

TIA · Transient Ischemic Attack

A TIA is brain trouble (weakness, slurred speech, vision loss) that goes away in under 24 hours—usually under 1 hour—because blood flow comes back before cells die. Find where the clot came from (heart, neck artery, or small vessel disease) with brain imaging (MRI with DWI), vessel imaging (CT or MR angiogram or carotid ultrasound), and heart check (ECG, echo if a heart clot is likely). Give dual antiplatelet therapy (aspirin plus clopidogrel) for 21 days if imaging is clean, then one blood thinner forever. Start a high-dose statin (atorvastatin 80 mg). Control blood pressure, diabetes, and cholesterol. Refer to stroke neurology within 24 hours—half of all strokes after TIA happen in the first 2 days.

THE ONE-LINE TRUTH

A blood clot briefly plugs a brain artery, then breaks apart before brain cells die—but the next clot might not dissolve in time.

The chain — how it unfolds

1. A clot or plaque fragment plugs a brain artery (most often the middle cerebral artery, which feeds the face/arm/speech area, or a branch of it). — why: The blockage cuts off oxygen and glucose delivery to downstream brain cells—those cells stop making ATP (the energy molecule), so ion pumps fail and electrical signals stop within seconds.
2. Brain cells stop working immediately, causing sudden focal symptoms: arm/face weakness, slurred speech (if the left hemisphere language areas are hit), vision loss (if posterior cerebral artery), numbness, or trouble understanding words. — why: Without ATP, neurons cannot maintain the sodium/potassium gradients needed to fire action potentials—the brain region goes electrically silent, so the body function it controls (movement, speech, vision) disappears instantly.
3. Collateral arteries (backup branches in the Circle of Willis) open, or the clot breaks apart from natural tPA in the blood, restoring blood flow before cells die—usually within 1 hour, always within 24 hours by definition. — why: The Circle of Willis connects the carotid and vertebral systems, so blood can detour around a blocked artery; tPA dissolves fibrin strands holding the clot together, letting fragments wash downstream and flow resume.

4. Oxygen returns, stunned neurons recharge (ischemic penumbra recovers), and every symptom vanishes—the exam is completely normal again. — why: Cells in the penumbra (the at-risk zone around the blockage) were blood-starved (ischemic) but not infarcted (dead)—once they get oxygen, ATP production restarts, ion pumps work again, and normal signaling comes back, so strength, speech, and vision return to baseline.
5. The clot source remains: atrial fibrillation (an irregular, quivering heartbeat) keeps pooling blood in the heart, carotid plaque is still rough and ready to throw another clot, or small-vessel disease keeps arteries stiff and narrow. — why: A TIA does not fix the upstream problem—it just means the first clot was small or dissolved fast. The same broken system (irregular heartbeat, cholesterol buildup, high blood pressure damage) will produce another clot unless treated.
6. The next a traveling clot (embolus) may be larger, stick longer, or hit a spot with poor collaterals—brain cells die (infarction), and the deficit is permanent (ischemic stroke). — why: If collaterals cannot reroute enough blood or the clot does not dissolve in time, neurons run out of ATP for more than a few minutes and undergo irreversible injury (cell membrane breaks down, calcium floods in, cells swell and die)—that tissue is gone forever.
7. Risk is highest in the first 48 hours (5% stroke rate) and first 7 days (10% total)—so TIA is a medical emergency requiring same-day imaging, antiplatelet therapy, statin, and neurology referral. — why: The clot-producing condition is active right now—imaging finds the source (carotid narrowing (stenosis) >50% may need surgery; atrial fibrillation (an irregular, quivering heartbeat) needs anticoagulation; small-vessel disease needs blood pressure and diabetes control), and dual antiplatelet therapy (aspirin + clopidogrel for 21 days) cuts early stroke risk by two-thirds if started within 24 hours.

Spot it — what you see, and why

- Sudden weakness or numbness on one side of the body (face, arm, or leg): A clot or piece of plaque briefly blocks a brain artery, so part of the motor cortex (the strip of brain that sends movement signals) or the sensory cortex (the strip that receives touch signals) stops getting oxygen and can't fire properly. That side of the body goes numb or weak because the signals aren't getting through.
- Sudden trouble speaking or understanding words (slurred speech, wrong words, or can't get words out): The blockage hits Broca's area (the speech-making zone in the front-left brain) or Wernicke's area (the word-understanding zone in the side-left brain). Without oxygen those cells pause, so speech comes out garbled or the person can't make sense of what they hear.

