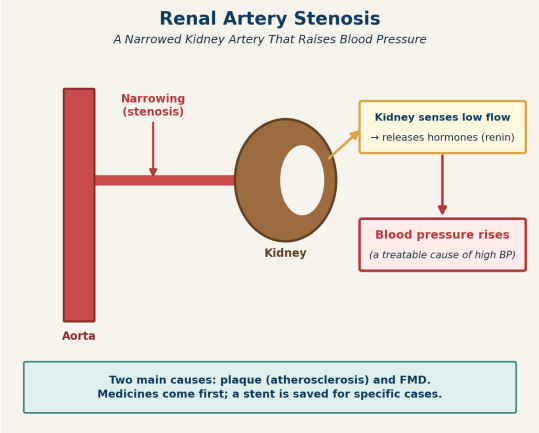
Renal Artery Stenosis

A Narrowed Kidney Artery That Raises Blood Pressure

Renal artery stenosis is a narrowing of an artery that feeds a kidney. The kidney reacts by raising blood pressure — so it is a treatable cause of high BP. This guide explains why, and how it is treated.



Online: https://go.riasalimd.com/renal-artery-guide

Rias KS Ali, MD FACC

Board Certified in Interventional Cardiology & Cardiovascular Disease

4740 Mile Stretch Drive, Holiday FL 34690 | Office: (727) 943-5200 | Fax: (727) 943-5201 | RiasAliMD.com

Last Updated: August 2026

Names & Terms You Will Hear

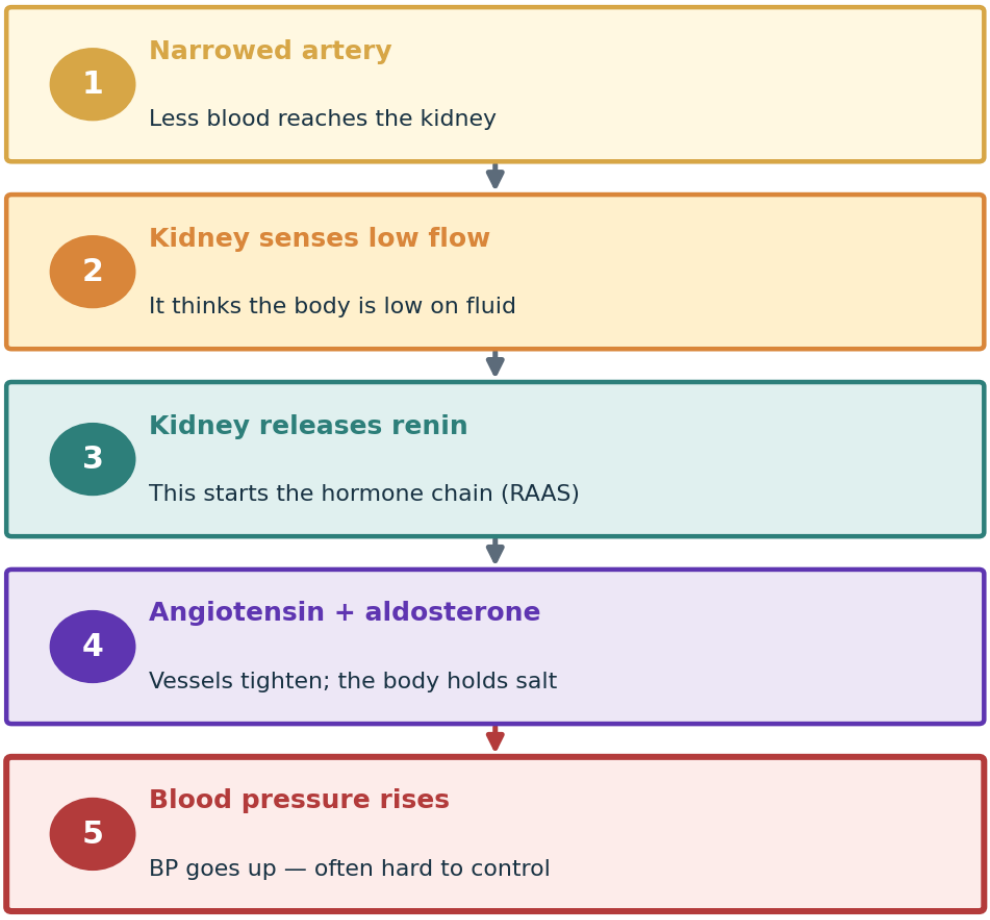
Term	Meaning
Renal Artery Stenosis (RAS)	A narrowing of an artery that supplies blood to a kidney. It can raise blood pressure and harm kidney function. It is a treatable cause of high BP.
Renovascular Hypertension	High blood pressure caused by a narrowed kidney artery. The kidney senses low flow and triggers hormones that raise BP. Treating the cause can improve control.
Atherosclerotic RAS	The most common type. Plaque builds up at the start of the kidney artery. It is seen in older adults who often have plaque in other arteries too.
Fibromuscular Dysplasia (FMD)	A problem in the artery wall — not plaque and not inflammation. It gives a beaded 'string of beads' look. It is most common in younger women. Angioplasty often helps.
RAAS (Renin-Angiotensin-Aldosterone System)	The hormone chain the kidney turns on when it senses low blood flow. It tightens blood vessels and makes the body hold salt and water. This raises blood pressure.
Renal Duplex Ultrasound	A safe, no-radiation sound-wave test that checks blood flow in the kidney arteries. It is often the first test used to look for renal artery stenosis.
Angioplasty / Stenting	A catheter procedure to open a narrowed artery. A balloon widens it. A small mesh stent may be left in place. It is saved for specific cases in plaque-related RAS.
Flash Pulmonary Edema	A sudden buildup of fluid in the lungs. When it keeps coming back without a clear heart cause, a narrowed kidney artery on both sides may be the reason.

