

Cervical Carotid Artery Dissection

Definition

Cervical carotid artery dissection (CCAD) is a condition in which a tear occurs in the inner layer (intima) of the carotid artery, leading to an intramural hematoma, stenosis, or pseudoaneurysm formation. It is a significant cause of ischemic stroke, especially in young adults.

Etiology CCAD can occur spontaneously or be triggered by trauma. Risk factors include: - **Mechanical/traumatic causes:**

1. Blunt or penetrating trauma to the neck
2. Chiropractic manipulation
3. Severe coughing, sneezing, vomiting
4. Hyperextension or sudden head movements
5. Strangulation or direct pressure on the neck

- **Underlying conditions:**

1. Connective tissue disorders (e.g., Ehlers-Danlos syndrome, Marfan syndrome)
2. Fibromuscular dysplasia
3. Recent infections
4. Hypertension
5. Smoking

Pathophysiology - A tear in the intima allows blood to enter the arterial wall, creating a false lumen. - This may lead to:

1. **Stenosis** (narrowing of the vessel)
2. **Thrombosis** (clot formation)
3. **Embolization** (dislodgement of clot fragments causing stroke)
4. **Aneurysm formation** (weakening of the vessel wall)

Clinical Presentation Symptoms can vary widely but often include: - **Neurological deficits:**

1. Ischemic stroke or transient ischemic attack (TIA)
2. Hemiparesis, hemianesthesia
3. Aphasia (if left-sided involvement)
4. Visual disturbances (amaurosis fugax)

- **Cervical pain and headache:**

1. Often ipsilateral to the dissection
2. Sudden onset, persistent, and severe

- **Horner's syndrome (partial):**

1. Ptosis
2. Miosis
3. Anhidrosis (sometimes absent)

- Cranial nerve palsies (rare):

1. CN IX-XII involvement due to mass effect

- Tinnitus, pulsatile bruit:

1. May be noted in cases with significant turbulence

Diagnosis - Imaging studies:

1. ****CTA (CT angiography):**** First-line for rapid assessment
2. ****MRI/MRA:**** Identifies intramural hematoma and vessel narrowing
3. ****Doppler ultrasound:**** Can be useful but is less sensitive
4. ****DSA (Digital Subtraction Angiography):**** Gold standard but invasive

Treatment Management depends on symptom severity and stroke risk:

1. Antithrombotic therapy (First-line for most patients):

1. **Antiplatelets (Aspirin, Clopidogrel):** For non-occlusive dissections with minor symptoms
2. **Anticoagulation (Heparin, Warfarin, DOACs):** Preferred if embolic risk is high

2. Endovascular treatment (for select cases):

[Cervical Carotid Artery Dissection Endovascular treatment](#)

3. Surgical intervention:

1. Rarely needed, reserved for cases with severe complications

4. Supportive care:

1. Blood pressure control
2. Pain management
3. Stroke rehabilitation if neurological deficits occur

Prognosis - Most patients recover well with early diagnosis and treatment. - Risk of recurrent dissection is low (~1-2% per year). - Long-term monitoring is recommended, particularly in patients with connective tissue disorders.

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