



## Summary of PBL cases



# Case1: Brainstem Glioma

Key information and problems	<ul style="list-style-type: none"><li>• Male, 28 years old</li><li>• Loss of taste sensation, changes in voice and difficulty in swallowing</li><li>• Numbness and tingling sensation in the RIGHT side</li><li>• Drooping in the RIGHT side of face</li><li>• Unsteady gait</li><li>• Numbness in LEFT arm</li></ul>
Examinations	<ul style="list-style-type: none"><li>• CNS ex.: - 5<sup>th</sup> CN: loss of corneal on the RIGHT, loss of pain and temperature sensations in the side of face<ul style="list-style-type: none"><li>- 7<sup>th</sup> CN: weakness on the lower RIGHT of face</li><li>- 9<sup>th</sup> and 10<sup>th</sup> CN: RIGHT palatal movement is poor, loss of sensation of RIGHT soft palate</li></ul></li><li>• Motor power: unsteady gait, increased muscle tone in LEFT upper and lower limbs, exaggerated in LEFT side reflexes</li><li>• Sensory ex.: loss of pain and temperature sensations in the entire LEFT side of body</li></ul>
Investigations	<ul style="list-style-type: none"><li>• Brain MRI</li></ul>
management	<ol style="list-style-type: none"><li>1. Focal radiotherapy: <b>to reduce the tumor mass</b></li><li>2. Corticosteroids: <b>to reduce the local edema around the tumor</b></li></ol> <p><b><u>N.B:</u> the doctor refuse to do a surgery to this case <u>due to the location of tumor</u></b></p>
Prognosis	<ul style="list-style-type: none"><li>• This case didn't live along :(</li></ul>
Important notes	<ul style="list-style-type: none"><li>• Glioma types: - Astrocytes - Oligodendroglioma - Ependymoma</li><li>• Peripheral nerves decussate, while cranial nerves NOT (therefore the side of lesion differs FROM head and face TO the upper and lower limbs)</li><li>• Difficulty in swallowing: <b>9<sup>th</sup> lesion</b> voice changing: <b>10<sup>th</sup> lesion</b> taste sensation loss: <b>7<sup>th</sup> lesion in anterior 2\3, 9<sup>th</sup> lesion in posterior 1\3</b></li><li>• Make sure you know the lesions for each cranial nerves in (CNS EX.) .</li></ul>

# Case2 : acoustic neuroma (vestibular shwannoma)

Key information and problems	<ul style="list-style-type: none"> <li>• Male, 55 years old and works in airport</li> <li>• Decrease in hearing</li> <li>• Unsteady, surroundings are rotating (<b>vertigo</b>)</li> <li>• Hear ringing noises in right ear (<b>tinnitus</b>)</li> </ul>
Examinations (CNS)	<ul style="list-style-type: none"> <li>• 5<sup>th</sup> CN: - loss of corneal reflex on right - loss of sensation on right maxilla</li> <li>• 7<sup>th</sup> CN: Weakness on the right side of face</li> <li>• 8<sup>th</sup> CN: <u>SENSORY NEURAL HEARING LOSS</u> in right ear</li> </ul>
Investigations	<ol style="list-style-type: none"> <li>1. Audiometry</li> <li>2. MRI scan of brain with gadolinium (contrast)</li> </ol>
Management	<ol style="list-style-type: none"> <li>1. Stereotactic radiation therapy: <b>to stop the tumor from further growth</b></li> <li>2. Or Surgical intervention: <b>to remove the tumor</b></li> </ol> <p>N.B: stereotactic radiation is <b>to maximize the radiation to the tumor, at the same time to minimize the exposure of normal tissue of nerves from radiation.</b></p>
Prognosis	<ul style="list-style-type: none"> <li>• Successfully Undergoes stereotactic radiation therapy</li> <li>• Feels much better</li> <li>• Hearing in right side didn't improve :(</li> </ul>
important notes	<ul style="list-style-type: none"> <li>• Type of hearing loss: <b>sensory neural</b></li> <li>• Acoustic neuroma: <b>Acoustic neuroma is a benign tumor on the 8<sup>th</sup> cranial nerve, and it presses the the nerves located close to 8<sup>th</sup> cranial nerve, which are 7<sup>th</sup> and 5<sup>th</sup> cranial nerves (this compression explains the face symptoms of this case)</b></li> <li>• Impact of serious diseases on patient and his family: <b>Depression – financial problems – anger – fear</b></li> <li>• Why hearing loss is not improved ? <b>Because the tumor arises from cochlear nerve (for hearing)</b></li> </ul>

