

Transient ischemic attack

Reversible symptoms last less than 24 hours. Due to platelet thrombi or atheroemboli

Infarction stroke

85% of strokes. Can be thrombotic (atherosclerosis) white infarct or embolic (thromboemboli or atheroemboli) hemorrhagic infarct

Clinical features of medial cerebral artery stroke

Contralateral hemiparesis and sensory loss, aphasia if Broca area in the left hemisphere is involved, deviation of head and eyes toward side of lesion

Types of hemorrhagic strokes

Intraparenchymal, epidural, subdural, subarachnoid. Hemorrhagic strokes are 15% of all strokes

Causes of hemorrhagic stroke

Hypertension is MCC due to formation of microaneurysms that tend to rupture in basal ganglia or cerebellum. Arteriovenous malformations, amyloid, neoplasms, vasculitides

Clinical features of hemorrhagic stroke

Acut onset of severe headache, nausea, vomiting and coma

Epidural hemorrhage

Due to trauma and skull fracture with tear of middle meningeal dural artery. "Talk and die" syndrome. Leads to herniation if not promptly evacuated

Subarachnoid hemorrhage

MCC: ruptured berry aneurysm. Sudden thunderclap headache, nuchal rigidity, neurological deficits and coma

Berry aneurysms

Thin-walled saccular outpuchings consisting of intima and adventitia only. Cause of subarachnoid hemorrhage. Associated with Marfan, Ehlers-Danlos and adult polycystic kidney disease

Spina bifida occulta

Bony defect of vertebral arch

Meningocele

Bony defect with outpuching of the meninges

Meningomyelocele	Defective bony arch with outpuching of meninges, spinal cord and spinal roots. May lead to paraplegia and urinary incontinence
Myelocele	Defective bony arch with complete exposure of spinal cord. May lead to paraplegia and urinary incontinence
Multiple sclerosis	Chronic relapsing-remitting episodes of demyelination in brain and spinal cord with progressive neurological deficits. Blurred vision or loss of vision, diplopia and vertigo, loss of sensation or weakness in one leg, hemiparesis. TH1 cytokines (IF-g, TNF) facilitate attack; TH2 cytokines (IL-4, IL-10) retard attack.
Parkinson disease clinical features	Loss of dopaminergic neurons in the substantia nigra. Resting tremor, rigidity and akinesia, expressionless face. Rx.: levodopa
Microscopic features of Parkinson disease	Lewy bodies: intracytoplasmic round eosinophilic inclusions tha contain alpha-synuclein; EM shows filaments of cytoskeletal origin

Huntington disease clinical features	Degeneration of GABAnergic neurons of caudate nucleus. Choreia, dementia btween ages 20-40. Triplet repeat CAG and features of genetic anticipation and imprinting
Clinical features of Alzheimer disease	MCC of dementia. Insidious inset of memory impariment, alterations in mood and behavior, aphasia and apraxia
Microscopic features of Alzheimer disease	Amyloid precursor protein (APP gene) on chromosome 21 (Down syndrome). AB amyloid from the APP protein. Senile plaques: AB amyloid tangled with neuritic processes, microglia and astrocytes. Neurfibrillary tangles: intraneuronal aggregates of paired helical filaments protein.
Intracellular and extracellular edema	Hypoxia - vasodilation and Na/K atpase malfunctioning
ICP sign	Papilledema, headache projective vomitting WITHOUT NAUSEA sinus bradycardia hypertension herniation
psuedotumor cerebri	CSF preassure over 2x lowered protein -from decreased reabsorption, vit A overdose

Uncal Herniation

Ipsilateral CNIII  
Contralateral Peduncle -  
> Ipsilateral hemiparesis  
Ipsilateral PCA -> Contralateral  
hemiparesis  
Possible duresis -> decorticate  
DDX- tonsillar hemorrhage - out  
the foramen magnum ->  
cardiorespiratory arrest

CSF character

Low protein and glucose, no  
cells, high CL-

Noncommunicating  
Hydrocephalus

Aqueduct of Sylvius stricture  
MCC in infants - have SC  
compression -> paralysis of  
upward gaze aka Parinaud  
(SC, CNIII EW damage)  
-Tb base of the brain scarring  
-ependymoma or  
medulloblastoma  
Ddx hydro ex vacuo - from  
dementia when brain mass  
decrease increases ventricle

