

Diagnosis of Post-Polio Syndrome

The diagnosis of PPS is one of exclusion and is clinically based. There are no serologic, enzymatic, electrodiagnostic or muscle biopsy tests that can diagnose PPS. Therefore, it is essential that each patient receives a careful history and physical examination along with appropriate laboratory, radiological and diagnostic studies to rule out other medical, neurological or orthopaedic conditions that may be producing or aggravating the symptoms the patient may be experiencing.

Halstead (1991)⁸⁶ has developed the following criteria for the diagnosis of PPS:

1. A prior episode of paralytic polio with residual motor neuron loss confirmed by history, physical examination, and typical findings on electromyography (EMG).

The diagnosis of paralytic polio usually can be confirmed by:

- Eliciting a credible history of an acute, febrile illness resulting in motor loss and not sensory deficit. Memory is often not a reliable tool when determining the location and extent of the original paralysis. Although most patients appear to remember the location of severe weakness, they may not have any recollection of extremities that incurred only mild weakness;¹¹⁴
- Noting whether other members of the patient's family or neighbours had a similar illness;
- Observing the presence of focal, asymmetric weakness and/or atrophy on examination;
- Examining whenever possible the original medical records; and
- Changes on EMG of chronic denervation with reinnervation compatible with prior anterior horn cell disease.

Non-Paralytic Polio

There is significant debate in the literature whether people with a history of non-paralytic polio (NPP) are at risk of the development of PPS. Several studies have shown that individuals with non-paralytic polio do have late onset symptoms.^{47,115} Falconer and Bollenbach (2000)¹³ have suggested a number of reasons why people with a history of NPP should not be automatically excluded from a diagnosis of PPS. These include:

- The person had non-paralytic (or abortive) polio. At the time of the acute illness there was no obvious damage to the nervous system although unobserved damage was likely. There are no established figures for the minimum amount of neuronal damage which can result in PPS symptoms. Several studies have shown that neuronal damage occurred in all non-paralytic cases of polio. For neuronal damage to be visible, at least 50-60 percent of the motor neurons must be damaged or destroyed.¹¹⁶ When fewer motor neurons are involved the patient will present with no specific muscle weakness, although neuronal damage can be present.
- The person had paralytic polio during their initial illness, but was misdiagnosed. Symptoms of paralysis and/or weakness may have been missed or the symptoms may have manifested for a short period of time. The patient recovered (apparently) fully within a matter of weeks. This type of polio often was labelled as "non-paralytic". PPS will occur in these individuals with the same frequency as in paralytic polio cases. Diagnosis of PPS on the same basis as for a patient with a history of paralytic polio is merited.
- The person did not have polio but had another disease with clinical symptoms similar or identical to polio and currently presents with PPS symptoms. Some evidence supports the hypothesis that non-polio enteroviruses can have late, post-viral effects.
- The person may have had undiagnosed polio. PPS should not be excluded and further tests may be required.

THE LATE EFFECTS OF POLIO

4. The gradual or abrupt onset of new neurogenic, non-disuse weakness in previously affected and/or unaffected muscles; this may or may not be accompanied by other new health problems such as excessive fatigue, muscle pain, joint pain, decreased endurance, decreased function and atrophy.

New neurogenic weakness is considered essential in the diagnosis of PPS, as it reflects new or continuing dysfunction of motor units injured during the initial illness. It is inferred by the onset of diminished function despite maintaining the usual level and intensity of activity.⁵

5. Exclusion of medical, orthopaedic, and/or neurological conditions that may cause the health problems listed above (Criteria 4) – i.e. Differential diagnosis.