The big idea:
A narrowed kidney artery cuts blood flow. The kidney senses this and triggers hormones that raise blood pressure. So renal artery stenosis is a **treatable cause of high BP** — and it can also harm kidney function over time.

Renal Artery Stenosis?

- **What it is.** Renal artery stenosis (RAS) is a narrowing of an artery that supplies a kidney. Less blood reaches the kidney. The kidney reacts in a way that raises blood pressure.
- **Why blood pressure goes up.** The kidney senses low flow and thinks the body is low on fluid. It turns on a hormone chain (the RAAS). This tightens vessels and holds salt — so BP rises.
- **It is a secondary cause of high BP.** That means there is a specific, treatable reason for the high pressure. See our Secondary Hypertension guide for the full picture.
- **Two main causes.** Plaque buildup (atherosclerosis) is the most common — usually in older adults. Fibromuscular dysplasia (FMD) is a wall problem seen in younger people, especially women.
- **It can also harm the kidney.** Long-standing low flow can slowly lower kidney function. Finding RAS early can help protect the kidney and get the blood pressure under control.
- **How it is found.** Doctors use a renal duplex ultrasound first. A CT angiogram (CTA) or MR angiogram (MRA) can confirm the narrowing and show how severe it is.

How a Narrowed Kidney Artery Raises Blood Pressure



This is why ACE inhibitor and ARB pills work well here — they block this hormone chain.

How a narrowed kidney artery raises blood pressure. The kidney senses low flow, releases renin, and turns on the RAAS hormone chain — which tightens vessels and holds salt, so BP rises. This is why ACE inhibitor and ARB pills work well here. Source: 2017 ACC/AHA Hypertension Guideline.

Why It Matters

- **It is a fixable reason for high BP.** Many people take more and more pills without an answer. RAS is one cause worth checking when the BP pattern is unusual or hard to control.
- **It can protect the kidney.** A badly narrowed artery starves the kidney over time. Catching it can slow or stop a decline in kidney function.
- **The pill choice matters.** ACE inhibitor and ARB drugs block the exact hormone chain that drives the BP up here. They are very effective — but kidney labs must be watched closely after starting them.
- **A sudden kidney drop is a clue.** If kidney numbers fall fast right after starting an ACE inhibitor or ARB, it can point to narrowing on both sides. That is important to catch.
- **FMD is often missed.** A young woman with new high BP may have FMD, not ordinary high BP. The right label can lead to a fix — balloon angioplasty often works well.
- **Honest evidence guides treatment.** For plaque-related RAS, large trials (CORAL and ASTRAL) showed that routine stenting did not beat good medicine. So medicines come first, and a stent is saved for specific cases.
- **It rarely travels alone.** Plaque in the kidney artery often means plaque elsewhere. See our Peripheral Artery Disease and Coronary Calcium guides.