Arnold Chiari

Caudal extension of medulla  
and cerebellar vermis through  
foramen magnum -> noncomm  
hydro, platybasia,  
meningomyelocele,  
syringomyelia

Dandy Walker	<p>Foramen M and L often closed</p> <p>hypoplasia of cerebellar vermis</p> <p>Cystic dilation of 4th ventricle</p> <p>Noncommunicating hydrocephalus</p>
Syringomyelia	<p>Capelike loss of pain and Temp</p> <p>Associated with A-C malformation</p> <p>Hx: burn without noticing, or confusion with ALS due to atrophy of hand muscles</p>
Huntington Disease	<p>Atrophy of caudate putamen</p> <p>GP-loss of GABA -&gt;Excitotoxic</p>
Friedrich's ataxia	<p>Cerebellum -ataxic gait</p> <p>posterior and lateral columns of spinal cord - diminish joint sensation, spasticity</p> <p>Peripheral neuropathy</p> <p>Hypertrophic cardiomyopathy*****and kyphoscoliosis</p> <p>FRataxin</p>
ALS	<p>familial - bad SOD1 -&gt; free radical injury of neurons</p> <p>spastic, weakness and atrophy</p> <p>eventually paralyze respiratory muscles</p>
Wernicke-Korsakow disease	<p>LMN disorder called SMA in children</p> <p>"floppy baby"</p>

Sx of AIP	Neuro dysfunction - acute abdomen Surgical abdomen looking - bellyful of scars Psychosis neuropathy dementia
W-K	hemorrhage and hemosiderin at mamillary bodies, neuronal loss gliosis Wernicke - confusion ataxia vertical nystagmus, ophthalmoplegia Korsakoff - limbic system target- antero and retrograde amnesia
Brain tumor	Adult - supratentorial-GBM meningioma Ependymoma schwannoma Children - Cystic cerebellar astrocytoma medulloblastoma (both these two in cerebellum) brainstem glioma -vascularization effect grade RF - tumor, NF, cigarette
GBM	white matter location - florid necrosis, pseudopalisading snake like appearance- seed the neuraxis via CSF but rarely outside -often de novo can be differentiation of low grade - butterfly glioma GFAP positive

Menigioma	NF association, arachnoidal origin, deltion of C22 (NF2 gene without NF)** -only benign psammoma (also in ovarian and thyroid)
Ependyomoma	4th ventirle kids or cadua equina in adults Perivascular psuedorosstes with proceses
Medulloblastoma	small cell pnet tumor -external granular cell layer of cerebellum in the midline- seeds neuraxis thus FOURTH VENTRICL DDX
Oligodendroglioma	Frontal lobe with calcifiction fried egg look slow grower
CNS lymphoma	B cell NHL AIDS and EBV
Metastasis of the brain	MCC - well circubumscribed -lungs, breast melanoma - grey white junction
Hemangioblastoma	VON HIPPEL LINDAU ASSOCIATION -EPO foamy cell with high vascularity also in spine and retina-> vision loss common***



Peripheral Neuroathy	MCC diabetes also diphtheriae, heavy metals, amyloid, isoniazid, vincristine, hydralazine
Charcot Marie Tooth	Most common hereditary neuropathy, autosomal dominant -peroneal nerve atrophy - lower leg muscle atrophy - inverted bottle appearance- CANT DORSIFLEX
Guillain Barre	MC acute peripheral -mycoplasma, campylobacter precede it -ascending motor weakness high CSF protein normal cells - -> oligoclonal bands Rx plasmapheresis
Unilateral facial paralysis	Bell's palsy - HIV sarcoid or LYME - Lyme can cause bilateral***
Scwannoma	NF association- cerebellopontine angle C-100 positive since neural crest associated*** CNV changes due to impingement, tinnitus and enlarged meatus -zebra pattern with Antoni A and B alternating

Meniere Disease

Endolymph increase in inner ear -> loss of cochlea - dizziness vertigo spells Weber lateralize but rhine normal since bone and air equal reduction

Osteosclerosis

Fusion of middle ear ossicles- conduction deafness in elderly MCC...lateralize and bone > air