- Sudden vision loss or double vision in one or both eyes: The clot blocks an artery feeding the occipital lobe (the back of the brain that reads what your eyes send in) or the brainstem pathways that coordinate eye movement. The visual signal stops reaching the brain or the eyes can't line up, so vision goes dark or doubles.
- Sudden severe dizziness, loss of balance, or trouble walking: The blockage cuts flow to the cerebellum (the coordination center at the back-bottom of the brain) or the vestibular pathways (the inner-ear-to-brain balance system). Those areas can't keep you steady, so you feel spinning or can't stay upright.
- Sudden severe headache with no clear cause: When blood vessels in the brain suddenly stretch or spasm because of the blockage or the brain tissue swells even a little from the lack of oxygen, pain sensors in the vessel walls and the meninges (the wrapping around the brain) fire and create a sharp headache.
- Confusion or sudden trouble thinking clearly: The blockage starves parts of the frontal or parietal lobes (thinking and attention zones) of oxygen. Those neurons slow down or pause, so the person can't focus, plan, or track what's happening around them.

Red flags — act now

- Symptoms lasting longer than one hour or not fully gone (may be a stroke, not a TIA)
- New or worsening weakness, numbness, or speech trouble after the first episode clears
- Sudden severe headache, worst of your life, or headache with stiff neck or confusion
- Loss of consciousness, seizure, or severe trouble staying awake
- Symptoms return in waves or happen more than once in a short time (high risk of full stroke within hours to days)

Treat it — in this order

1. Dual antiplatelet therapy: aspirin 325 mg loading dose, then 81 mg daily, PLUS clopidogrel 300–600 mg loading dose, then 75 mg daily for 21 days (CHANCE/POINT protocol), then aspirin alone → Two antiplatelet drugs together stop platelets from clumping and forming new clots in the first three weeks after a TIA, when stroke risk is highest (up to 10–20% in the first 90 days, mostly in the first week). After 21 days, you drop clopidogrel and continue aspirin alone to avoid bleeding risk.
2. High-intensity statin: atorvastatin 80 mg or rosuvastatin 20–40 mg daily, regardless of baseline LDL → Statins lower LDL cholesterol and stabilize the cholesterol plaques inside arteries so they are less likely to crack open and form a clot. They also cool down inflammation in the vessel wall. The benefit starts within weeks and grows over months.

3. Blood pressure control: target < 140/90 mmHg for most patients, < 130/80 mmHg if diabetes or chronic kidney disease (individualize based on age and comorbidities) → Lowering blood pressure reduces the force hammering on artery walls, which slows plaque growth and lowers the chance that a plaque will rupture. ACE inhibitors, ARBs, and thiazide diuretics are common first choices.
4. Carotid imaging (Doppler ultrasound, CT angiography, or MR angiography) followed by carotid endarterectomy or stenting within 2 weeks if symptomatic narrowing (stenosis) ≥ 70% (or 50–69% in select cases) → Removing the plaque (endarterectomy) or propping the artery open with a mesh tube (stenting) restores normal blood flow and removes the rough surface where clots form. Early surgery (within 2 weeks of the TIA) cuts stroke risk dramatically in patients with severe narrowing.
5. Anticoagulation (warfarin with INR 2–3, or a DOAC such as apixaban 5 mg twice daily, rivaroxaban 20 mg daily, edoxaban 60 mg daily, or dabigatran 150 mg twice daily) if atrial fibrillation (an irregular, quivering heartbeat) or left ventricular a blood clot (thrombus) is found → Anticoagulants block clotting factors in the blood (warfarin blocks vitamin K-dependent factors; DOACs block factor Xa or thrombin directly) and prevent new clots from forming in the heart. This stops clots from shooting up to the brain. CHA₂DS₂-VASc score ≥ 2 in men or ≥ 3 in women means anticoagulation is needed.

Your top priorities at the bedside

1. Monitor neuro checks every 1 to 2 hours using NIH Stroke Scale or hospital protocol, including arm drift, speech, facial droop, and alertness. — why: Up to 10% of TIA patients have a full stroke within 48 hours. Early stroke symptoms like new weakness or confusion need immediate imaging and possible clot removal (thrombectomy) to save brain tissue before permanent damage occurs.
2. Keep blood pressure below 140/90 mmHg but not lower than 120/80 mmHg unless the doctor orders a different target. — why: High blood pressure damages artery walls and breaks plaque loose, causing more clots. But dropping pressure too low reduces blood flow to brain tissue that is already starving for oxygen, which can cause a stroke. The brain needs steady gentle pressure.
3. Give aspirin 325 mg and clopidogrel loading dose exactly as ordered, then continue dual antiplatelet therapy for 21 days. — why: Two antiplatelet medicines together stop platelets (clotting cells) from forming new clots on unstable artery plaque. The CHANCE and POINT studies showed this cuts stroke risk by 30% in the first three weeks, which is the highest danger period.