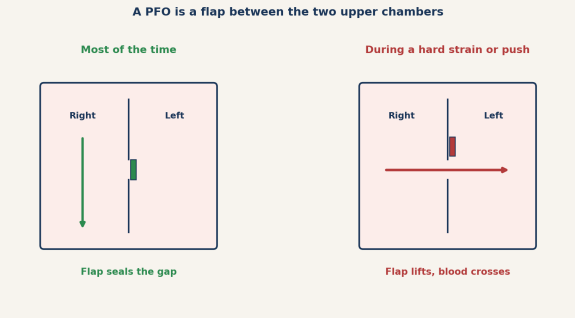
Understanding PFO and Pregnancy

What a small flap in the heart means before, during, and after pregnancy

Most women with a PFO have a normal pregnancy. Here is what your team watches, and why.



Online: https://go.riasalimd.com/pfo-pregnancy-guide

Rias 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

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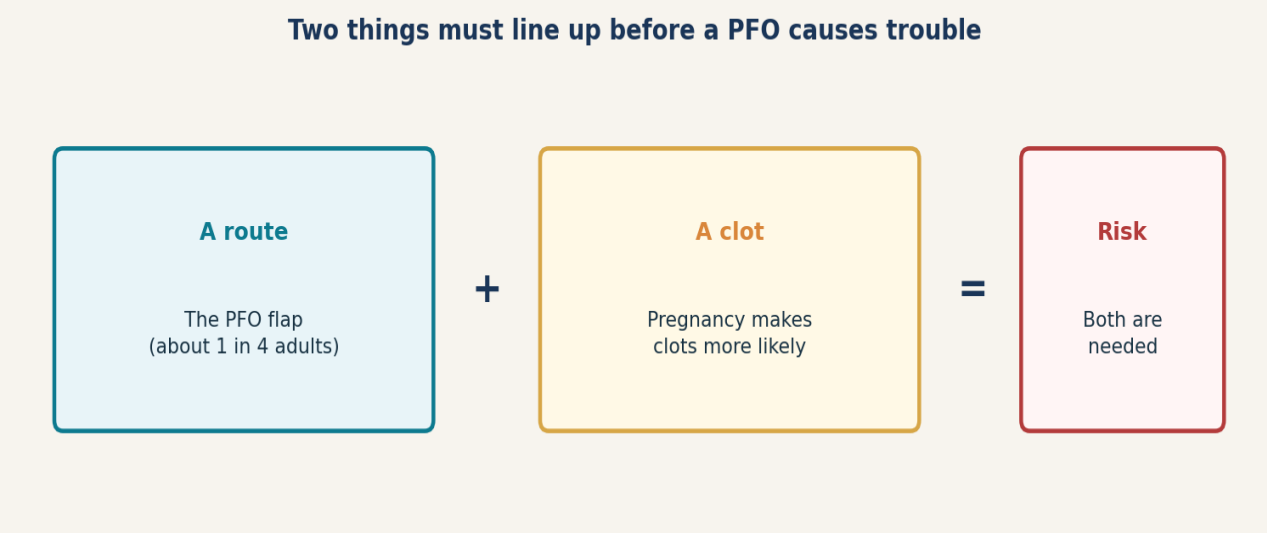
Names & Terms You Will Hear

Term	Meaning
PFO	Patent foramen ovale. A small flap between the two upper chambers of the heart.
Patent	Means open. The flap did not seal shut after birth.
Right-to-left shunt	Blood crossing from the right side of the heart to the left side.
Paradoxical embolism	A clot that starts in a vein and ends up in an artery by crossing the flap.
Cryptogenic stroke	A stroke with no clear cause found after testing.
Bubble study	An echo test that uses tiny bubbles to show if blood crosses the flap.
Hypercoagulable	Blood that clots more easily than usual. Pregnancy causes this.

Call 911 for stroke warning signs. Think F.A.S.T.
Face drooping. **A**rm weakness. **S**peech trouble. **T**ime to call 911.
Also call 911 for sudden vision loss in one eye, sudden severe headache, or sudden shortness of breath.
Note the time you were last normal and tell the team. Stroke treatment works best when it starts early, and being pregnant or recently pregnant does not mean you cannot be treated. Do not drive yourself.

What Is PFO and Pregnancy?

