.1 (L)  
Hct 35.7 (L)  
MCV  81.4  
MCH  27.5  
MCHC  33.8  
RDW-CV  15.6 (H)  
Platelet Count  223

NA  125 (L)  
K  4.0  
CL  93 (L)  
GLUCOSE  102 (H)  
BILIRUBIN TOTAL  1.2  0.1-1.5 mg/dL  
Total protein  6.8  6.3-8.0 g/dL  
ALBUMIN  3.3 (L)  3.5-5.0 g/dL  
AST  34  5-40 U/L  
ALT  29  6-50 U/L  
ALK PHOS  166 (H)  38-110 U/L  
GLOBULIN  3.5  2.3-3.6 g/dL  
Bilirubin, Direct  0.42 (H)  0.00-0.36 mg/dL
He was admitted due to intermittent fevers, progressive weakness and overall deterioration. Labs noted for some moderate hyponatremia and mild elevation of alkaline phosphatase. Evaluation included an ultrasound of the abdomen which showed some mild intrahepatic biliary ductal dilatation. Mild splenomegaly noted. No focal lesions. MRCP was performed which continue to show some intrahepatic and extrahepatic ductal prominence. No definite inflammation on the gallbladder. Limited exam due to motion.
The micro lab calls in the morning of the fourth day, one of the anaerobic blood culture is growing a beaded gram-positive rod
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1. Nocardia
2. Mycobacteria
3. Actinomycosis
4. Corynebacterium
5. Rhodococcus
The micro lab then performs an acid-fast test, which is strongly positive.
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1. Nocardia
2. Mycobacteria
3. Actinomycosis
4. Corynebacterium
5. Rhodococcus
Eventually, both anaerobic culture from admission as well as repeat blood cultures obtained on day 3 of growing gram-positive rods, described as branched on repeat blood cultures

Organisms are also strongly AFB positive
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1. Mycobacterium Chimaera
2. Mycobacterium Chelonae
3. Mycobacterium Fortuitum
4. Mycobacterium Abscessus
5. Mycobacterium Neoaurum
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The patient is a 33 y.o. male with no medical history/no chronic medical problems who has been transiently exploring the northwest states since quitting his job in Taos, NM over a year ago. He reports that he has been camping in the Missoula area since arriving here in mid June (he had been to Oregon, Washington and Idaho prior to arriving here.)
He developed some leg cramping on about one week prior to admission, and figured he just needed to drink more water, but then he developed a non pruritic rash on his lower extremities bilaterally. The leg cramping/pain got worse to the point that it hurt to walk. He reports his leg pain "feels like a balloon is blowing up in my calves, then it cramps to the point that I can't move my feet." He has had some chills during the week intermittently and has had some nausea and some brief sharp abdominal pain and a brief episode of diarrhea. He denies any sore throat, chest pain, SOB, dysuria (his urine has been "a little dark but not bad"), blood in his urine or stool or any genital discharge or genital lesions.
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His last episode of unprotected sex was 6 weeks prior to admission (but reports his sex partner denied having any STI's or symptoms.) He reports he has had chlamydia in the distant past, but was treated (and then re-tested) for it. He was seen in our ER in July for "hand sores" which he reports he took the antibiotics for that (no other meds/O TC's/supplements), but has continued to have intermittent blistering sores on his hands bilaterally, mostly over his knuckles/dorsal joints on his hand (he has some scattered scabs, but no current blistering lesions on his hands.)
He reports he was camping down by the river when the hand sores occurred and he wasn't sure if it could be related to some organism in the water or spider or what, so he moved "further inland". He denies feeling any subjective fevers, but has been intermittently lightheaded. He denies any family history of autoimmune problems, skin problems or other medical problems (his one sister has hepatitis from drug use, but he denies ever using IV drugs.) He also worked on a roofing job for a few days.
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- Temp: 37.6 °C (99.7 °F) BP: 120/75 Pulse: 87 Resp: 16 SpO2: 96 % on liters via room air
- HEENT: EOMI, no scleral icterus
- NECK: No lymphadenopathy (anterior/posterior cervical chain, pre or post auricular area, bilateral axillae and bilateral inguinal area.) Full range of motion.
- ABDOMEN: Soft, no guarding, denies tenderness to palpation
- MSK/EXTREMITIES: 1+ edema in lower ext bilaterally; moves all ext spontaneously
- SKIN: Small (1-2 mm) circular, blanching macular lesions on lower ext bilaterally and some on upper ext, but none on trunk (I did not inspect his genitalia, but did inspect his inguinal areas when I checked lymph nodes; no rash seen);
- NEURO: No focal deficits; speech is articulate, face is symmetric, moves all ext spontaneously (gait not tested)
- PSYCHIATRIC: alert, appears oriented (not formally tested, but interacts appropriately), cooperative with exam, normal/appropriate affect
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- WBC 12.2 (H)
- Hgb 15.8
- MCV 98.2 80.0 - 100.0 fL
- MCH 35.0 (H) 27.0 - 34.0 pg
- MCHC 35.6 (H) 32.0 - 35.5 g/dL
- Platelet Count 280 150 - 400 K/uL
- % Neutrophils 81.8 (H)
- % Lymphocytes 4.7 (L)
- % Monocytes 11.8 (H)
- INR 1.11 0.90 - 1.20