Perbyscusis - cohclera hair degeneration mCC of sensorinueal deafness in elderly

Otitis medica

MCCC of conduction deafness in children - SPneumoniae, F flu, moraxella  
External otitis - outer ear canal -psuedomona staph aspergillus  
Malignant - DM

Ophatlmia neonatorum

Neisseria first wek chlymidia second

Orbital Cellulitis

S, pneumona or H flu - secondary to sinusitis - proptosis, periorbital swelling, ophthalmoplegia, normal retinal exam

Glaucoma open vs closed	Open - decrease rate of outflow from schlemm, pathological CUPPING of disc, night blindness and tunnel vision Acute closed - uveitis, maybe from a mydriatic agent, lens displacement - PUPIL FIXED and nonreactive
uveitis	SARCOID, ulcerative colitis, ankylosing spondylitis - uveal tract (iris ciliary body choroid) pain blurry vision miosis pupil, adhesions, normal pressure
Macular Degeneration	Permanent visual loss in elderly
Cotton wool exudates	CMV retinitis - ganciclovir or foscarnet
Cataracts	Opacity in lens - advanced age, diabetes, RUBELLA CMV, corticosteroids
Tumor of the eye	RB or melanoma

A patient with head trauma is purposely hyperventilated b/c

To produce respiratory alkalosis, causes cerebral vessel constriction which decreases the risk of vessel permeability

Acidosis; hypoxemia cause vasodilation of cerebral vessels which increase permeability

Clinical signs of Cerebral Edema

1. Papilledema
2. Headache with projectile vomiting; NO NAUSEA
3. Sinus Bradycardia, hypertension
4. Possible Herniation

Absence of tumor and obstruction of CSF with ICP

Pseudotumor Cerebri

Uncal herniation compresses

Oculomotor nerve, CNIII

Cingulate gyrus herniates thru falx cerebri. Herniation?

Subfalcine herniation

Subfalcine herniation compresses ????? and pt presents with ????

ACA  
Headache and contralateral leg weakness

Medial portion of temporal herniates thru tentorium cerebelli	Uncal herniation
Down and out eye; mydriasis; midbrain hemorrhage;contralateral hemiplegia	Uncal/Transtentorial Herniation
A bioconvex,or lentiform, shape under MRI	Epidural Bleed
Possible complications of Uncal Herniation	<ol style="list-style-type: none"><li>1. Compression of Midbrain</li><li>2. Compression of CNIII</li><li>3. Compression of PCA</li></ol>
Subfalcine herniation compresses ????? and pt presents with ????	ACA Headache and contralateral leg weakness
Medial portion of temporal herniates thru tentorium cerebelli	Uncal herniation
Down and out eye; mydriasis; midbrain hemorrhage;contralateral hemiplegia	Uncal/Transtentorial Herniation

A bioconvex,or lentiform, shape under MRI	Epidural Bleed
Possible complications of Uncal Herniation	1. Compression of Midbrain 2. Compression of CNIII 3. Compression of PCA
Herniation: Produces Duret's hemorrhage	Uncal herniation  Duret's hemorrhage = hemorrhage into the midbrain and pontine tegmentum usually fatal
Cerebellar tonsils herniate thru foramen magnum	Tonsillar herniation;
Herniation: Produces CV arrest and obtundation and death	Tonsillar herniation
CSF produced by	Choroid plexus from ependymal cells
CSF flow	Lateral Vent to foramen Monro to 3rd ventricle to aqueduct of Sylvius to fourth vent to foramina of Magendie and Luschka

CSF is reabsorbed by	Arachnoid granulations into dural venus sinus;
Open communicating between ventricles and subarachnoid space	Communicating hydrocephalus
Causes of Communicating hydrocephalus	<ol style="list-style-type: none"> <li>1. Increased CSF production; eg Choroid plexus tumor</li> <li>2. Obstruction of reabsorption by arachnoid granulations eg Postmeningitic scarring or tumor</li> </ol>
Obstruction of CSF flow out of ventricles	Noncommunicating, obstructive, hydrocephalus
Causes of Non-Communicating Hydrocephalus	<ol style="list-style-type: none"> <li>1. Stricture of aqueduct of Sylvius</li> <li>2. Tumor in fourth vent</li> <li>3. Scarring at base of brain</li> <li>4. Colloid cyst</li> <li>5. Development disorders</li> </ol>
The most common cause of hydrocephalus in newborns	Blockage of Sylvius aqueduct

