CONDITION

Radial head subluxation

Radial head subluxation is a childhood elbow injury in which a ligament slips over part of the radius bone after the arm is pulled.

WHAT IT IS
Partial slipping of the radial head at the elbow

BODY SYSTEM
Bones and joints

MAIN SYMPTOMS
Sudden elbow pain, arm held still, refusal to use arm

WHAT CAUSES IT
A sudden pull that shifts the annular ligament

HOW IT IS DIAGNOSED
History and examination; X-ray if fracture is possible

MAIN TREATMENT
Manual repositioning by a trained healthcare professional

CAN IT BE CURED?
Yes - repositioning usually restores normal movement

IS IT AN EMERGENCY?
Sometimes - with a cold, pale, or blue hand

LONG-TERM OUTLOOK
Full recovery is usual, though repeat episodes can occur

Overview

Radial head subluxation is an elbow injury that mainly affects young children. It happens when the radial head, the rounded top of one of the forearm bones, partly slips beneath the ligament that holds it in place.

A ligament is a strong band of tissue connecting structures around a joint. At the elbow, the annular ligament forms a ring around the radial head. In young children, this ligament is relatively loose and can slide out of position if the arm is pulled suddenly.

This is a partial displacement, rather than a complete dislocation of the elbow. There is usually no lasting damage once the ligament and radial head return to their normal positions.

The condition is most common in toddlers and preschool-aged children, especially between

ages 1 and 4. It becomes less common as the elbow develops and the ligament grows stronger.

The injury needs prompt assessment because fractures and other elbow injuries can cause similar symptoms. A trained healthcare professional can usually correct radial head subluxation with a brief movement of the arm.

Symptoms

Symptoms often begin immediately after the child's hand, wrist, or forearm is pulled. The child may cry at first and then avoid using the affected arm.

Typical signs include:

A child may appear comfortable while the arm is still. Very young children may not be able to point to the pain, and they may seem to have pain at the wrist even though the problem is at the elbow.

Marked swelling, bruising, or an obvious change in the shape of the arm is not typical. These signs may suggest a fracture, a complete dislocation, or another injury.

Fever, redness, and warmth around the joint are also not expected. They need medical assessment because infection or inflammation may be responsible.

- Holding the arm close to the body, often slightly bent
- Refusing to reach, crawl, play, or pick things up with that arm
- Pain when the elbow or forearm is moved
- Keeping the palm turned downward or toward the body

Causes and risk factors

Radial head subluxation is usually caused by sudden pulling along a child's outstretched arm. This force can move the radial head slightly while the annular ligament slips out of its usual position.

It may happen when someone:

Sometimes the force seems minor. The event may not be witnessed, and caregivers may not remember any definite pull. The injury can also happen during play, when putting on clothing, or if a child rolls over an arm.

Young age is the main risk factor because the radial head and surrounding ligament are still developing. Children who have had one episode are more likely to have another while they

remain young. This does not mean that the elbow is permanently damaged.

A fall is less typical and raises more concern about a fracture, particularly if there is swelling, bruising, or tenderness over a bone.

- Pulls a child up by one hand
- Lifts or swings a child by the hands or wrists
- Grabs an arm to stop a fall
- Pulls a hand while the child turns or drops to the ground

Diagnosis

Diagnosis is usually based on what happened, how the child holds the arm, and a careful examination. The clinician checks the entire arm, including the shoulder, collarbone, elbow, forearm, wrist, and hand.

They will look for swelling, bruising, wounds, deformity, and areas of marked tenderness. They may also check the child's pulse, skin colour, sensation, and finger movement to make sure nerves and blood flow are working normally.

An X-ray is not always needed when the history and examination are typical. Radial head subluxation itself may not be visible on an X-ray because the main problem involves the ligament rather than a broken bone.

Imaging may be needed when:

If the account of the injury does not fit the examination, the healthcare team may consider whether further assessment is needed to keep the child safe.

- The cause is unclear or involved a significant fall
- There is swelling, bruising, deformity, or strong bone tenderness
- The child's age or symptoms are unusual
- The child does not begin using the arm after attempted repositioning
- A fracture, complete dislocation, infection, or other condition is possible

Treatment and management

Treatment involves moving the radial head and ligament back into their usual relationship. This is called reduction. It is generally performed by a healthcare professional who has assessed the

arm and is trained in the technique.

Two commonly used methods are called hyperpronation and supination-flexion. These names describe different ways of moving the forearm. The clinician chooses an appropriate approach and may use another method if the first attempt does not work.

The movement takes only a few seconds. It can cause brief discomfort, and a small click may be felt or heard. A click is not required for treatment to have worked.

Many children begin reaching for an object or using the arm again soon afterward. A child who is frightened, tired, or has been in pain for several hours may take longer. Return of comfortable arm use is an important sign that the reduction was successful.

If the child still refuses to use the arm, the clinician may examine it again, repeat the reduction, or arrange an X-ray. Persistent symptoms should not simply be assumed to be another radial head subluxation.

