CONDITION

Shaken baby syndrome

Shaken baby syndrome is a serious brain injury caused by violently shaking an infant or young child, sometimes with impact.

WHAT IT IS
Brain injury caused by violent shaking, often with impact

BODY SYSTEM
Brain, eyes, and bones

MAIN SYMPTOMS
Poor feeding, vomiting, unusual sleepiness, seizures

WHAT CAUSES IT
Forceful shaking, sometimes with impact

HOW IT IS DIAGNOSED
Clinical assessment plus brain, eye, blood, and bone tests

MAIN TREATMENT
Emergency stabilization, injury treatment, rehabilitation, and child protection

CAN IT BE CURED?
Sometimes - mild injuries may heal; brain damage can persist

IS IT AN EMERGENCY?
Yes - any suspected shaking or concerning symptoms

LONG-TERM OUTLOOK
Recovery ranges from few lasting effects to severe lifelong disability

Overview

Shaken baby syndrome is a brain injury caused by violently shaking an infant or young child. The child may also have been thrown or struck against something. Even a few seconds of forceful shaking can cause serious harm.

Clinicians often use the broader term abusive head trauma . This includes injuries caused by shaking, impact, or both. The term describes the injuries rather than relying on one assumed mechanism.

A baby's head is large compared with the rest of the body, while the neck muscles are still weak. During violent shaking, the brain moves rapidly inside the skull. This movement can tear blood vessels, damage brain tissue, and reduce the brain's oxygen supply. It can also injure the eyes, neck, spinal cord, or bones.

There may be no bruises or other clear signs on the outside of the body. A baby can also appear only mildly unwell at first. Any known or suspected shaking needs immediate medical assessment, even if the child seems awake and responsive.

Normal activities such as gentle rocking, playful bouncing on a knee, or travelling over bumps in a stroller do not cause shaken baby syndrome.

Symptoms

Symptoms can begin immediately, but they are not always obvious. A baby may become unusually quiet, irritable, sleepy, or difficult to wake. Feeding may become difficult, and the baby may vomit.

Possible symptoms include:

Some babies have changes that can be mistaken for a common illness, such as poor feeding or vomiting. Others become critically unwell very quickly.

Older infants and young children may have problems with balance, movement, speech, vision, or alertness. They may also show a sudden change in behaviour.

- Poor feeding or difficulty sucking or swallowing
- Repeated vomiting
- Unusual sleepiness, weakness, or limpness
- Irritability that is different from usual crying
- Breathing that is slow, irregular, or stops
- Pale, blue, or grey skin
- Seizures, which are sudden bursts of abnormal brain activity
- Reduced awareness or loss of consciousness
- Unequal pupils or unusual eye movements
- A swollen soft spot on the top of the head

Causes and risk factors

Shaken baby syndrome is caused by forceful, violent movement of a child's head. It is not caused by an infection, an inherited condition, or ordinary caregiving.

Crying is a common trigger. Infant crying often increases during the first few months of life and

can continue even after feeding, changing, comforting, and checking for illness. A caregiver may become frustrated and lose control. Stress, lack of sleep, unrealistic expectations about infant behaviour, substance use, and violence within the home may increase the risk.

These circumstances do not excuse harming a child. They do show why caregivers need practical support and a safe plan for moments when crying feels overwhelming.

Any infant can be affected. Babies are especially vulnerable because their neck muscles are weak and their brains are still developing. Children who have already experienced abuse, and their brothers or sisters, may be at risk of further harm.

Diagnosis

There is no single test that proves shaken baby syndrome. Doctors consider the child's symptoms, medical history, physical examination, and the pattern of injuries. They also look for accidental injuries and medical conditions that could cause similar findings.

A head CT scan may be used urgently to look for bleeding, swelling, or a skull fracture. CT uses X-rays and can produce images quickly. An MRI scan may follow to show more detail about the brain, spinal cord, and the age or extent of injuries.

An ophthalmologist, a doctor who specialises in eyes, may examine the back of the eyes after widening the pupils with drops. Bleeding in the light-sensitive layer at the back of the eye is called retinal haemorrhage . Its pattern can add important information, but it is not enough by itself to make the diagnosis.

Other assessment may include:

The medical team may ask caregivers separately and in detail what happened. Giving an accurate account, including any shaking or impact, helps the team choose the right tests and treatment.

Health professionals may involve child-protection services and law enforcement as required by local law. The immediate priorities are the child's medical care and the safety of the child and other children in the home.

- Blood tests for bleeding disorders and other medical explanations
- A skeletal survey, which is a series of X-rays looking for fractures
- Tests of liver, kidney, or pancreatic injury when needed
- Repeat imaging to clarify injuries that were not initially visible
- Assessment by child-protection and other specialist teams

Treatment and management

Suspected shaken baby syndrome is treated as an emergency. Initial care focuses on breathing, circulation, oxygen supply, and preventing further brain injury.

A child may need intensive care. Treatment can include breathing support, management of seizures, and measures to control swelling or pressure inside the skull. A neurosurgeon may need to drain blood or fluid or perform another procedure if pressure is threatening the brain.

Doctors also treat fractures, feeding problems, eye injuries, and other damage. Treatment choices depend on the injuries found rather than on the label alone.

After the child's condition is stable, rehabilitation may begin. Depending on the child's needs, this can involve physiotherapy for movement, occupational therapy for daily skills, speech and language therapy, vision support, and help with feeding.