Perinauds syndrome	Paralysis of upward gaze; Stricture of aqueduct of Sylvius
Clinical findings for Noncommunicating hydrocephalus in newborns	Ventricles dilate Enlarged head circumference
Clinical finding for Noncommunicating Hydrocephalus in ADULTS	Progressive dementia Wide-based gait Urinary Incontinence
Hydrocephalus Ex Vacuo	Alzheimer disease Dilated ventricles and decrease brain mass
Frog-like appearance and maternal polyhydraminos	Aencephaly
Defect in closure of posterior vertebral arch with dimple or tuft of hair of L5-S1	Spina bifida occulta
Spina bifida and cystic mass containing meninges in lumbosacral region	Menigocele



<p>Spina bifida and cystic mass containing meninges and spinal cord in lumbosacral region</p>	<p>Meningomyelocele</p>
<p>Hypoplasia of cerebellar vermis Cystic dilation of 4th vent Non-communicating hydro</p>	<p>Dandy-Walker Malformation</p>
<p>Caudal extension of medulla and cerebellar vermis thru foramen mag</p> <p>Platybasia( Flattening of skull base)</p> <p>Meningomyelocele, Syringomyelia</p>	<p>Arnold-Chiari Malformation</p>
<p>Associated with Arnold-Chiari malformation</p>	<p>Syringomyelia</p>
<p>Decrease pain and temperature in hands; atrophy of intrinsic muscles of hands</p>	<p>Syringomyelia</p>
<p>Degenerative disease of spinal cord via fluid filled cavity in spinal cord</p>	<p>Syringomyelia</p> <p>Syrinx= fluid filled cavity Myelia = spinal cord</p>

Autosomal dominant disorder Mental retardation and seizures; hamartomas in brain; and kidneys	Tuberous Sclerosis
"Ash leaf" lesions, hypopigmented skin	Tuberous Sclerosis
Best way to identify skin lesions of tuberous sclerosis	Wood's Lamp
"candlestick drippings" in ventricles	Tuberous Sclerosis
What are hamartomatous lesions?	Astrocyte proliferations in subependyma
Autosomal dominant disorder; Cafe-au-lait-macules, Lisch nodules; Optic nerve glioma; meningioma acoustic neuroma	Neurofibromatosis
Associated with pheochromocytoma, and acoustic neuroma	Neurofibromatosis

Vascular malformation of the face Ipsilateral arteriovenous malformation in meninges	Sturge-Weber Syndrome
Birthmark of the face in the trigeminal distribution of V1; pia mater malformations in occipital and parietal lobes	Sturge-Weber Syndrome
Cavernous Hemangiomas in cerebellum and retina; increased pheochromocytoma and renal cell carcinoma	Von-Hippel Lindau Syndrome VHL
Encephalitis caused by Mosquitos are the vector; Birds are the host;	Arbovirus
Most common cause of viral meningitis; peaks late summer and early autumn	Coxsackie virus; Picornavirus +SS RNA, icosahedral,
Most common viral infection of AIDS causing ENCEPHALITIS	Cytomegalovirus
CMV appearance	Intranuclear basophilic inclusions

Causes hemorrhagic necrosis of temporal bone	HSV type 1
Meningitis and Encephalitis caused by mouse fecal contamination of food or water	Lymphocytic Choriomeningitis
Encephalitis destroys upper and lower motor neurons causes muscle paralysis	Poliovirus  Picornavirus: +ssRNA, icosahedral
Neurons contain Negri bodies, causes encephalitis	Rabies  Rhabdovirus, -RNA, enveloped
Transmitted by corneal transplants or human brain contact	CJD
Brain has "bubbles or holes" spongiform in cerebral cortex	CJD
Encephalitis: Occurs in AIDS pts with CD4 Th less 50 cells/uL	Progressive multifocal leukoencephalopathy

