**MED 341: Case-Based Learning (CBL)**

**Approaches to Localization of Neurological Lesion**

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# Student Handout

**Part 1:**

**Mr. Fahad is a 75-year-old man who complains of right-hand weakness and clumsiness.**

**1. What information do you need to know?**

Gradual onset, 1 month ago, progressive, worsening over the last 2 weeks. I cannot write correctly. It cannot hold objects and cannot open a jar. He is right-handed.

Also, numbness in his right hand and forearm.

No leg weakness.

**Negative**: No fluctuation of symptoms. No pain. No headache. No vision changes. No speech changes. No seizure

**Part 2.**

* 1. **What is the differential diagnosis?**

**2.2 What will you check on the examination?**

**HMF**: normal comprehension, expression, fluency, repetition, and naming. Normal 5-word registration and recall after 5-minutes.

**Cranial nerve examination** is within normal, including fundus, fields, and pupils.

**Motor examination**:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Deltoid** | **Biceps** | **Triceps** | **Wrist extension** | **W. flexion** | **Finger extension** | **Finger flexion** |  |
| **R** | **4+** | **5** | **4+** | **4** | **4** | **3** | **3** |  |
| **L** | **5** | **5** | **5** | **5** | **5** | **5** | **5** |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Hip Flexion** | **Hip adduction** | **Hip abduction** | **Hip extension** | **Knee flexion** | **Knee extension** | **ADF** | **AFP** |
| **R** | **5** | **5** | **5** | **5** | **5** | **5** | **5** | **5** |
| **L** | **5** | **5** | **5** | **5** | **5** | **5** | **5** | **5** |

**Muscle tone**: spastic in the right arm and leg.

**DTRs**: +3 in the right biceps and right brachioradialis. +2 everywhere else.

**Babinski** is positive in the right and negative on the left.

**Cerebellar** normal.

**Sensory** examination: reduced pinprick, temperature, and vibration perception over the right arm and hand. Otherwise, normal.

**Gait** examination: normal.

**Chest, heart, abdomen, and skin**: within normal apart from stony dullness and reduced air entry over the right lung base. No lymphadenopathy

## Part 3. Utilizing your knowledge in neuroanatomy, answer the following questions?

* 1. Based on the previous findings, where is the abnormality in the nervous system? Explain why?
  2. Could his weakness be caused by a slipped cervical disc?
  3. Could his weakness be caused by a brachial plexus lesion?
  4. Could his weakness be caused by a spinal cord tumor?
  5. How will you investigate this patient?
  6. Would you change your investigations if his biceps and BR radialis reflexes are absent and muscle tone is low on the right?
  7. How would you investigate if his symptoms and examination findings occur in both hands?

**Intended Learning Outcomes (ILOs):**

## Master the ability of history-taking of neurological symptoms.

## Importance of asking about functional limitations caused by the deficit.

1. Know the importance of detailed neurological examination to pinpoint the deficit.
2. Understand the concept of upper and lower motor findings.
3. Know the difference between spasticity and rigidity.
4. Know the motor (corticospinal) pathways and the effect of their damage
5. Discuss the importance of a review of systems and systemic examination, even in pure neurological presentations.

## Instruction to the students:

Please read the case carefully, individually, or in the group before you come to the “Case-based learning” session. Look at the objectives and try to fulfill them. Prepare for the case well by referring to some suggested reading list. The tutor in the CBL session will ask you to go through the case and answer some of his stimulating questions to ensure that you have achieved the objectives.

**Suggested readings**

* Kumar textbook of medicine
* Anatomy and Neuroanatomy textbooks.