What the big trials taught us:
For plaque-related renal artery stenosis, CORAL (947 patients) and ASTRAL (806 patients) found that **routine stenting did not beat good medicine**. So medicines come first — and a stent is saved for specific cases like uncontrolled BP, worsening kidneys, or flash lung fluid.

Risk Factors

Some patients are more likely to develop this condition. Knowing your risk helps your care team take extra precautions.

Risk Factor	Why It Increases Risk
Older age with plaque elsewhere	The most common setting for plaque-related RAS. If you have heart, neck, or leg artery disease, the kidney artery may be narrowed too.
Smoking	Smoking is a major driver of plaque in every artery, including the kidney arteries. Quitting is one of the best things you can do.
High blood pressure that is hard to control	BP that stays high on three or more drugs, or that suddenly gets worse, is a reason to look for a secondary cause like RAS.
Diabetes and high cholesterol	Both speed up plaque buildup throughout the body. They raise the risk of narrowing in the kidney arteries.
Being a younger woman (for FMD)	Fibromuscular dysplasia is most common in women under 50. New high BP at a young age can be a clue to FMD.
A sudden kidney-function drop on an ACE/ARB	If kidney numbers fall fast after starting an ACE inhibitor or ARB, narrowing on both sides may be the reason.
Repeated 'flash' fluid in the lungs	Sudden lung fluid that keeps coming back, without a clear heart cause, can point to severe RAS on both sides.

Red-Flag Clues: When to Suspect Renal Artery Stenosis

1	**Hard-to-control BP** High BP that stays up on 3 or more drugs, or suddenly gets worse
2	**Very young or late onset** New high BP before age 30, or starting suddenly after age 55
3	**Kidney drop after a BP pill** Creatinine rises after starting an ACE inhibitor or ARB
4	**Flash pulmonary edema** Sudden fluid in the lungs with no clear heart cause
5	**A bruit over the belly** A whooshing sound the doctor hears over the upper abdomen
6	**Other artery disease** Known plaque in the heart, neck, or leg arteries

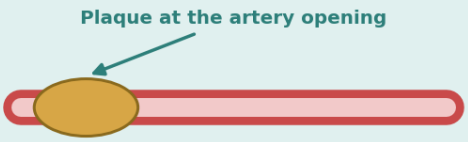
Red-flag clues that should make a doctor think about renal artery stenosis. Any single clue — hard-to-control BP, very young or late onset, a kidney drop after an ACE/ARB, flash lung fluid, or a bruit over the belly — is a reason to look closer. Source: 2017 ACC/AHA Hypertension Guideline.

Treatment Options

- **Medicines come first for plaque-related RAS.** Two large trials (CORAL, with 947 patients, and ASTRAL, with 806 patients) found that routine stenting did not lower heart or kidney events compared with good medicine alone. So most patients are treated with medicines.
- **ACE inhibitor or ARB.** These drugs block the hormone chain that raises BP in RAS. They are the preferred BP medicines here. Kidney labs and potassium are checked soon after starting.
- **A statin and antiplatelet.** A statin lowers cholesterol and slows plaque. Low-dose aspirin (or a similar drug) lowers clot risk. Both treat the wider plaque problem, not just the kidney artery.
- **Lifestyle and other BP drugs.** A low-salt diet, weight control, exercise, and quitting smoking all help. A water pill (diuretic) and other BP drugs are often added to reach the goal.
- **When a stent or angioplasty is used in plaque RAS.** It is saved for specific cases: BP that stays high despite full medicine, kidney function that keeps worsening, or repeated flash fluid in the lungs.
- **FMD is different.** Balloon angioplasty (widening the artery with a balloon) often works well for FMD — and frequently no stent is needed. It can greatly improve or even cure the high BP.
- **The procedure itself.** A thin tube (catheter) is passed to the kidney artery. A balloon opens the narrowing. A small mesh stent may be left in place for plaque, but usually not for FMD.
- **Follow-up matters.** After any procedure, BP and kidney labs are watched over time. Medicines usually continue. A narrowing can sometimes come back and need another look.