Slow virus encephalitis assoc with Rubeola, measles, virus	Subacute Sclerosing Panencephilitis Intranuclear inclusion in oligodendrocytes Paramyxovirus - SSRNA enveloped
Most common benign brain tumor in adults	Meningioma
Most common primary CNS tumor in adults	Glioblastoma multiforme
Most common childhood tumors	Cystic astrocytoma and Medulloblastoma
On MRI Syringomyelia will show	Cervical Enlargement and Cavity
Intranuclear ophthalmoplegia is pathognomonic for Why?	MS Demyelination of MLF
Amaurosis Fugax	Temporary loss of vision, embolic material trapped in bifurcation of retinal vessels

MCA stroke results in	<p>Contralateral hemiparesis</p> <p>Sensory loss in face and upper extremity</p> <p>Head and eyes deviate towards the lesion</p>
ACA stroke results in	<p>Contralateral paresis</p> <p>Sensory loss in lower extremity</p>
Strokes in vertebrobasilar arterial system	<p>Vertigo, Ataxia</p> <p>Ipsilateral sensory loss of face</p> <p>Contralateral hemiparesis and sensory loss in the trunk and limbs</p>
Ischemic type of stroke due to embolization	Embolic stroke
Intracerebral hemorrhage a complication of	<p>Hypertension</p> <p>Rupture of aneurysm</p>
Intracerebral hemorrhage most commonly affects	Basal Ganglia
Rupture of a berry aneurysm causes this bleed	Subarachnoid hemmorage

Most common site of berry aneurysm

ACA and Anterior Communicating

Second most common site for berry aneurysm

MCA

Described as the worse headache in my life

Subarachnoid bleed

Lacunar Infarcts are

Microinfarcts less 1 cm

What causes lacunar infarcts

Hypertension or DM leads to hyaline arteriosclerosis

CNS (central nervous system) infections are mostly due to?

sepsis

meningitis = ?

inflammation of pia mater

bacterial meningitis the majority of organisms originate where?	originate in nasopharynx
viral meningitis is most often fransmitted by?	fecal-oral route
miningitis clinical findings?	nuchal rigidity
what happens to the CSF (Cerebral spinal fluid) protein and CSF glucose in meningitis?	↑ CSF protein (viral, bacterial, fungal) ↓CSF glucose (bacterial, fungal)
encephalitis = ?	inflammation of brain; headache; drowsiness; coma
cerebral abscess= ?	hematogenous; contiguous spread
CSF(cerebrospial fluid) Feature: Total cell count Bacterial/Fungal? Viral?	Bacterial/Fungal: 1000-20,000 cells/mm <sup>3</sup> Viral: <1000 cells/mm <sup>3</sup>



<p>CSF(cerebrospial fluid)</p> <p>Feature:</p> <p>Differential count</p> <p>Bacterial/Fungal?</p> <p>Viral?</p>	<p>Bacterial/Fungal:</p> <p>&gt;90% neutrophils (&gt;80%)</p> <p>Viral:</p> <p>First 24-48 hours, neutrophils, then switches to lymphocytes/monocytes after 48 hours</p>
<p>CSF(cerebrospial fluid)</p> <p>Feature:</p> <p>CSF glucose</p> <p>Bacterial/Fungal?</p> <p>Viral?</p>	<p>Bacterial/Fungal:</p> <p>Decreased (&lt;40 mg/dL)</p> <p>Viral:</p> <p>Normal: exceptions-mumps, herpes</p>
<p>CSF(cerebrospial fluid)</p> <p>Feature:</p> <p>CSF protein</p> <p>Bacterial/Fungal?</p> <p>Viral?</p>	<p>Bacterial/Fungal:</p> <p>Increased (&gt;50 mg/dL)</p> <p>Viral:</p> <p>Increased</p>
<p>CSF(cerebrospial fluid)</p> <p>Feature:</p> <p>Gram stain</p> <p>Bacterial/Fungal?</p> <p>Viral?</p>	<p>Bacterial/Fungal:</p> <p>Frequently positive (60-90%)</p> <p>Culture positive (65-90%)</p> <p>Viral:</p> <p>Negative</p>
<p>Virus:</p> <p>Arboviruses</p> <p>Disease?</p> <p>Comments?</p>	<p>Disease:</p> <p>Encephalitis</p> <p>Comments:</p> <ul style="list-style-type: none"> <li>-Mosquitoes are the vector</li> <li>-Wild birds are the reservoir for the virus</li> <li>-West Nile virus: crows and other birds have spread the disease from New York to the West Coast</li> <li>-Encephalitis can be fatal</li> </ul>

Virus:  
Coxsackievirus  
Disease?  
Comments?

