#### particularly those under 12, due to the relative laxity of their ligaments and immature cervical

anatomy.

The syndrome occurs when inflammation causes the ligaments stabilizing the atlantoaxial joint, particularly the transverse ligament, to loosen. This leads to instability and abnormal neck rotation, resulting in painful torticollis (wry neck), neck stiffness, and limited movement. In severe cases, if left untreated, Grisel's syndrome can lead to neurological complications such as radiculopathy, guadriplegia, or even death from medullary compression.

### **Clinical features**

1. Neck Symptoms (Cervical Symptoms) Painful Torticollis (Cock-Robin Position) The head is tilted to one side with the chin rotated to the opposite side. This posture is due to spasms of the sternocleidomastoid and paraspinal muscles. Restricted Neck Movement Severe limitation in active and passive cervical motion. Attempting to correct the head position causes pain and resistance (Spasmodic Torticollis). Neck Pain and Stiffness Worsens with movement, especially rotation and flexion.

2. Systemic Symptoms Fever (if associated with infection, e.g., pharyngitis, tonsillitis, or

### Grisel syndrome

# **Grisel syndrome**

- Imaging of Craniovertebral Junction Instability, Fixation, and Stenosis in Children
- Retraction: A Case Report of Grisel's Syndrome Complicating the Postoperative Course of Craniotomy for a Massive Cystic Brain Lesion
- A Case Report of Grisel's Syndrome Complicating the Postoperative Course of Craniotomy for a Massive Cystic Brain Lesion
- Intraoperative Ultrasonography for the Surgical Treatment of Grisel Syndrome of the Adult: Management of A Rare Condition
- Iatrogenic atlantoaxial rotatory subluxation after thyroidectomy in a pediatric patient: A case report
- Challenges in Grisel's Syndrome Management in a Two-Month-Old Infant
- Nontraumatic atlantoaxial rotatory subluxation in adults: Report of two cases
- A rare case of atlantoaxial rotatory fixation after posterior calvarial vault expansion surgery in a Crouzon patient

Grisel syndrome is a rare cause of torticollis that involves atlanto-axial subluxation from inflammatory ligamentous laxity following an infection in the head and neck, usually a retropharyngeal abscess.

Characterized by the non-traumatic subluxation (partial dislocation) of the atlantoaxial joint, located between the first two cervical vertebrae (C1 and C2). It typically arises following an infection or surgery in the head and neck region, such as upper respiratory infections (e.g., pharyngitis, otitis media) or procedures like tonsillectomy or adenoidectomy. The condition is more common in children, retropharyngeal abscess). Fatigue and malaise (especially if post-infectious). History of Recent Upper Respiratory Tract Infection or Surgery Common triggers include tonsillitis, otitis media, sinusitis, adenitis, or recent ENT or dental procedures.

3. Neurological Symptoms (If Severe or Chronic) Occipital or Cervical Radicular Pain May radiate to the shoulders or upper back. Headache (due to muscle spasm and cervical irritation). Dizziness and Vertigo (possible compression of vertebral arteries in severe cases). Neurological Deficits (Rare, but Serious) If the subluxation compresses the spinal cord or vertebral artery, symptoms may include: Weakness or sensory deficits in upper limbs. Myelopathy: Hyperreflexia, spasticity, gait instability. Vertebrobasilar Insufficiency: Syncope, visual disturbances.

4. Clinical Signs Fielding & Hawkins Classification (Radiological Assessment): Type I: Mild rotation without anterior displacement. Type II: Rotation with slight anterior displacement of C1. Type III: Severe anterior displacement. Type IV: Posterior displacement (Rare, but most dangerous).

Key Diagnostic Clues: Torticollis with pain and resistance to repositioning. History of recent infection or surgery in the head and neck. Neurological signs suggest an advanced or complicated case.

## Diagnosis

It is typically confirmed through imaging studies, such as X-rays, CT scans, or MRI. Early recognition and treatment are crucial to prevent long-term complications. Treatment may involve antiinflammatory medications, cervical immobilization, and in some cases, surgical intervention if conservative methods fail.

## Treatment

The treatment approach depends on the severity of subluxation and the time elapsed since onset.

1. Conservative Treatment (Early and Mild Cases)

Rest and Immobilization: Cervical collar (soft or rigid) to prevent further displacement. A halo vest may be necessary for more severe instability.

Medical Management: Nonsteroidal Anti-inflammatory Drugs (NSAIDs): Reduce pain and inflammation. Muscle Relaxants (e.g., Diazepam, Baclofen): Alleviate muscle spasm. Antibiotics: If an infectious cause is suspected (e.g., pharyngeal abscess, tonsillitis). Steroids (in some cases): To reduce inflammatory edema.

Physical Therapy: Gentle cervical traction and isometric exercises after acute inflammation resolves.

2. Reduction Techniques (Persistent or Moderate Cases) Manual Reduction: Performed under sedation or light anesthesia by an experienced specialist. Fluoroscopy guidance can ensure correct alignment. Cervical Traction: Gradual reduction using a halo device or skull traction over days to weeks.

3/3

3. Surgical Treatment (Severe, Chronic, or Refractory Cases) Indications: Persistent subluxation despite conservative management. Neurological deficits (e.g., myelopathy, radiculopathy). Recurrence after non-surgical treatment. Surgical Options: Posterior C1-C2 Fusion: Stabilizes the atlantoaxial joint in refractory cases. Odontoidectomy (Rare cases): If odontoid compression contributes to neurological symptoms.

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