- NA 135 135 - 145 mmol/L
- K 3.6 3.5 - 5.0 mmol/L
- CL 102 98 - 109 mmol/L
- CO2 25 22 - 31 mmol/L
- BILIRUBIN TOTAL 0.6 0.1 - 1.5 mg/dL
- Total protein 8.0 6.3 - 8.0 g/dL
- AST 21 5 - 40 U/L
- ALT 17 6 - 50 U/L
- ALK PHOS 123 (H) 38 - 110 U/L
- GLOBULIN 5.2 (H) 2.3 - 3.6 g/dL
- CK TOTAL 29
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1. Acute HIV infection
2. Rheumatic fever
3. Disseminated gonococccemia
4. RMSF
5. Secondary syphilis
6. Adult’s Still disease
7. Lupus
8. Henoch Schoenlein Purpura
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1. Acute HIV infection: Antibody and viral load negative
2. Rheumatic fever: ASO titer negative
3. Disseminated gonococcemia: blood culture and NAAT negative
4. RMSF: serology negative
5. Secondary syphilis: RPR negative
6. Adult’s Still disease: normal ferritin
7. Lupus: ANA and ANCA negative
8. Henoch Schoenlein Purpura: skin biopsy showing urticaria
On day 7, patient developed acute scrotal pain

Scrotal ultrasound suggestive of epididymitis

Repeat gonorrhea testing and repeat blood culture obtained, patient started on ceftriaxone

Patient much improved within 48 hours, discharged on a prednisone taper and PO Ceftin and Doxycyclin

A week after discharge, a test results comes back...
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- Patient treated symptomatically only initially
- A first skin biopsy was obtained in hospital
- A second biopsy was obtained on day 4 during the visit with the dermatologist
- After the second skin biopsy was obtained, patient was started on prednisone 40 mg by mouth daily
- Minimal improvement in the patient’s symptoms
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**Specimen(s):**
- Left arm (volar side) skin, punch, perilesional, non sun exposed

**Clinical/Diagnostic Information:**
Rule out vasculitis versus Henoch Schönlein purpura/IgA vasculitis or dermatomyositis.

**Diagnostic Interpretation**
Positive findings by direct immunofluorescence

(See Results and Comments)

**Results**
- **IgG:** Small focus linear basement membrane zone
  - IgG4: Negative
- **IgM:** Negative
- **IgA:** Focal grains superficial blood vessels
- **C3:** Focal grains superficial blood vessels and focal grains basement membrane zone
- **Fibrinogen:** Diffuse superficial vessels and grains superficial connective tissue fibers

**Comments**
There are several small vessels with granular IgA. This supports a diagnosis of IgA vasculitis. I would suggest correlation with histopathological examination of formalin-fixed tissue.
The patient is a 73 y.o. female who presented with right knee pain and swelling for several weeks.

By her report, she had been getting injections in the right knee for treatment of her osteoarthritis (Biocellular Regenerative Medicine). She had developed some pain and swelling and had been treated with both Bactrim and clindamycin without improvement.

She also spends a lot of time outdoors in her garden.
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- MRI of the knee showed a meniscal tear and a joint effusion.
- She then presented to another facility with worsening pain and swelling of the right knee, with 2 areas of fluctuance. She underwent an aspiration of the knee, and was initially treated at that point with Augmentin and Levaquin.
- She was eventually admitted to St. Patrick hospital for surgical wash-out of her knee.
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- Past Medical and Surgical History
- Hysterectomy 1967
- Joint replacement (Left hip) 2011
- Breast reduction surgery 1/16
- Anxiety
- Depression
- Osteoporosis
- Osteoarthritis
Physical Examination:

- BP 123/76 mmHg | Pulse 88 | Temp (Src) 36.6 °C (97.9 °F) | Resp 14 |
- CONSTITUTIONAL: VS as above. No acute distress.
- NECK: No lymphadenopathy, full range of motion.
- RESPIRATORY: Normal effort, lungs clear to auscultation bilaterally.
- CV: RRR, No murmurs/rubs/gallops
- GU: No CVA tenderness. No suprapubic tenderness
- MSK/EXTREMITIES: Right knee under dressing.
- SKIN: Warm, no rash.
- PSYCHIATRIC: Awake, alert and oriented to person, place and time.
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Culture from the other facility coming back with:

1. Aspergillus species
2. P. acnes
3. Rapid growing mycobacteria
4. Nocardia
5. Sporotrichosis
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► Culture from the other facility coming back with:

1. Aspergillus species
2. P. acnes
3. Rapid growing mycobacteria: \( M. abscessus \) (\( M. massiliense \))
4. Nocardia
5. Sporotrichosis
71-year-old lady, past medical history of rheumatoid arthritis (on Enbrel), diabetes mellitus

Developed progressive shortness of breath as well as right-sided chest pressure for several weeks

Desaturation on home oxygen monitoring

Associated with chills, occasional cough

Started empirically on antibiotics and prednisone as outpatient, without improvement
Patient hospitalized last year for atypical pneumonia

Bronchoscopy results do not reveal a cause

Treated empirically with antibiotics, with resolution of infiltrates
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- Hypoventilation on the right side of her chest
- WBC 9.600
- Hg 16.1
- Plt 296
- Creat 0.6
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Patient started on CAP protocol, with chest tube placement

No clear improvement over the next few days

Gram stain, fungal stain and AFB stain negative
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1. Malignant effusion
2. Tuberculosis
3. Aspergillus empyema
4. Bacterial empyema
5. Rheumatoid effusion
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1. Breast cancer
2. Ovarian cancer
3. Mesothelioma
4. Lung cancer
5. Lymphoma