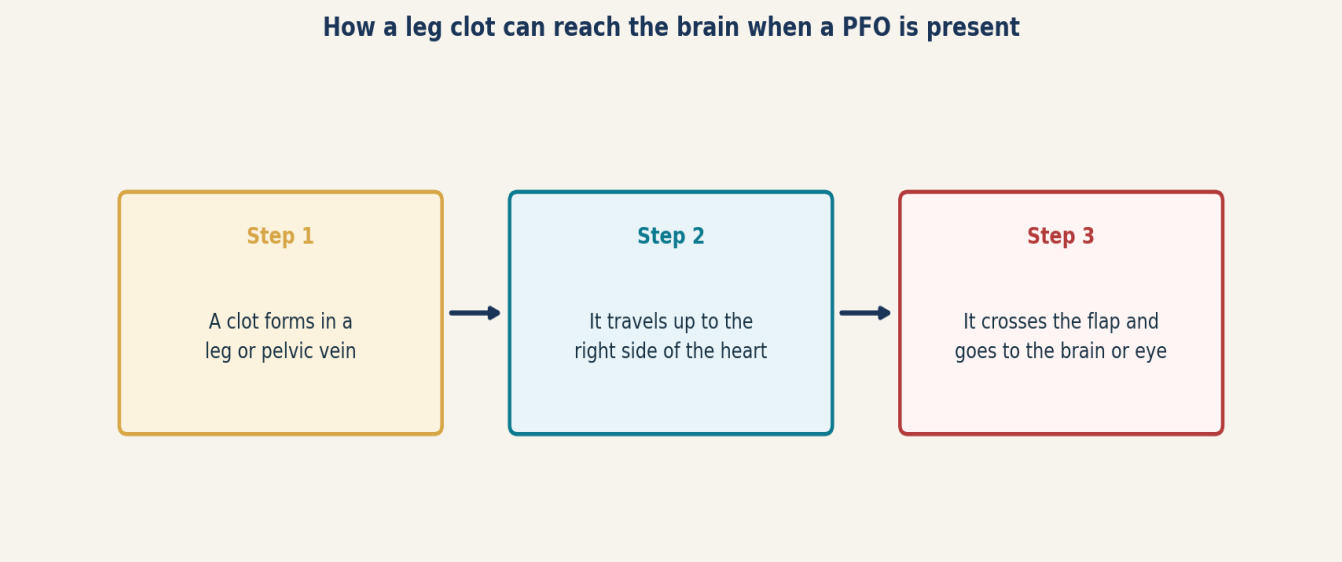
- Before birth, every baby has an opening between the two upper chambers of the heart. It lets blood skip the lungs, which are not in use yet.
- Most of the time this opening seals in the first months of life. In about 1 in 4 adults it stays as a flap. That flap is a PFO.
- A PFO is not a hole in the wall. It is a flap that usually lies shut. It is different from an ASD, which is a true hole.
- Most people with a PFO never know they have one. It causes no symptoms and needs no treatment.
- Pregnancy changes the blood. It clots more easily, and blood moves more slowly out of the legs.
- Those two facts together are why a PFO gets more attention during pregnancy than at other times.
- A PFO is found with an echo, usually with a bubble study. It cannot be heard with a stethoscope.



A PFO is a route, not a cause. A stroke needs both a route and a clot. This is why care in pregnancy aims at preventing clots rather than at the flap itself.

Why It Matters

- A PFO by itself is common and usually harmless. The concern is a clot, not the flap.
- Pregnancy raises the chance a clot forms in a leg or pelvic vein. Blood clots more easily from early pregnancy until weeks after birth.
- If a clot forms and the flap opens, the clot can cross to the left side of the heart. From there it can travel to the brain or the eye.
- The flap tends to open when pressure rises on the right side. Coughing, straining, and pushing during labor all do this for a moment.
- The risk does not end at delivery. Reported problems cluster in pregnancy and in the first weeks after birth.
- Even so, the overall chance of a problem is low. Most women with a PFO go through pregnancy with no trouble at all.
- There is no official guideline for this exact situation. Care is decided case by case by a team.



The path a clot takes when it crosses a PFO. Pregnancy makes step 1 more likely. Straining, coughing, and pushing in labor make step 3 more likely for a moment.

An honest word about the evidence.