Sedation, surgery, a cast, and a sling are not usually required after successful reduction. Pain relief may be offered, particularly if discomfort continues or another injury is being considered. Once comfortable movement returns, most children can gradually resume ordinary activities.

Do not try to reposition the elbow at home unless a qualified healthcare professional has specifically trained you and advised that this is appropriate. Pulling or twisting an arm with an unrecognised fracture could cause further injury.

Complications

Complications are uncommon after successful treatment. The ligament and radial head usually settle back into place without long-term loss of movement or strength.

The most common issue is another episode. Recurrence can happen because the ligament remains relatively loose during early childhood. Repeat episodes usually stop as the elbow matures.

Ongoing pain or continued refusal to use the arm may mean that reduction was unsuccessful or that another injury is present. A missed fracture is an important concern when the symptoms followed a fall, the arm is swollen, or there is tenderness directly over a bone.

Damage to nerves or blood vessels is not typical of radial head subluxation. A numb, weak, cold, pale, or blue hand needs urgent assessment because it may indicate a more serious injury.

Prevention

Not every episode can be prevented. A child may suddenly fall, twist away, or drop to the ground, and an adult may instinctively hold on to the child's hand. An episode does not necessarily mean that anyone was careless.

To reduce the chance of injury:

Children who have had an episode may be more prone to another one. Family members and other caregivers can be shown how to avoid pulling forces. There is no exercise, supplement, or brace known to make the ligament mature faster.

- Lift a young child from under the arms rather than by the hands
- Avoid swinging a child by the hands, wrists, or forearms
- Do not pull a child up from the floor by one arm
- Guide a child by the upper arm or body when possible

Living with it and what to expect

Radial head subluxation is a short-term injury rather than an ongoing joint disease. After successful reduction, most children return to normal use of the arm and do not need rehabilitation.

There is usually no need to restrict comfortable everyday movement once the child is using the arm normally. Follow the discharge advice given after the examination, especially if there was an unusual injury or imaging was performed.

Routine follow-up is often unnecessary when the child has regained painless, normal movement. Arrange follow-up if pain returns, movement remains limited, or you are unsure whether the child is using both arms normally.

Another episode may occur over the following months or years, especially in a child who has already had more than one. Each new episode still needs appropriate assessment because a fracture or other injury can look similar.

As the elbow grows, the radial head becomes wider and the annular ligament becomes thicker and stronger. Episodes therefore become uncommon in older children. Previous radial head subluxation does not usually lead to arthritis, weakness, or long-term limits on sport and play.

When to get medical help

Seek same-day medical care if a young child suddenly stops using an arm, even if there is no swelling and the suspected pull seemed minor. Prompt examination can confirm whether repositioning is appropriate and check for other injuries.

Get urgent medical advice if:

Go to an emergency department promptly if there is an obvious deformity, an open wound, severe swelling, or severe pain after a significant injury.

Call emergency services if the hand becomes cold, pale, or blue, or if the child cannot move or feel the fingers normally. These are not typical signs of radial head subluxation and may mean blood flow or nerves are affected.

- The child still will not use the arm after treatment
- Pain, swelling, or bruising is increasing
- The elbow becomes red, hot, or swollen
- The child has a fever or appears unwell
- Symptoms followed a fall or direct blow
- Similar episodes keep happening or occur in an older child

Common questions

Is radial head subluxation a dislocated elbow?

It is a partial displacement involving the radial head and its surrounding ligament. It is not the same as a complete dislocation of the elbow joint, which is usually caused by greater force and may produce swelling or deformity.

Can radial head subluxation go back into place by itself?

Sometimes the ligament returns to position before or during assessment, and the child begins using the arm normally. If the child continues to avoid using the arm, medical assessment is still needed to rule out a fracture or another problem.

Can I put my child's elbow back myself?

It is safer not to attempt this without specific training from a qualified healthcare professional. Several injuries can cause the same symptoms, and manipulating an arm with a fracture may worsen pain or damage.

Does my child need an X-ray?

Not always. A typical history and examination may be enough. An X-ray is more likely when

there is swelling, bruising, deformity, bone tenderness, an unusual cause, or failure to use the arm after reduction.

How quickly should my child use the arm again?

Many children begin using it within minutes after successful treatment. Some need longer because they are upset or have been guarding the arm. Continued refusal to use it needs reassessment.

Will it happen again?

It can. Repeat episodes are more common in children who have already had one, but they usually stop as the elbow and ligament mature. A new episode should not automatically be treated as the same injury without assessment.

Sources

- American Academy of Orthopaedic Surgeons, OrthoInfo: Nursemaid's Elbow
- American Academy of Pediatrics, HealthyChildren.org: Nursemaid's Elbow in Children
- Royal Children's Hospital Melbourne, Clinical Practice Guideline: Pulled Elbow
- National Center for Biotechnology Information, StatPearls: Nursemaid Elbow