Disease:  
Meningitis  
Comments:  
-Enterovirus: most common  
cause of viral meningitis  
-Viral meningitis peaks in late  
summer and early autumn

Virus:  
Cytomegalovirus  
Disease?  
Comments?

Disease:  
Encephalitis  
Comments:  
-Most common viral CNS  
infection in AIDS  
-Primarily intranuclear  
basophilic inclusions  
-Periventricular calcification in  
newborns  
-Treatment: ganciclovir +  
foscarnet; or valganciclovir

Virus:  
Herpes simplex virus type 1  
Disease?  
Comments?

Disease:  
Meningitis and encephalitis  
Comments:  
Causes hemorrhagic necrosis  
of temporal lobes  
Treatment: IV acyclovir

Virus:  
HIV  
Disease?  
Comments?

Disease:  
Encephalitis  
Comments:  
Most common cause of AIDS  
dementia  
Microglial cells fuse to form  
multinucleated cells

Virus:  
Lymphocytic choriomeningitis  
Meningitis and encephalitis  
Disease?  
Comments?

Comments:  
-Endemic in the mouse population  
-Transmission: food or water contaminated with mouse urine/feces  
-Meningoencephalitis: combination of nuchal rigidity and mental status abnormalities (encephalitis)  
-CSF findings: increased protein, lymphocyte infiltrate, normal to decreased glucose

Virus:  
Poliovirus  
Disease?  
Comments?

Disease:  
Encephalitis and myelitis-spinal cord  
Comments:  
-Destroys upper and lower motor neurons  
-Causes muscle paralysis  
Post-polio syndrome: occurs in ~ 50% of people with previous poliomyelitis; usually occurs 15-30 years after original infection; increased muscular weakness/pain in muscle groups already affected; excessive fatigue

Virus:  
Rabies virus  
Disease?  
Comments?

Disease:

Encephalitis

Comments:

- Most often transmitted by raccoon bite (40% of cases)  
Other vectors are dog, skunk, bat, and coyote
- Viral receptor is acetylcholine receptor
- Initially replicates at site of the bite; moves by axonal transport to the CNS; after CNS replication, it migrates to the saliva
- Animal transmits virus when in the agitated state (encephalitis stage)
- Incubation period 10-90 days
- Prodrome: fever, paresthesias in and around the wound site
- Hydrophobia: due to spasms of throat muscles when swallowing
- Followed by flaccid paralysis
  - Encephalitis: death of neurons; eosinophilic intracytoplasmic inclusions called Negri bodies; seizures, coma, death
- Treatment: wash wound site (quaternary ammonium compound); give passive immunization (immune globulin) mostly into wound site (where virus initially replicates); give active immunization

Bacterium:  
Group B streptococcus  
(*Streptococcus agalactiae*)  
Disease?  
Comments?

Disease:  
Neonatal meningitis  
Comments:  
-Gram-positive coccus  
-Most common cause of  
neonatal meningitis (49%)  
-Spreads from a focus of  
infection in maternal vagina  
-Empiric treatment (culture  
negative): ampicillin +  
cefotaxime  
-Specific treatment: penicillin G  
or ampicillin

Bacterium:  
*Escherichia coli*  
Disease?  
Comments?

Disease:  
Neonatal meningitis  
Comments:  
-Gram-negative rod  
Second most common cause of  
neonatal meningitis (18%)  
-Empiric treatment (culture  
negative): ampicillin +  
cefotaxime  
-Specific treatment: ceftazidime  
+ gentamicin

Bacterium:  
*Listeria monocytogenes*  
Disease?  
Comments?

Disease:  
Neonatal meningitis  
Comments:  
-Gram-positive rod with tumbling motility; actin rockets help organism to move from cell to cell  
-Pathogen found in soft cheese, hot dogs  
-Empiric treatment (culture negative): ampicillin + cefotaxime  
-Specific treatment: ampicillin ± gentamicin

Bacterium:  
*Neisseria meningitidis*  
Disease?  
Comments?