There is no official guideline for managing a PFO during pregnancy. The published experience is small and comes mostly from single case reports. That means two things for you. First, anyone who gives you a confident, one-size-fits-all answer is overstating what is known. Second, your plan should be built around your own history by a team that talks to each other, and you should be told the reasoning behind it.

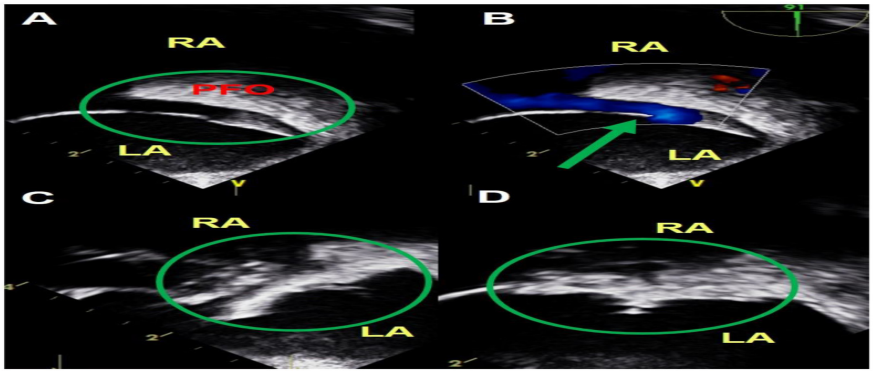
Risk Factors

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
A past stroke or mini-stroke linked to the PFO	This is the single biggest factor. It changes the plan the most, and it calls for specialist input before you conceive.
A past clot in the leg or lung	It shows your body has formed a clot before. Pregnancy adds to that tendency.
A known clotting disorder	Some inherited or acquired conditions make clots much more likely. Testing may already have been done.
A large amount of crossing on the bubble study	More crossing means a bigger route. Your cardiologist can tell you what your study showed.
An atrial septal aneurysm with the PFO	A floppy, bulging septum next to the flap. The pair together carries more risk than either alone.
Pelvic vein compression (May-Thurner)	A vein in the pelvis is squeezed, which makes leg clots more likely. Pregnancy makes the squeeze worse.
Cesarean delivery	Surgery plus recovery in bed raises clot risk more than vaginal birth does.
Long bed rest or limited moving	Blood pools in the legs when you cannot move. This can happen with a difficult pregnancy.
High blood pressure problems of pregnancy	Preeclampsia and related conditions raise the risk of stroke on their own.
Carrying twins or more	More strain on the circulation and a higher clot risk.
Older age at pregnancy, obesity, or smoking	Each one adds to clot risk. Smoking is the one you can change today.

Treatment Options

- For most women, the answer is no treatment at all. A PFO found by chance, with no clot or stroke history, usually needs nothing extra.
- Tell your obstetrician and your cardiologist that you have a PFO. That single step matters more than any pill.
- If you have had a stroke linked to the PFO, you need a plan made before you conceive if possible. This involves cardiology, neurology, and a pregnancy specialist together.
- If a blood thinner is needed, low molecular weight heparin is the usual choice in pregnancy. It is a shot, and it does not cross to the baby.
- Warfarin is generally avoided in pregnancy because it crosses to the baby and can cause harm, especially early on.
- The newer pill blood thinners, such as apixaban and rivaroxaban, are not used in pregnancy. If you take one, your team will switch you before you try to conceive.
- Low-dose aspirin is sometimes used, and it is commonly given in pregnancy for other reasons. Whether you need it is a decision for your team.
- Closing the PFO is usually put off until after delivery when it is needed at all. Closure during pregnancy is uncommon and is saved for special situations.
- If you are already planning closure and also planning a pregnancy, the timing is worth discussing early.



A real ultrasound study of a PFO, taken from inside the esophagus (TEE). Panel A circles the flap between the two upper heart chambers. Panel B adds color to show blood crossing through it. Panels C and D show the closure device seated across the flap after the procedure. Figure 1 from Moon et al., Medicina (Kaunas) 2020, CC BY 4.0.

