



LABYRINTHINE INFARCTION

This handout is intended as a general introduction to the topic. As each person is affected differently, speak with your health care professional for individual advice.



Key points

- A serious type of small stroke – can be a warning sign of a larger stroke.
- The artery supplying oxygenated blood to the inner ear becomes narrowed or blocked.
- Symptoms include dizziness and/or loss of balance along with sudden hearing loss in one ear.
- **Do not wait – call 911 or other emergency services immediately.**
- Mainly affects people in their mid-50s to early 60s but can happen at any age.
- More likely to happen in people with other risk factors for stroke.
- Usually diagnosed by a doctor at a hospital emergency department.
- Immediate treatment includes medication to prevent more damage as well as to help prevent a larger stroke.
- Increases risk for a larger stroke – attend all follow-up appointments.
- Related sudden deafness has a good outcome in over 8 out of 10 patients.

What is labyrinthine infarction?

The inner ear is also called the labyrinth. When not enough oxygenated blood is getting to part of the body, it is called ischemia (iss-KEE-mee-a). If organs and cells go for too long without oxygen, this causes damage, which is called an infarction. So, a labyrinthine infarction is damage to the inner ear that is caused by a loss of oxygenated blood supply.

Labyrinthine infarction can cause sudden balance problems and hearing loss on one side, which is also known as acute vestibular syndrome. In most cases, acute vestibular syndrome is caused by vestibular neuritis.

Labyrinthine infarction is much less common than vestibular neuritis, but it is more dangerous. A labyrinthine infarction is a type of small stroke, and it can be a warning sign that a larger stroke is going to happen. If you have spinning dizziness and/or loss of balance along with sudden loss of hearing on one side, **do not wait; call 911 or call other emergency services right away.**

On average, people who have a labyrinthine infarction are in their mid-50s to early 60s, but it can happen at an older or younger age.

What are the causes?

Labyrinthine infarction is usually caused by a narrowing (stenosis - stuh-NOW-suhs) or blockage of the labyrinthine artery, which supplies blood to the inner ear. This may be caused by blood clots, heart or blood vessel disease, sickle cell disease, leukemia or any condition that causes blood clotting or thickens the blood.

The inner ear needs a steady blood supply to work properly, because it uses a lot of energy and oxygen. When it is not getting enough blood, the inner ear

stops working properly. This can cause symptoms like dizziness and hearing loss.

Labyrinthine infarction is more likely to happen in people who have other risk factors for stroke. The major risk factors include:

- *smoking
- high blood pressure
- hardening of the arteries
- heart disease
- previous history of stroke
- diabetes
- family history of heart problems
- age

What are the symptoms?

Symptoms of labyrinthine infarction usually start suddenly. They may include:

- a feeling of movement or spinning (vertigo)
- discomfort with head movements
- nausea and vomiting
- hearing loss on one side; in some cases, it may fluctuate (come and go)
- balance problems
- ringing in the ears (tinnitus)
- physical signs of anxiety such as increased heart rate and rapid breathing

How is it diagnosed?

Labyrinthine infarction can be very serious. Because it has many of the same symptoms as less serious conditions, your doctor will need to carefully examine you to make the correct diagnosis.

Labyrinthine infarction is usually diagnosed by a doctor at a hospital emergency department.

The doctor will ask about your symptoms. Try to be as specific as possible about your symptoms, when they started and when they get better or worse.

The doctor will also ask about your medical history, including any medications you are taking or recently stopped taking, any recent illnesses and any conditions you have been diagnosed with in the past. The doctor will also do a thorough physical and neurological exam.

You will probably have some of the following diagnostic tests:

- vestibular function tests
- imaging tests that look at your blood vessels, such as MRI (magnetic resonance imaging) MRA (magnetic resonance angiogram) or CT (computed tomography) angiogram; you may need to have an injection of contrast material so that your veins and arteries show up on the scan

Imaging tests for labyrinthine infarction do not always show a problem. For example, MRI may be negative for stroke in the first 24 to 48 hours.

A special bedside test called the HINTS (Head-Impulse-Nystagmus-Test of Skew) Exam can help the doctor make a diagnosis of labyrinthine infarction. The HINTS Exam carefully assesses eye movements. A normal result strongly indicates a central (brain) cause of vertigo. An abnormal result usually indicates an acute peripheral (inner ear) cause of vertigo such as vestibular neuritis.

How is it treated and managed?

A labyrinthine infarction is a small stroke. If you are diagnosed with a labyrinthine infarction, you will be given immediate treatment to prevent more damage and help prevent a larger stroke. You may be given several kinds of medication including:

- anticoagulants such as heparin or warfarin to slow down your body's process of making clots
- drugs that lower high blood pressure (antihypertensives)
- statins or other drugs that lower cholesterol

Having a labyrinthine infarction means you are more at risk for having a larger stroke. When you are discharged from the emergency department, you will be given a list of symptoms to watch for.

Make sure to follow up with your family doctor and have appointments for:

- a stroke specialist
- a stroke clinic where they will look at the risk factors that played a role in your labyrinthine infarction
- any further tests needed

What to expect in the future

Sudden deafness due to labyrinthine infarction often has a good outcome (81%).

Help yourself avoid a second stroke by:

- stopping smoking
- taking medications as prescribed to help you control your cholesterol, blood pressure or diabetes
- watching your diet by:
 - eating more vegetables and fruits
 - choosing foods higher in fibre
 - reducing your salt (sodium) intake
 - choosing unsaturated fats over saturated or trans fats
 - cutting added sugar
 - eating moderate portions
- losing weight, or keeping your weight at a healthy level
- exercising regularly
- drinking alcohol in moderation

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In addition, find information about how the balance system works, the journey from diagnosis to treatment, building a wellness toolkit, and more.

Handout updated September 2021

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