Disease:  
Meningitis  
Comments:  
-Gram-negative diplococcus; locates in posterior nasopharynx  
-Most common cause of meningitis in those between 1 month and 18 years of age  
-Treatment: ceftriaxone  
-Prophylaxis for people in close contact: ciprofloxacin or rifampin or ceftriaxone

Bacterium:  
Streptococcus pneumoniae  
Disease?  
Comments?

Disease:  
Meningitis  
Comments:  
-Gram-positive diplococcus  
Most common cause of  
meningitis in patients > 18  
years of age (some authors say  
N. meningitidis is the most  
common and S. pneumoniae  
the 2nd most common)  
-Treatment: penicillin G or  
ampicillin

Bacterium:  
Mycobacterium tuberculosis  
Disease?  
Comments?

Disease:  
Meningitis  
Comments:  
-Complication of primary  
tuberculosis  
-Involves base of brain  
-Vasculitis (infarction) and  
scarring (hydrocephalus)  
-Treatment: isoniazid, rifampin,  
ethambutol, pyrazinamide,  
dexamethasone (prevent  
scarring)

Bacterium:  
Treponema pallidum  
Disease?  
Comments?

Disease:  
Meningitis, encephalitis,  
myelitis  
Comments:  
-Spirochete  
~Types of neurosyphilis:  
-Meningovascular: vasculitis  
causing strokes  
-General paresis: dementia  
-Tabes dorsalis: involves  
posterior root ganglia and  
posterior column; causes  
ataxia, loss of vibration  
sensation, absent deep tendon  
reflexes, Argyll-Robertson pupil  
(pupils accommodate but do  
not react)  
-Treatment: penicillin G  
(difficult to treat)

Fungus/Parasite:  
Cryptococcus neoformans  
Disease?  
Comments?

Disease:  
Meningitis and encephalitis  
Comments:  
-Occurs in  
immunocompromised host  
-Most common fungal CNS  
infection in AIDS  
-Budding yeasts visible with  
India ink  
-Treatment: fluconazole non-  
AIDS, amphotericin +  
flucytosine



Fungus/Parasite:  
Mucor species  
Disease?  
Comments?

Disease:  
Frontal lobe abscess  
Comments:  
Occurs in diabetic ketoacidosis;  
spreads from frontal sinuses  
Treatment: amphotericin B

Fungus/Parasite:  
Naegleria fowleri  
Disease?  
Comments?

Disease:  
Meningoencephalitis  
Comments:  
-Protozoa (amoeba)  
-Involves frontal lobes  
-Contracted by swimming in  
freshwater lakes  
-Treatment: amphotericin B

Fungus/Parasite:  
Trypanosoma  
gambiense/rhodesiense  
Disease?  
Comments?

Disease:

Encephalitis

Comments:

- Protozoa (hemoflagellate)
- Transmission: bite of an infected tsetse fly (Glossina)
- Trypanosomes invade the blood and lymphatics early in the disease; initial drainage into the posterior cervical nodes produces lymphadenopathy (Winterbottom's sign); encephalitis occurs in later stages
- Diffuse encephalitis: somnolence ("sleeping sickness") due to the release of sleep mediators by the organisms
- Trypanosomes are capable of antigen variation (cyclical fever spike)
- Starvation is the most common cause of death
- Diagnosis: trypanosomes in blood, CSF; serologic tests; characteristic increase in IgM early in the disease
- Treatment: pentamidine early in the disease; melarsoprol in encephalitis stage

Fungus/Parasite:  
Taenia solium  
Disease?  
Comments?

Disease:  
Cysticercosis  
Comments:  
Helminth (tapeworm; cestode);  
pig transmitted disease  
Patient (intermediate host)  
ingests food or water  
containing eggs; eggs develop  
into larval forms (cysticerci)  
that invade brain, producing  
calcified cysts causing  
seizures; hydrocephalus  
Treatment: albendazole +  
dexamethasone

Fungus/Parasite:  
Toxoplasma gondii  
Disease?  
Comments?

Disease:  
Encephalitis  
Comments:  
-Protozoa (sporozoan)  
-Most common CNS space-  
occupying lesion in AIDS; ring-  
enhancing lesions on CT  
-Congenital toxoplasmosis  
produces basal ganglia  
calcification  
-Treatment: pyrimethamine +  
sulfadiazine + folinic acid  
(leucovorin)