Two Causes of a Narrowed Kidney Artery

Atherosclerosis (Plaque)



Most common cause overall

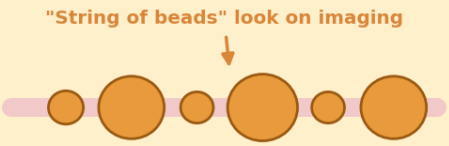
Older adults (often after 55)

Linked to other artery disease

Smoking, diabetes, high cholesterol

Medicines first; stent only for specific problems (see table)

Fibromuscular Dysplasia (FMD)



A non-plaque wall problem

Younger people, mostly women

Not caused by inflammation

Mid-artery, not the opening

Balloon angioplasty often works well — a stent is rarely needed

The two main causes look and behave differently. Plaque narrows the artery opening in older adults and is treated with medicines first. FMD gives a 'string of beads' look in younger women and often responds well to balloon angioplasty. Sources: AHA FMD Scientific Statement 2014; Society for Vascular Surgery.

Treatment by scenario: when medicines are enough, and when a procedure is considered

Scenario	First approach	Procedure considered?
Plaque RAS, BP controlled on meds	Keep optimizing medicines	No — CORAL/ASTRAL show no routine benefit
Plaque RAS, BP still high on full meds	Optimize meds first, then reassess	Yes — angioplasty/stent may be considered
Plaque RAS, kidney function worsening	Review meds and imaging	Yes — may help preserve the kidney
Plaque RAS, repeated flash lung fluid	Urgent evaluation	Yes — a strong reason to open the artery
FMD (younger patient)	Balloon angioplasty often first-line	Yes — often very effective; rarely a stent

How a Narrowed Artery Raises Blood Pressure

- The kidney is very sensitive to its own blood flow. When a narrowed artery cuts that flow, the kidney thinks the whole body is low on fluid — even when it is not.
- To fix what it senses, the kidney releases a hormone called renin. Renin starts a chain of signals known as the RAAS (renin-angiotensin-aldosterone system).
- This chain does two things: it tightens blood vessels, and it tells the body to hold on to salt and water. Both push the blood pressure up.
- So the high BP is not random — it is the kidney's own response to low flow. That is the key idea behind renovascular hypertension.
- **Why this matters for your pills:** ACE inhibitors and ARBs block this exact hormone chain. That is why they work so well here. But because the kidney leans on that chain, labs are watched closely.
- If both kidney arteries are narrowed, blocking the chain too hard can drop kidney function fast. That is why a sudden lab change after a new ACE/ARB is an important clue.

When to Suspect It: The Red-Flag Clues

- Most high blood pressure has no single cause. But a few patterns should make your doctor think about a narrowed kidney artery.
- **Hard-to-control or worsening BP:** high BP that stays up on three or more drugs, or that suddenly gets worse without a clear reason.
- **Unusual age of onset:** new high BP before age 30 (think FMD), or high BP that starts suddenly after age 55 (think plaque).
- **A kidney drop after a new BP pill:** kidney numbers that fall soon after starting an ACE inhibitor or ARB. This can point to narrowing on both sides.
- **Flash pulmonary edema:** sudden fluid in the lungs that keeps coming back without a clear heart cause.
- **A bruit over the belly:** a whooshing sound the doctor may hear with a stethoscope over the upper abdomen — the sound of fast flow through a narrowing.
- Any one of these is a reason to check further — usually starting with a renal duplex ultrasound.

Treatment: Why Medicines Usually Come First

- For plaque-related RAS, the honest evidence is clear. Two large trials — CORAL (947 patients) and ASTRAL (806 patients) — compared stenting plus medicine against good medicine alone.
- Both trials found that routine stenting did not lower heart or kidney events. And the procedure carried small risks. So good medicine is the foundation for most patients.
- **The medicine plan:** an ACE inhibitor or ARB to block the hormone chain, a statin to slow plaque, an antiplatelet (often low-dose aspirin) to lower clot risk, plus salt control, weight loss, exercise, and quitting smoking.
- **When a stent is reserved:** if BP stays high despite full medicine, if kidney function keeps worsening, or if flash lung fluid keeps coming back. In those cases, opening the artery may help.
- **FMD is the exception.** Balloon angioplasty often works very well for FMD — frequently with no stent — and can greatly improve or even cure the high BP in younger patients.
- Either way, follow-up is key. BP and kidney labs are watched over time, and medicines usually continue even after a successful procedure.

Comfort Measures at Home (No Medication Needed)

These simple steps support healing and ease symptoms. Use them alongside any medication your doctor prescribes.

