

**Movie:** Joker (2019)



## Synopsis

*Joker* is a psychological thriller based on DC Comics that follows Arthur Fleck, a failed stand-up comedian, whose worsening psychosis inspires a violent counter-cultural revolution against the wealthy in Gotham City.

## How it relates to the field of psychiatry

The corticobulbar tract (the “bulbs”) is a group of neurons (tract) that connects the cerebral cortex (“cortico-”) to the brainstem. The bulbs are involved in motor functions: as the tract descends, it branches off to the motor nuclei of cranial nerves (CN).

Some branches are before the bulbs reach the brainstem:

- CN V (trigeminal nerve)
- CN VII (facial nerve)

Some branches are after the bulbs reach the brainstem:

- CN X (vagus nerve)
- CN XII (hypoglossal nerve)

Signs of the above CN palsies include a weak jaw, difficulty chewing, dysarthria (CN V); weak facial muscles (CN VII); dysphagia (difficulty swallowing), dysphonia (loss of speech) (CN X); and weak tongue (CN XII).

## *Bulbar Palsy*

Any disease that affects the brainstem (called a lower motor neuron disease) can cause bulbar palsy (e.g. Amyotrophic Lateral Sclerosis [ALS]). When ALS causes a bulbar palsy, the disease is often referred to as Progressive Bulbar Palsy because bulbar signs such as dysarthria and dysphagia are progressive and are often evident before ALS is diagnosed.

Bulbar Palsy often presents with (pertinent positives) dysphagia (difficulty swallowing), dysphonia (loss of speech) (CN X); and weak tongue (CN XII) along with general lower motor neuron signs of muscle wasting and fasciculations.

As a disease of the brainstem, Bulbar Palsy does not present with (pertinent negatives) a weak jaw, difficulty chewing, dysarthria (CN V); or weak facial muscles (CN VII) as these cranial nerves branch off before the bulbs reach the brainstem. Of note, emotional lability is also not part of the clinical picture.

### *Pseudobulbar Palsy*

Any disease that affects the corticobulbar tract as it makes its way to the brainstem (i.e. an upper motor neuron disease) can cause pseudobulbar palsy (this includes ALS as well).

Similar to Bulbar Palsy, Pseudobulbar Palsy also presents with (pertinent positives) dysphagia (difficulty swallowing), dysphonia (loss of speech) (CN X); and weak tongue (CN XII). In addition, patients with Pseudobulbar Palsy present with a weak jaw, difficulty chewing, dysarthria (CN V); and weak facial muscles (CN VII) since etiologic diseases that are not localized to the brainstem often affect bulbar branches to cranial nerve nuclei V and VII.

Clinical features include upper motor neuron signs and emotional lability and help distinguish this disease for Bulbar Palsy.

Penny Fleck allowed her adopted son Arthur “to be beaten by her boyfriend and the young boy was tied to a heater and left to starve for days on end. Arthur suffered severe head trauma that was believed to have given him his laughing disorder, which he was told was a condition by his mother for most of his life” (1).

The traumatic brain injury likely caused damage to the corticobulbar tract as it makes its way to the brainstem. A diagnosis of Pseudobulbar Palsy would be further supported by evidence of Arthur having a weak jaw, difficulty chewing, dysarthria (CN V); and/or weak facial muscles (CN VII). A 7<sup>th</sup> cranial (facial) nerve palsy may be the reason Arthur uses his fingers and face paint to induce a smile (pic).



Pseudobulbar Palsy accounts for Joker’s emotional lability and pseudobulbar affect that has defined this character for generations.

### **References**

1. DC Movies Wiki ([https://dcmovies.fandom.com/wiki/Arthur\\_Fleck](https://dcmovies.fandom.com/wiki/Arthur_Fleck))