Blood Thinners in Pregnancy: What Is Used and What Is Not

Medicine	In pregnancy	What to know
Low-dose aspirin	Sometimes used	Taken by mouth. Already common in pregnancy for other reasons. Your team decides if you need it.
Low molecular weight heparin (such as enoxaparin)	Preferred if a blood thinner is needed	A daily shot. It does not cross to the baby. Held around the time of delivery.
Unfractionated heparin	Used in specific settings	Mostly in the hospital. It wears off fast, which helps around delivery.
Warfarin	Generally avoided	It crosses to the baby and can cause harm, especially in the first trimester.
Apixaban, rivaroxaban, and similar pills	Not used in pregnancy	There is not enough safety information. Your team switches you before you try to conceive.

Before You Try to Conceive

- This is the most useful time to ask questions. Decisions made now are easier than decisions made later.
- Tell your cardiologist you are planning a pregnancy. Ask what your bubble study showed and whether you have an atrial septal aneurysm too.
- Bring a full medicine list. Some heart and blood medicines have to be switched before you conceive, not after.
- If you take a newer pill blood thinner, plan the switch in advance. See our blood clot guide for background on how these medicines work.
- If you have had a stroke linked to your PFO, ask whether closing it before pregnancy makes sense for you. Our PFO closure guide explains the procedure.
- General pregnancy heart planning, including which conditions raise risk the most, is covered in our pregnancy and heart disease guide.

During Pregnancy

- For most women with a PFO, pregnancy care does not change at all.
- Keep moving. Long stretches of sitting or bed rest are the main thing that makes leg clots more likely.
- Know the warning signs of a leg clot: swelling, pain, or warmth in one calf. One-sided is the clue.
- Watch for high blood pressure problems. Preeclampsia raises stroke risk on its own. Our preeclampsia guide covers what to look for.
- If you develop a clot during pregnancy, treatment starts promptly. Heparin shots are the usual choice.
- If pelvic vein compression is found as the source of a clot, that has its own treatment. See our May-Thurner guide.
- A PFO does not need repeat echoes during pregnancy unless something changes.

Labor and Delivery

- A PFO by itself is not a reason for a cesarean. Vaginal birth is usually easier on the heart.
- Pushing raises pressure on the right side of the heart. That is the moment the flap is most likely to open.
- For selected women, the team may plan to shorten the pushing stage with assistance. This is a small adjustment, not a major change to your birth.
- Good pain control helps. An epidural lowers the urge to strain and eases the heart's workload.
- Tell the team about your PFO when you arrive. It belongs on the board with your other information.
- Anyone placing an IV should know. Simple care keeps air bubbles out of the line, which matters when a right-to-left route exists.
- If you also have an atrial septal aneurysm, tell us before delivery. Our atrial septal aneurysm guide explains why the pair matters.

The First Weeks After Birth

- This is the part most people do not expect. Clot risk stays high for weeks after delivery.
- In published case reports, close to a third of PFO-related events happened after birth, not during pregnancy.
- Get up and move as soon as you safely can, especially after a cesarean.
- Keep the stroke warning signs somewhere visible. New parents are tired, and tiredness hides symptoms.
- A bad headache that is not like your usual headache deserves a call, not a wait.
- If closure was deferred, this is when it gets revisited. See our PFO closure guide.
- Birth control choices matter here, because some methods raise clot risk. Our postpartum heart care and contraception guide covers this in detail. Raise it with us if you have had a clot or a stroke.

Comfort Measures at Home (No Medication Needed)

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

- Move often. Short walks through the day keep blood from pooling in your legs.
- Drink enough water. Being dry makes blood thicker.
- On long car or plane trips, get up every hour or two and flex your ankles often.
- Ask about compression stockings, especially if you will be sitting or lying down for long stretches.
- Learn the stroke warning signs and keep them where your partner can see them.
- Avoid straining hard against a closed throat when you can. Treat constipation early so you are not bearing down.
- If you need an IV drip, tell the team you have a PFO. They can take simple care to keep air out of the line.
- Do not start or stop any blood thinner on your own, including aspirin.

