

UMN Versus LMN Lesions: Rap Battle

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I can't quite place it where the problem really lies,
With tonnes of symptoms, and a dozen other signs
Is there some trick, or another quick way,
To tell if it's the upper or lower lesion to blame?
Listen up folks, I'm gonna say this one time:
With a little bit of music, and a little bit of rhyme.

In an upper motor neuron lesion, know for a fact
The injury lies in the cortical descending tracts

When the lesion you say is of the lower neuron,
Start thinking from the muscle up to the anterior spinal
horn

Supraspinal pathways blocked, muscle weakness is seen
The bulk of muscle lost results from disuse atrophy

Interrupted innervation, rapid, widespread muscle loss,
Neurogenic atrophy is the most probable cause.
As pointed out above, owing to denervation,
Compensatory increase in receptor concentration
Small muscle twitches, call them fasciculations
And on an EMG, they show up as fibrillations.

Fasciculations what? That's a lower lesion sign
In an upper lesion, gamma motor neurons fire fine.
Moving forth we have tonic at a glance
Wanna talk deep tendon reflexes? Now is your chance!
Medullary reticulospinal influence omitted

Gamma motor neurons remain de-inhibited
Hyper-brisk reflexes, hyperreflexia it is known
With spastic paralysis and an increase in muscle tone

Au contraire, here flaccid paralysis is prime
Eliciting DTRs, you're gonna have a hard time
Now a couple other tests lower lesions never show,
for upper neuron lesions are imperative to know.

Fanned out toes with hallux dorsi flexion,
Positive Babinski, an upper lesion reflection
Hyperactive pronators cause pronator drift
Supinated arms turn inwards, with a downward shift.
Index-thumb approximation that's the Hoffman's sign
Flick the middle finger to watch these digits align.

Now we spent all this time, discussing motor neuron
lesions
Associated causes, and all the different reasons,
For other tunes to jam to, gotta wait another day
But motor lesion problems? Well they're out of your way!

DISCLOSURE: The rap composition was awarded 4th position in an
international competition "Sounds of Physiology 2021" organized
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University of Malaya and The Society for Physiology held in
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