- Quit smoking. This is the single biggest step to slow plaque in the kidney arteries and everywhere else. Ask us for help with quitting.
- Cut back on salt. Aim for less than 1,500 mg of sodium a day. Less salt lowers blood pressure and helps your medicines work.
- Reach and keep a healthy weight. Even losing 5 to 10 pounds can lower blood pressure and ease strain on the heart and kidneys.
- Move most days. Walking, cycling, or swimming for 30 minutes helps lower BP over time. Start slowly and build up.
- Eat a heart-healthy diet. More vegetables, fruit, beans, and whole grains. Less processed and fried food. This slows plaque buildup.
- Take BP and kidney labs seriously. Keep your follow-up visits. Your team watches kidney numbers closely, especially after a new drug.
- Do not stop any BP medicine on your own. Call us first. Some drugs need careful changes to avoid a dangerous BP spike.

Risks, Benefits, and Alternatives

Every choice has trade-offs. Use this table to start the shared decision conversation.

Option	Risks	Benefits	Alternatives
Renal duplex ultrasound (first test)	No radiation and no dye. Results depend on the operator and can be limited by body size or bowel gas. Low burden: a painless sound-wave scan.	A safe, low-cost first look at blood flow in the kidney arteries. It can spot a narrowing and guide whether more imaging is needed.	CT angiogram (CTA) or MR angiogram (MRA) for a clearer picture. These use dye but show the artery in more detail.
ACE inhibitor or ARB medicine	Can cause a fast kidney-function drop, especially with narrowing on both sides. May raise potassium. Kidney labs are checked soon after starting.	Blocks the exact hormone chain that drives the high BP here. Very effective. Also protects the heart and kidneys over time.	Other BP drug classes (such as a calcium-channel blocker or diuretic) if an ACE/ARB cannot be used safely.
Angioplasty / stent for plaque RAS	A catheter procedure with small risks: artery injury, bleeding at the access site, or dye effect on the kidney. Large trials show no routine benefit over medicine.	Can help in specific cases — BP that stays high on full medicine, worsening kidney function, or repeated flash lung fluid. It opens the artery and restores flow.	Keep optimizing medicines (CORAL/ASTRAL approach). This is the right path for most stable plaque-related RAS.
Balloon angioplasty for FMD	Catheter procedure with a small risk of artery tear. Done at experienced centers. Not every FMD lesion needs treatment.	Often works very well for FMD — can greatly improve or cure the high BP. Usually no stent is left in place.	BP medicines alone if the narrowing is mild or the anatomy is not suited to angioplasty. Close follow-up either way.

Common Misconceptions

Myth	Reality
"High blood pressure always means I just need more pills."	Not always. Sometimes there is a specific, treatable cause — like a narrowed kidney artery. When BP is hard to control or the pattern is unusual, ask whether a secondary cause should be checked.
"A stent always fixes a narrowed kidney artery."	For plaque-related RAS, large trials (CORAL and ASTRAL) showed that routine stenting did not beat good medicine. Stenting is saved for specific problems — not used for everyone with a narrowing.
"Renal artery stenosis only happens to older people."	Plaque-related RAS is more common with age. But fibromuscular dysplasia (FMD) is seen in younger people, especially women. New high BP at a young age can be a clue to FMD.
"ACE inhibitors are dangerous, so I should avoid them."	ACE inhibitors and ARBs are actually the preferred drugs here — they block the hormone chain that drives the BP up. They just need careful kidney-lab checks after starting, especially with narrowing on both sides.
"If my BP is high, the narrowing must be on both sides."	Not necessarily. Many people have narrowing on just one side. A drop in kidney function after starting an ACE/ARB is more of a clue to narrowing on both sides.
"There are no warning signs to watch for."	There are clues: BP that is hard to control or suddenly worse, very young or late onset, a kidney drop after a new BP pill, flash lung fluid, or a whooshing sound (bruit) over the belly.

Possible Complications

Knowing what can go wrong helps you spot problems early. Most complications are uncommon, especially with treatment.