Risks, Benefits, and Alternatives

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

Option	Risks	Benefits	Alternatives
Watching, with no blood thinner	No medicine risk. If a clot forms, nothing is on board to slow it.	Right for most women with a PFO found by chance and no clot history. Avoids bleeding risk in pregnancy and delivery.	Low-dose aspirin, or a heparin shot if your history calls for it.
Low-dose aspirin	A small rise in bleeding. Stomach upset for some.	Simple, taken by mouth, widely used in pregnancy for other reasons.	Watching alone, or heparin if a stronger blood thinner is needed.
Low molecular weight heparin shots	Bruising at the shot site. Bleeding risk, which matters around delivery. Daily injections.	The usual choice when a real blood thinner is needed in pregnancy. It does not cross to the baby.	Aspirin alone, or watching, depending on why it was being considered.
Closing the PFO before pregnancy	A procedure with its own risks, including a new irregular heartbeat. It is not always the right answer.	Takes the route out of the picture before the clot-prone months begin. May simplify a later pregnancy.	Medicine alone, or closing after delivery instead.
Closing the PFO during pregnancy	X-ray exposure and sedation while pregnant. Rarely needed. Reserved for specific urgent situations.	May be considered when events keep happening despite treatment.	Waiting until after delivery, which is the far more common path.

Your Situation and What It Usually Means

Your situation	What this usually means	Who should be involved
PFO found by chance. No clot, no stroke.	Usually no extra treatment. Note it in your chart.	Your obstetrician, with your cardiologist informed.
PFO plus a past leg or lung clot.	A clot-prevention plan for pregnancy and the weeks after.	Obstetrician and cardiologist, often with a blood specialist.
PFO plus a past stroke linked to it.	An individual plan made before you conceive when possible.	Cardiology, neurology, and a pregnancy specialist together.
Stroke symptoms happening right now.	A medical emergency. Call 911.	Emergency team first. Everyone else after.

Common Misconceptions

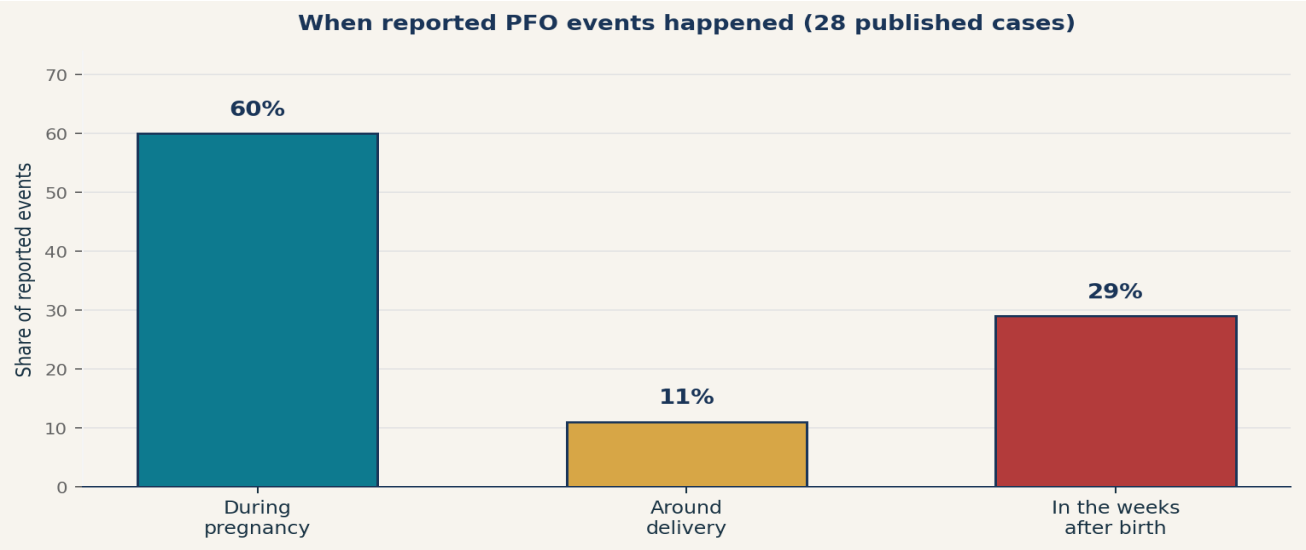
Myth	Reality
A PFO means I should not get pregnant.	No. A PFO on its own is not a reason to avoid pregnancy. Most women with a PFO have a normal pregnancy and a healthy baby.
My PFO has to be closed before I try to conceive.	Usually not. Closure before pregnancy is considered mainly for women who have already had a stroke linked to the PFO. For a PFO found by chance, it is not routine.
I will need a cesarean because of my PFO.	No. A PFO by itself is not a reason for a cesarean. Vaginal birth is usually easier on the heart. Your team may plan to shorten the pushing stage, which is a small change, not major surgery.
My PFO caused my miscarriage.	There is no established link between a PFO and miscarriage. If you have had repeated losses, that needs its own workup for other causes.
Finding a PFO on an echo during pregnancy is an emergency.	It is not. A PFO found by chance is a piece of information, not a crisis. It should be noted in your chart and discussed calmly.
Closing the PFO removes all stroke risk.	It does not. Closure lowers the risk from that one route. Other causes of stroke, including high blood pressure and preeclampsia, still need attention.
Once I deliver, the risk is over.	Not yet. The first weeks after birth carry real risk. In published reports, close to a third of events happened after delivery.

