

SUBDURAL HYDROMAS AFTER TRAUMATIC BRAIN INJURY: RISK FACTORS, COURSE CHARACTERISTICS AND TREATMENT OPTIMIZATION

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Abstract: This article analyzes subdural hydromas that develop in the post-traumatic period. The main risk factors, development dynamics, modern diagnostic approaches, and treatment methods are discussed. Particular attention is paid to optimizing the choice of surgical approach.

Key words: traumatic subdural hydromas, risk factors, treatment.

Introduction. Post-traumatic subdural hydromas are diagnosed primarily in the first weeks after injury and are often a consequence of cerebrospinal fluid circulation disorders. Older patients are particularly susceptible to developing this pathology due to the combination of atrophic processes and fragility of arachnoid structures.

Risk factors

The main factors for the development of post-traumatic hydromas include:

- Age over 60 years;
- Anticoagulant therapy;
- Severe brain atrophy;
- Repeated traumatic impacts;
- The presence of concomitant cerebrospinal fluid flow disturbances.

Clinical Course

Most hydromas begin to manifest 5–20 days after injury. Clinical symptoms are often nonspecific and include:

- Gradual worsening of headache;
- development of neurological deficit;
- behavioral changes, apathy, sleep disturbances;
- development of subacute intracranial hypertension.

In some patients, hydromas may progress to chronic subdural hematomas due to damage to small vessels of the meninges.

Diagnosis

CT scan

Determines the location and volume of fluid accumulation, allowing assessment of the degree of brain compression.

MRI

Identifies signs of inflammation, membrane formation, and the structural organization of the fluid.

Assessment of progression

Repeat examinations every 7-14 days help determine the need for intervention.

Treatment strategy*Observation*

For asymptomatic or small hydromas, a watchful waiting approach is indicated.

Minimally invasive drainage

Subdural puncture is an effective first step in treatment. Performed under local anesthesia, it allows for rapid reduction of intracranial pressure.

Surgical Intervention

Indicated for:

- progression of neurological symptoms;
- significant mass effect;
- recurrent hydromas. Methods: craniotomy, endoscopic evacuation.

Specifics of treatment strategy in elderly patients

Given brain atrophy, a maximally gentle approach aimed at preventing recurrent hydromas is recommended.

Prevention of progression

- optimization of anticoagulant therapy;
- avoidance of recurrent injuries;
- blood pressure control;
- early imaging when clinical signs appear.

Conclusion. Post-traumatic subdural hydromas require comprehensive and dynamic monitoring. Correct assessment of risk factors and timely selection of treatment strategies can reduce the incidence of complications and improve the prognosis for patients.

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