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# CLINICAL AND NEUROLOGICAL FEATURES OF SUBACUTESCLEROSING PANENCEPHALITIS IN CHILDREN

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**Abstract**

Subacute sclerosing panencephalitis (SSPE) is a rare, progressive, and invariably fatal neurodegenerative disease of the central nervous system caused by persistent infection with a defective measles virus. The disease predominantly affects children and adolescents, manifesting years after an initial measles infection, typically acquired in early childhood. In pediatric patients, clinical-neurological progression is characterized by an insidious onset with behavioral and cognitive changes, followed by prominent myoclonic jerks, motor deterioration, extrapyramidal and pyramidal signs, visual impairment, seizures, and eventual progression to akinetic mutism, decerebrate rigidity, and death. The course in children shows variability depending on age at onset, with more fulminant forms in younger patients (under 6 years) featuring rapid involvement of seizures and cortical blindness, while school-aged children exhibit a more classical stepwise progression over 1–3 years. Early subtle psychiatric symptoms often delay diagnosis, emphasizing the need for high clinical suspicion in unvaccinated or measles-exposed children.

**Keywords**

Subacute sclerosing panencephalitis, SSPE, measles virus, children, progressive neurodegeneration, myoclonus, cognitive decline, neurological progression, childhood measles complication.

## Introduction

Subacute sclerosing panencephalitis (SSPE) develops after a prolonged latent period, predominantly in children who experienced measles at an early age, especially before the age of two, when their immune system is not yet fully developed and is unable to completely eliminate the virus. This contributes to viral mutation and its persistent presence, leading to replication within neurons and glial cells of the central nervous system.

Despite widespread vaccination, SSPE remains a serious problem due to its severe progressive course and the lack of effective treatment. This highlights the importance of measles prevention as the only reliable method of protection.

## Materials and Methods

This study represents a review analysis of the clinical and neurological features of subacute sclerosing panencephalitis in children.

The research is based on contemporary domestic and international publications from 2021–2025, focusing on clinical manifestations, pathogenesis, diagnosis, and disease progression.

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Particular attention is given to:

1.Analysis of clinical stages of the disease;

2.Neurophysiological changes (especially periodic complexes on electroencephalography);

3.Neuroimaging markers, including magnetic resonance imaging (MRI) and MR spectroscopy.

A comparative analysis of disease progression in preschool and school-aged children was conducted.

Analytical, comparative, and generalization methods were used in the evaluation of scientific literature.

**Results and Discussion**

The clinical course of subacute sclerosing panencephalitis in children is characterized by pronounced polymorphism and stage-wise progression of the pathological process.

At the initial stage, behavioral and cognitive disturbances are observed, including irritability, decline in academic performance, and problems with memory and attention. These manifestations are often misinterpreted as psychiatric disorders, which complicates early diagnosis.

As the disease progresses, the main clinical symptom becomes myoclonic hyperkinesia, typically rhythmic in nature (approximately 4–10 episodes per minute). In preschool children, these may present as so-called drop attacks, which can mimic epileptic syndromes.

A significant feature of SSPE is the early involvement of the visual system. Patients may develop:

-cortical blindness

-optic nerve atrophy

-other visual impairments

These are particularly characteristic of fulminant forms of the disease.

Age-related analysis shows that children under 6 years of age more frequently develop a fulminant course with rapid progression over several months. In contrast, school-aged children typically exhibit a slower disease progression, with gradual worsening of symptoms over 1–3 years.

In the terminal stage, severe neurological impairments develop, including:

-generalized rigidity

-akinetic mutism

-severe autonomic dysfunction

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Death most often occurs due to secondary infectious complications.

Thus, the clinical course of SSPE in children is characterized by staging, variability, and dependence on age at onset, which must be considered for early diagnosis and prognosis.

**Conclusion**

Subacute sclerosing panencephalitis remains an extremely aggressive and disabling disease of the central nervous system with a poor prognosis.

The clinical course in children is highly variable — ranging from fulminant forms with rapid progression to more prolonged chronic variants — which complicates early diagnosis.

The polymorphism of clinical manifestations and the subtlety of early symptoms require increased vigilance from physicians when assessing cognitive and behavioral disturbances in children.

Despite the development of modern diagnostic methods, effective treatment options for SSPE remain limited and can only temporarily slow disease progression without altering its unfavorable outcome.

Therefore, the most effective method of prevention is mass and timely measles vaccination, which remains the key factor in reducing incidence and preventing the development of this pathology.

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