Where / What	What Can Happen
Kidney	A badly narrowed artery starves the kidney over time. This can slowly lower kidney function. Severe narrowing on both sides can lead to kidney failure if missed.
Heart and blood pressure	Hard-to-control high BP strains the heart. It can thicken the heart muscle and raise the risk of heart failure over the years. Sudden severe RAS can trigger flash fluid in the lungs.
Whole-body plaque	Plaque in a kidney artery usually means plaque elsewhere — in the heart, neck, and leg arteries. This raises the risk of heart attack and stroke. Treating cholesterol and quitting smoking help the whole body.
Procedure-related risks	Angioplasty or stenting carries small risks: artery injury, bleeding at the access site, or a dye effect on the kidney. This is one reason routine stenting is not used for everyone.
FMD in other arteries	FMD can affect arteries beyond the kidney — including the neck arteries. Rarely it can lead to a tear or a small bulge (aneurysm). Your team may check other areas if FMD is found.

Points to Know

If you remember nothing else, remember these key points.

- Renal artery stenosis is a narrowed kidney artery. The kidney reacts by raising blood pressure — so it is a treatable cause of high BP. It can also slowly harm kidney function.
- Two main causes: plaque (atherosclerosis) in older adults, and FMD in younger people, especially women. FMD gives a 'string of beads' look and often responds well to balloon angioplasty.
- Suspect it when BP is hard to control or suddenly worse, when high BP starts very young or after 55, when kidney numbers drop after an ACE/ARB, with flash lung fluid, or with a bruit over the belly.
- The first test is usually a renal duplex ultrasound — safe and no radiation. A CT or MR angiogram can confirm and grade the narrowing.
- For plaque-related RAS, medicines come first. CORAL and ASTRAL showed routine stenting did not beat good medicine. ACE inhibitor or ARB, a statin, an antiplatelet, and lifestyle are the foundation.
- A stent or angioplasty is saved for specific cases: BP still high on full medicine, worsening kidney function, or repeated flash lung fluid.
- ACE inhibitors and ARBs are preferred here because they block the hormone chain that raises BP — but kidney labs must be watched closely after starting.
- Plaque in the kidney artery often means plaque elsewhere. Quitting smoking and treating cholesterol protect the heart, brain, and legs too.

When to Call Us - and When to Call 911

If you are not sure, call. We would rather hear from you twice than miss a real problem.

- **Call 911** for sudden severe shortness of breath, chest pain, confusion, vision change, or one-sided weakness. These can be signs of a BP emergency or stroke. Do not drive yourself.
- **Call our office (727-943-5200)** if home BP stays above 150/90 on your medicines, or if your BP suddenly gets much worse. These changes are worth a closer look.
- **Call us** if you start an ACE inhibitor or ARB and feel very tired, make much less urine, or have swelling — and ask that your kidney labs be checked, especially in the first weeks.
- **Call us** if you have new high BP at a young age, or BP that stays high on three or more drugs. These are reasons to check for a secondary cause like renal artery stenosis.
- **Call us** if you have sudden, repeated episodes of fluid in the lungs (waking up gasping, severe shortness of breath) without a clear heart cause. This can be a sign of severe narrowing.
- **See our companion guides:** High Blood Pressure, Secondary Hypertension, Resistant Hypertension, Peripheral Artery Disease, and Coronary Calcium.

Office: (727) 943-5200

Companion guides:
High Blood Pressure · Secondary Hypertension · Resistant Hypertension · Peripheral Artery Disease · Coronary Calcium

Trusted Resources

The links below are the trusted resources Dr. Ali used to write this guide and that he recommends you visit for more information. Each is a clickable link in the digital version and a Short.io tracked URL on the printed version.

- Cleveland Clinic — Renal Artery Stenosis - Plain-language overview of narrowed kidney arteries, the link to high blood pressure and kidney decline, and the two main causes.
- Mayo Clinic — Renal Artery Stenosis - Patient overview of symptoms, causes, risk factors, and treatment options including angioplasty and stenting.
- NIH MedlinePlus — Renal Artery Stenosis - Federal resource covering symptoms, imaging (duplex, CTA, MRA), and treatment of renal artery stenosis.
- NIDDK — Renovascular Disease / Renal Artery Stenosis - Federal kidney-institute overview of how RAS affects kidney function and blood pressure, and how it is diagnosed and treated.
- Society for Vascular Surgery — Fibromuscular Dysplasia - Patient overview of FMD: who it affects, the 'string of beads' appearance, and why balloon angioplasty is often effective.
- 2017 ACC/AHA High Blood Pressure Guideline - The guideline behind when to screen for renovascular hypertension and the limited role of routine stenting versus medical therapy.
- CORAL Trial (NEJM, 2014) - Landmark trial showing renal-artery stenting added to good medicine did not reduce heart or kidney events versus medicine alone.