# Case3 : Stroke

<b>Key information and problems</b>	<ul style="list-style-type: none"> <li>• 58-years old Female, (has uncontrolled hypertension and diabetes with ↑ cholesterol)</li> <li>• Unable to walk, walk or move her right arm.</li> <li>• She is taking: <u>Metformin &amp; Glibenclamide</u> (diabetes type II), <u>Lisinopril</u> (hypertension), <u>atorvastatin</u> (high cholesterol) <u>low dose aspirin</u> (Prophylaxis for heart problems)</li> </ul>
<b>Examinations:</b>	<ul style="list-style-type: none"> <li>• BMI =33 (<u>Obese</u>), <b>Vital signs:</b> <u>HIGH</u> (HR, BP, RR) Respiratory &amp; abdominal: Normal</li> <li>• <b>CVS:</b> Bruit over left carotid artery on carotid auscultation</li> </ul>
<b>CNS</b>	<ul style="list-style-type: none"> <li>• <b>Cranial nerves:</b> <u>Weakness in lower part of VII nerve.</u></li> <li><b>Motor power:</b> <u>Unable to move and ↑ R arm muscle tone.</u> <b>Hyper reflexia</b> of biceps, triceps, brachioradialis</li> <li>• Unable to reflex R knee. Unable to raise and ↑ R leg muscle tone hyper reflexia of knee &amp; ankle reflexes.</li> <li>• Planter reflex is dorsiflexion.</li> <li>• <u>Sensation: Loss of pain and temperature sensations from upper &amp; lower limb on left side.</u></li> </ul>
<b>Investigations</b>	<p><b>Brain CT scan:</b> Minimal changes in left frontal lobe. <b>MRI:</b> extensive changes in left MCA.</p> <p><b>Perfusion weighted images (PWI) :</b> reduced cerebral blood flow in the left MCA.</p> <p><b>Carotid duplex Doppler :</b> high grade internal carotid stenosis on the left side . <b>ECG:</b> Ventricular hypertrophy</p> <p><b>Blood chemistry:</b> ↑Fasting blood glucose level.</p>
<b>management</b>	<ol style="list-style-type: none"> <li>1. <u>Amlodipine:</u> Ca channel antagonist for high blood pressure .</li> <li>2. <u>Simvastatin</u> : cholesterol lowering agent</li> <li>3. <u>Glibenclamide</u> : an oral hypoglycemic agent</li> <li>4. <u>Continued on a low dose aspirin</u></li> <li>5. <u>Rehabilitation</u> (physiotherapy, speech &amp; occupational therapy.</li> <li>6. Surgical therapy after improvement : <u>left carotid endarterectomy</u> (to remove the plaque in carotid)</li> </ol>
<b>prognosis</b>	<ul style="list-style-type: none"> <li>• She is able to move right arm, speak and to wake with assistance.</li> <li>• Her blood pressure, blood sugar, blood lipid are within normal range and lost 7 kilos..</li> </ul>
<b>Important notes</b>	<ul style="list-style-type: none"> <li>• The type of stroke in this case is <u>Thrombotic stroke.</u></li> <li>• She has <u>Motor (Broca's) aphasia</u>, because she can comprehend spoken and written words.</li> <li>• The main risk factors for her were: <u>Hypertension, Diabetes, High cholesterol levels and obesity</u></li> <li>• Based on the CNS examination results, she has <u>Upper motor neuron lesion</u></li> </ul>

