



SAQs Team

Case 5

Case Scenario:

70 years old male died because of Intercurrent infection, in the gross finding at autopsy showed pallor of the substantia nigra and locus ceruleus, and microscopic finding revealed round to elongate inclusions that have a dense core surrounded by a pale halo.

1) What is the most likely diagnosis?

Parkinson disease (neurodegenerative disease)

2) What are the risk factors of this disease?

- Advancing age.
- Sex: males are more likely to get Parkinson's than females.
- Declining estrogen levels: Postmenopause.
- Genetic factors.
- Head Trauma.
- Low levels of B vitamin folate.

3) What are the most common causes?

is an idiopathic disease but some causes may be:

- Genetic: genes encoding **alpha-synuclein**, E3 ubiquitin ligase, or UCHL-1.
- Toxins.
- Head trauma.
- Cerebral anoxia.
- Oxidative stress.
- Drug-induced. such as dopamine antagonist

Q4) What is the management of this disease?

Levodopa in combined with carbidopa.

Dopamine agonists.

MAO-B inhibitors.

Catechol-O-methyltransferase (COMT) inhibitors.

Q5) The lesion can also be found in?

In the brainstem, dorsal nucleus of vagus and in the reticular formation.

Q6) Microscopic findings revealed round to elongated inclusions that have a dense core surrounded by a pale halo. These changes are referred to as?

Lewy bodies.

Q7) What is usually the cause of death in this disease?

Intercurrent infection or trauma from frequent falls caused by postural instability.

Q8)What is the best drug to be used in this disease?

L-dopa + carbidopa

Q9)Why do we add carbidopa to L-dopa?

To prevent peripheral conversion of L-dopa to dopamine.

Q10)A patient has Parkinson's disease and a psychotic problem, which type of drug should we give him?

Anticholinergic drugs

Q11) Which cerebral anatomical part is degenerated in case of Parkinson's disease?

Degeneration of substantia nigra which is located at most ventral part of tegmentum of the midbrain is associated with Parkinson's disease .

Q12)What is the type of movement disorder in Parkinson's disease?

Hypokinetic movement.

Q13) What is the type of rigidity associated with Parkinson's disease?
Cogwheel rigidity.

General questions:

Q1)Mention the main structural components of basal ganglia?

-Caudate Nucleus.

-Lentiform Nucleus (divided into putamen & globus pallidus.)

-Amygdaloid Nucleus.

Q2)What is the main function of corpus striatum?

It's involved in the control of posture and movements (primarily by inhibiting motor functions.)

Q3) Describe the input (afferents) and output (efferents) of Corpus Striatum?

- Receives afferents from: cerebral cortex, intralaminar nuclei of thalamus, and pars compacta of substantia nigra.
- Sends efferents to: globus pallidus (medial and lateral segments) and pars reticulata of substantia nigra.

Q4) Thalamus receives afferents from which functional parts of basal ganglia?

- Pars reticulata of substantia nigra.
- Medial segment of globus pallidus.

Q5) What are the functions of Basal Ganglia?

- Control of movements
- Planning and programming of movements
- Cognition

Q6) Basal Ganglia Disorders will affect?

● Movements (ataxia rate, range, force, direction)
(In parkinson's disease the hand writing will be difficult and accessory movement is decreased and it's difficult to initiate and stop movement.)

- Speech
- Posture
- Gait
- Mental activity

Q7) What type of cells are affected in Huntington's disease ?
(GABAergic neurons of caudate and putamen striatum)

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