A safety plan is also part of treatment. The child may not be able to return to the same caregiving situation until child-protection professionals have assessed the risks.

Complications

The effects depend on which parts of the brain and body were injured and how severe the damage was. Some children survive with few obvious lasting problems. Others have lifelong health and developmental needs.

Possible complications include:

Some difficulties only become clear as the child grows and faces more complex tasks at school. This is why developmental follow-up remains important even when early recovery seems encouraging.

Severe injury can cause coma or death. Prompt treatment cannot reverse every injury, but it can address breathing problems, bleeding, seizures, and pressure that may cause additional harm.

- Delayed learning, speech, or physical development
- Cerebral palsy, which affects movement and muscle control
- Epilepsy, meaning a continuing tendency to have seizures
- Loss of vision or hearing
- Problems with feeding or swallowing

- Weakness, poor coordination, or difficulty walking
- Behaviour, attention, memory, or learning difficulties
- Sleep or hormone problems after certain brain injuries
- Ongoing pain or disability from fractures and spinal injuries

Prevention

Shaken baby syndrome can be prevented. A baby should never be shaken, hit, thrown, or handled violently, even in play or in an attempt to stop crying.

If crying is becoming overwhelming, first check common needs such as hunger, a wet diaper, uncomfortable clothing, or signs of illness. If the baby is safe and you are losing control, place the baby on their back in an empty cot or crib and step away briefly. Return when you are calmer.

Ask a trusted person to take over if possible. Calling a relative, friend, health service, parenting support line, or crisis service can create the pause needed to keep everyone safe.

Anyone who feels they might hurt a child should place the child somewhere safe and seek immediate help. If another caregiver is becoming angry, intervene only if it is safe to do so and arrange for someone calm to take over.

All regular caregivers, including relatives and babysitters, should know that crying is normal and that shaking is dangerous.

Living with it and what to expect

Recovery takes different paths. The early days may focus on survival and stabilising brain function. Over the following weeks and months, the child's alertness, feeding, movement, vision, and development may change.

A child with a less severe injury may regain skills and have few visible long-term effects. A child with extensive brain damage may need help with movement, communication, feeding, learning, or personal care for many years. It may not be possible to predict the full outcome during the first hospital stay.

Routine follow-up may involve a paediatrician, neurologist, eye specialist, hearing services, and a developmental team. Therapy can help a child practise skills and adapt to lasting difficulties. School-based support may become important later.

Keep scheduled appointments even when the child appears well. Report new seizures, changes in vision, loss of skills, feeding problems, or developmental concerns rather than waiting for the next routine visit.

Families caring for a child with lasting disability may need emotional, financial, educational, and respite support. A social worker or rehabilitation service can help identify local resources. Caregivers may also need trauma-informed mental health support after the child's injury and the safeguarding process.

When to get medical help

Call emergency services now if a baby or young child may have been shaken, struck, or thrown. Do not wait for symptoms to appear. Tell the emergency team exactly what may have happened.

Emergency help is also needed for:

Do not shake the child to try to wake them. If the child is not breathing, follow emergency dispatch instructions and begin infant or child CPR if you know how.

If you believe a child is currently at risk of being harmed, contact emergency services or your local child-protection service. Move the child to a safe setting if you can do so without creating more danger.

Routine follow-up is appropriate for ongoing developmental, vision, hearing, movement, learning, or behaviour concerns in a child who has already been medically assessed and is otherwise stable. New seizures, breathing problems, or reduced consciousness are not routine concerns.

- Trouble breathing, pauses in breathing, or blue or grey skin
- A seizure
- Loss of consciousness or difficulty waking
- Sudden limpness, weakness, or collapse
- Repeated vomiting with unusual sleepiness
- A rapidly worsening change in behaviour or responsiveness

Common questions

Is shaken baby syndrome the same as abusive head trauma?

Shaken baby syndrome describes injury associated with violent shaking. Abusive head trauma is the broader medical term and includes injuries caused by shaking, impact, or both. Clinicians generally prefer the broader term because the exact forces cannot always be determined from the injuries alone.

Can bouncing or rocking a baby cause shaken baby syndrome?

Gentle rocking, careful play, stroller movement, and ordinary bumps do not produce the violent forces linked to this condition. A baby's head and neck should still be supported, and rough play should be avoided.

Can a baby look normal after being shaken?

Yes. A baby may initially appear alert or have only subtle signs such as poor feeding, vomiting, or unusual sleepiness. Internal bleeding or brain injury can be present without visible bruising. Suspected shaking needs emergency assessment even when the baby seems well.

How much shaking does it take to cause injury?

There is no safe amount of violent shaking and no reliable way to predict injury from the duration alone. The forces, the child's age, impact, and resulting loss of oxygen can all affect the outcome. Ordinary gentle handling is different from forceful shaking.

Can a child fully recover?

Some children recover with few lasting effects, particularly after less severe injury. Others develop permanent difficulties with movement, vision, seizures, learning, or development. Follow-up over months and years helps identify needs that were not clear at first.

What should I do if I shook a baby?

Put the baby somewhere safe and call emergency services immediately. Say clearly that the baby was shaken and mention any impact, breathing change, vomiting, seizure, or loss of consciousness. An honest account can help the medical team identify injuries and begin the right care without delay.

Sources

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