# Case4 : Parkinson disease

Key information and problems	<ul style="list-style-type: none"><li>• Male, 65 years old</li><li>• Tremor, stiffness in shoulder region</li><li>• Slow in movements</li><li>• Disturbances in sleep</li></ul>
examinations	<ul style="list-style-type: none"><li>• Clinical ex.: - decreased facial expression -speaks in low tone voice - TREMOR</li><li>• Motor power: - Gait: he walks in slow and short steps + leaning forward - On flexion of his <u>right</u> elbow There is <u>cogwheel like resistance</u> (initial resistance followed by a release of movement )</li></ul>
Investigations	<ul style="list-style-type: none"><li>• investigation are <u>not</u> needed for diagnosis of Parkinson disease</li><li>• It is diagnosed through: <u>History + Clinical</u> examinations</li></ul>
management	<ol style="list-style-type: none"><li>1. Levodopa: precursor to dopamine → will be decarboxylated to dopamine in brain</li><li>2. Peripheral decarboxylase inhibitor (PDI): without PDI: Levodopa will decarboxylate to dopamine in blood → causes nausea and vomiting → Therefore: PDI is given to reduce the incidence of nausea and vomiting and inhibit peripheral decarboxylation.</li></ol> <p>N.B: Dopamine can't be prescribed in parkinson, <u>because dopamine can't cross BBB</u></p>
prognosis	<ul style="list-style-type: none"><li>• He feels much better</li></ul>
Important notes	<ul style="list-style-type: none"><li>• Research could help in :<ul style="list-style-type: none"><li>✓ Understand the progression of the disease</li><li>✓ Mechanism of the medication</li><li>✓ Role of therapy in delaying disease progression</li></ul></li></ul> <p>(The doctor asked the patient to be volunteer in researches of parkinson disease, the patient accepted)</p> <ul style="list-style-type: none"><li>• Make sure you know the gait and elbow resistance</li></ul>

# Case5 : Pyogenic meningitis

Key information and problems	<ul style="list-style-type: none"><li>• Male, 10 years old</li><li>• Severe headache.</li><li>• Fever (40°C)</li><li>• Vomiting</li></ul>
Examination	High body temperature (Fever), ↑ pulse rate.
CNS:	<ul style="list-style-type: none"><li>• <b><u>Neck stiffness.</u></b></li><li>• <b><u>Positive Kernig's sign</u></b> (hip and knee are flexed, extension of his knee JOINT causes him to feel pain and resistance)</li><li>• <b><u>Positive Brudzinki's sign</u></b> (involuntary flexion of hip and knee joints due to neck stiffness)</li></ul>
Investigations	<ol style="list-style-type: none"><li>1) <b>Lumbar puncture:</b> to assess CSF =&gt; ↑Protein, ↓ Glucose, predominant neutrophils, (turbid appearance)</li><li>2) <b>Blood tests:</b> Blood culture =&gt; ( <u>Growth of Gram positive diplococci</u>)</li><li>3) <b>CBC:</b> ↑ WBCs, Neutrophils count, ↓ Lymphocytes.</li></ol>
management	<ol style="list-style-type: none"><li>1- (IV) Antibiotics, <b><u>Ceftriaxone</u></b> , twice daily</li><li>2- (IV) Fluids . <b><u>“normal saline and glucose drip”</u></b></li><li>3- <b><u>Admission</u></b> to the hospital.</li></ol>
prognosis	<ul style="list-style-type: none"><li>• Over the next 12 hours, his temperature drops to 38-38.5C.</li><li>• Over the next 5 days , his temperature was normal.</li><li>• He is discharged from hospital on day 10</li></ul>
Important notes	<ul style="list-style-type: none"><li>• When there is <u>Papilledema</u> It means → <u>(increased intracranial pressure)</u></li><li>• LP is contraindicated in <u>(Increased intracranial pressure)</u></li><li>• The causative organism is : <u>Streptococcus pneumonia which is sensitive to OPTOCHIN test.</u></li><li>• Main complication of meningitis: <u>Phlebitis, Focal cerebritis, Cerebral abscess ,Cognitive deficit and Deafness.</u></li></ul>



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