Sources Used to Build This Guide

Every recommendation in this guide is grounded in one or more of the studies, guidelines, or trusted resources below. Short links are tracked so Dr. Ali can see which references patients are reading; nothing personally identifying is captured.

- Cleveland Clinic — Renal Artery Stenosis *[Patient Education]*
  Plain-language overview of narrowed kidney arteries, links to hard-to-control blood pressure and kidney decline, and causes (atherosclerosis, FMD).
- Mayo Clinic — Renal Artery Stenosis *[Patient Education]*
  Patient-facing overview of symptoms, causes, risk factors, and treatment options including angioplasty and stenting.
- American Heart Association — High Blood Pressure: Secondary Causes *[Patient Education]*
  Frames renal artery stenosis as a treatable cause of secondary hypertension within the broader high-BP picture.
- MedlinePlus — Renal Artery Stenosis *[Patient Education]*
  NIH/NLM overview of symptoms, imaging (duplex, CTA, MRA), and treatment to anchor the explainer.
- 2017 ACC/AHA High Blood Pressure Guideline — Secondary Causes (Renovascular Disease) *[Guideline]*
  Authoritative basis for when to screen for renovascular hypertension and the limited role of stenting (CORAL) vs medical therapy.
- CORAL Trial — Stenting and Medical Therapy for Renal-Artery Stenosis (NEJM 2014) *[Trial]*
  Landmark randomized trial (947 patients) showing renal-artery stenting added to good medical therapy did not reduce cardiovascular or renal events versus medical therapy alone.
- ASTRAL Trial — Revascularization versus Medical Therapy for Renal-Artery Stenosis (NEJM 2009) *[Trial]*
  Large randomized trial (806 patients) showing no clinical benefit of revascularization over medical therapy for atherosclerotic renal-artery stenosis, with procedural risk.
- 2013 ACCF/AHA Lower-Extremity PAD Guideline (Renal Artery Disease section) *[Guideline]*
  Vascular-medicine framing of renal artery disease and the specific indications for revascularization (resistant HTN, declining kidney function, flash pulmonary edema).
- Society for Vascular Surgery — Fibromuscular Dysplasia *[Patient Education]*
  Patient overview of FMD — who it affects (younger women), the 'string of beads' appearance, and why balloon angioplasty is often effective.
- American Heart Association Scientific Statement — Fibromuscular Dysplasia (2014) *[Guideline]*
  Authoritative description of FMD as a non-inflammatory, non-atherosclerotic arterial disease, its multifocal 'beading' pattern, and angioplasty-first treatment.
- NIDDK — Renovascular Disease / Renal Artery Stenosis *[Patient Education]*
  Federal kidney-institute overview of how renal artery stenosis affects kidney function and blood pressure, and how it is diagnosed and treated.

About This Guide

Rias KS Ali, MD FACC | Board Certified in Interventional Cardiology & Cardiovascular Disease

4740 Mile Stretch Drive, Holiday FL 34690 | Office: (727) 943-5200 | Fax: (727) 943-5201 | RiasAliMD.com

Version: 2026-08-16

Reviewer note: Reviewed Cleveland Clinic Renal Artery Stenosis, Mayo Clinic, and NIH MedlinePlus/NIDDK. This guide adds: a step-by-step hormone-loop diagram of how a narrowed artery raises BP; a plaque-vs-FMD comparison with the classic 'string of beads' look; a red-flag 'when to suspect it' chart; and the honest CORAL/ASTRAL evidence on why medicines come first and when a stent actually helps — usually missing from standard patient pages.

Disclaimer

This guide is for educational purposes only and does not replace medical advice from your physician. Recommendations may not apply to every patient. Always follow the specific instructions of Dr. Ali and your care team. In an emergency call 911 or go to the nearest emergency department.

Take This Guide With You

Scan or visit: go.riasalimd.com/renal-artery-guide

Online: https://go.riasalimd.com/renal-artery-guide

Office: (727) 943-5200

4740 Mile Stretch Drive, Holiday FL 34690 | Office: (727) 943-5200 | Fax: (727) 943-5201 | RiasAliMD.com