Case 1
History
A 20-year-old male college student was found by his roommates in his dorm room in bed complaining of headache, nausea, and light bothering his eyes. When the patient started vomiting and appeared confused, his roommates brought him to the emergency department. On presentation his temperature was 40.1°C. He was somnolent, but reacted to painful stimuli. He had nuchal rigidity.

Case 1
Funduscopic exam is performed
What is the abnormality? Contrast to normal.

Patient

Normal
Case 1

Develop a problem list.

Develop a differential diagnosis.

What diagnostic test(s) would you order?

Case 1

After further diagnostic tests, therapy was initiated. However, the patient’s mental status worsened over the next several hours. He required intubation and mechanical ventilation.

Case 1 Skin exam

Describe the findings.
Case 1

The patient’s condition continued to worsen. His mental status further deteriorated and he became hypotensive.
He died on hospital day #3 despite maximal attempts at resuscitation.
An autopsy was performed
Case 1

What is your diagnosis?

Correlate the pathologic findings with the findings you suspect were likely present on examination of the CSF.

What is/are the most likely etiologic agent(s) of this disease process in this patient?

---

Case 1

What pair of organs is depicted in the image? Describe the pathologic findings. How did this process most likely manifest clinically in this patient?
Case 1

Summarize the cause of death in this patient.

---

Case 2

The patient is a 64-year-old man who developed a headache 10 days prior to being seen in the office. He describes the headache as being mild and in the front of his head initially. The headache became more intense and generalized during the past week. He cannot relieve the pain.

His wife and son say that the patient has been confused at times and increasingly irritable this past week. They became alarmed several days ago when the patient developed weakness of his left arm and leg. He seems to be “dragging his left foot” and is clumsy. The patient angrily denies that there is any problem other than his headache.

Although he complains of some nausea he has not vomited. He has not felt dizzy or fainted. He has had no chills/fever. He denies having a stiff neck.

The patient is being treated for mild hypertension.

---

Case 2

PE: The patient is awake, alert, and in no apparent distress. He speaks coherently and is oriented to person, place and time. Vital signs are as follows: BP 152/86, apical heart rate 74/minute and regular, respiratory rate 16/minute, temperature 98.8°F.

Examination of the head and neck reveals normal symmetry and contour. The neck muscles are not spastic. The temporal arteries are not painful or palpable. The pupils are 3mm in diameter, round, equal and react to light and accommodation normally. The extra ocular muscles all function normally. Funduscopic exam shows mild blurring of the optic disks.

The lungs are clear to percussion and auscultation.

The cardiac sounds are soft but normal. Murmurs and extra sounds are not heard. The abdomen is not-distended, non-tender and without palpable masses. Rectal exam is normal.

The neurologic examination: Cranial nerves II through XII are intact. Examination of the motor system reveals grade 3/5 left sided muscle strength and grade 5/5 right-sided muscle strength. Fine movement of the left hand, but not the right is impaired. Examination of the sensory system is normal bilaterally. The deep tendon reflexes are 3+ on the left side and 2+ on the right side. The Babinski sign is positive on the left side.
Case 2
Summarize the main clinical problem

Develop a differential diagnosis.

Case 2
Correlate the findings on imaging with the gross pathology

Case 2
Describe the low power histologic findings. Is there any “normal” brain in this image?
Case 2
Describe the high power histologic findings.

Case 2
What is your diagnosis?

What is the approach to treatment and prognosis?

Case 2
Describe the gross pathology.
(specimen from another patient with same disease process)
Case 3

A 34 year-old man is presents for evaluation of progressive bilateral hearing loss. At times he also senses ringing in his ears.
Past medical history is significant for having tonic-clonic seizures, treated with phenytoin for a year.
On review of systems he notes that over the past several months he has felt intermittently unsteady on his feet.

Case 3

PE: The patient is alert and oriented, with normal cognitive function.
He has bilateral hearing loss and diminished visual acuity.
Few scattered skin lesions that resemble skin tags are present.
Audiometric evaluation reveals bilateral sensorineural hearing loss, more severe on the right.

Case 3

Summarize the patient’s problems.

Develop a differential diagnosis.
Case 3 Describe imaging findings

Case 3 Describe the corresponding gross findings

Case 3 – Describe the representative histologic findings

Both these images are taken from different sites of the same tumor
Case 3

What is your diagnosis?

Case 3 Describe additional imaging findings

Case 3 Describe representative corresponding gross findings
Case 3

Describe the histologic findings.

Case 3

What is your diagnosis?

Case 3

Is there a condition that may explain the co-existence of these neoplasms?

What additional clinical history would you obtain to confirm your suspicion? What laboratory test(s)?

Are there other lesions this patient is at risk of developing?
Case 4
A 62 year old man presents with 4-5 years of memory problems. His initial symptoms included forgetting things, such as where he placed his car keys. His daughter also recalls incidents such as him asking for ketchup for spaghetti instead of Parmesan cheese. Memory problems impaired his ability to work effectively resulting in early retirement 1 year ago. Recently he lost his way home from the local grocery store at which he shopped for many years.

Case 4
Some days he has gotten dressed putting his shirt on backwards. He has paid less attention to his hygiene, not wanting to shave or brush his teeth for several days. His wife has slowly taken over paying their bills since finding overdue notices and checks written out for wrong amounts. He has always been known as a kind and giving man but of late his family has found him to be more irritable and even self-centered.

Case 4
Summarize the patient’s symptoms.

What pathophysiological process is suggested by the time course of his symptoms?
Case 4

What additional information would you obtain from his history?

Case 4

Physical Exam:
BP 141/80, P 52, Wt 172#. Ht. 69 in.
General appearance showed psychomotor restlessness.
He displayed some difficulty with balance getting up from a chair.
His Mini-Mental Status Score was 18/30

Describe the components of the Folstein Mini-Mental Status Exam.

Case 4

Neurological exam

– Cranial nerves: decreased hearing
– Motor exam: bilateral upper and lower extremity strength is 5/5
– Sensory Exam: primary and cortical sensation intact
– Reflexes: deep tendon reflexes are slightly brisk
Case 4

The following tests were ordered. Why?

Vitamin B12 – 479 pg/ml (211-911 pg/ml)
TSH – 0.64 uIU/ml (0.35-4 uIU/ml)
RPR – Nonreactive

Case 4 - MRI

Interpret the findings of both images from this patient.

Case 4

What is your diagnostic impression based on the given data?
Case 4: Follow-up

- The patient continued to decline cognitively and functionally over next 5 years. His ambulation decreased and he became bedbound. He was hospitalized twice for aspiration pneumonia. He developed a large sacral decubitus ulcer. He lost his ability to verbally communicate.
- His family agreed that the goals of care were comfort and quality of life.
- He was enrolled in a home hospice program and died 5 months later.

Case 4

Why did the patient develop aspiration pneumonia?

What is a sacral decubitus ulcer? Why did it develop?

Describe the gross findings
Case 4 – Describe the gross findings

Case 4 – Describe the low power findings

Case 4
What is indicated by the arrow? What is it composed of? What is its significance?

Silver Stain
Case 4
What is indicated by the arrow? What is it composed of? What is its significance?

Case 4
Describe the blood vessels. What substance is most likely deposited in their walls?

Case 4
What stain is represented in slide A? What does slide B represent?
Case 4

The blood vessel findings may predispose patients to what potential complication (even if the patient does not have the disease process depicted in this case)?