The message most women need to hear.
A PFO is common, and most women who have one go through pregnancy with no trouble at all. The point of this guide is not to make you worry. It is to make sure the few things that do matter actually get done: tell your team, keep moving, know the warning signs, and plan ahead if you have had a clot or a stroke.

Possible Complications

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

Where / What	What Can Happen
Ischemic stroke	A clot blocks an artery in the brain. This is the main concern, and it is why the warning signs matter.
Transient ischemic attack (mini-stroke)	The same warning signs, but they pass. It is still an emergency and still needs a workup.
Sudden vision loss in one eye	A clot can lodge in an artery of the eye. Painless loss of vision in one eye needs emergency care.
Clot caught in the flap	Rarely, a clot is seen sitting in the opening on an echo. This is treated urgently.
Deep vein clot in the leg or pelvis	The source clot itself. Swelling, pain, or warmth in one calf needs a same-day call.
Clot to the lungs	Sudden shortness of breath or chest pain that is worse with a deep breath. Call 911.
Heart attack in a young woman	Uncommon, but a clot crossing the flap can reach a heart artery.



Timing of events among 28 published case reports of PFO-related complications in pregnancy. These are reported cases only, so they show WHEN problems tend to appear, not how likely a problem is. The message to take from it is that the weeks after birth still count.

Points to Know

If you remember nothing else, remember these key points.

- About 1 in 4 adults has a PFO. It is one of the most common findings in the human heart, and it is most common in the younger decades of life.
- The flap alone does not cause a stroke. A clot has to form too. That is why prevention focuses on clots, not on the flap.
- Pregnancy and the weeks after birth are the clot-prone window. The risk does not stop at delivery.
- Most women with a PFO need no extra treatment during pregnancy.
- If you have had a stroke linked to your PFO, plan before you conceive. Bring cardiology, neurology, and a pregnancy specialist into the same conversation.
- If a blood thinner is needed, heparin shots are the usual pregnancy choice. Warfarin and the newer pill blood thinners are not.
- Closure is usually deferred to after delivery when it is needed at all.
- There is no official guideline yet for PFO care in pregnancy. Your plan should be built for you, and you should understand the reasoning.

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 face drooping, arm weakness, or trouble speaking. Note the time you were last normal. Do not drive yourself.
- Call 911 for sudden numbness or weakness on one side, sudden confusion, sudden trouble seeing, or a sudden severe headache with no known cause.
- Call 911 for sudden painless loss of vision in one eye.
- Call 911 for sudden shortness of breath, or chest pain that is worse when you breathe in.
- Call us the same day for new swelling, pain, or warmth in one calf or thigh.
- Call us before delivery if you have a PFO with an atrial septal aneurysm, or if you have had a stroke linked to your PFO, so the plan is set in advance.
- Call us when you start planning a pregnancy, not after you conceive. That is when the useful decisions get made.
- Call us before any procedure or long flight so we can review your clot risk.
- Tell every clinician who places an IV that you have a PFO.

Office: 727-943-5200

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.

- American Stroke Association: stroke warning signs - The F.A.S.T. warning signs in plain language. Worth sharing with your partner.
- CDC: blood clots and pregnancy - Clot warning signs during pregnancy and after delivery, from the CDC.
- Cleveland Clinic: patent foramen ovale - A clear general explainer on what a PFO is and how it is found.
- MedlinePlus: pregnancy and health - Plain-language pregnancy health information from the National Library of Medicine.

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.

- Russo GB, Purisch SE, Countouris ME, et al: Stroke Prevention in Pregnancy and Postpartum in Patients With Patent Foramen Ovale (JACC Advances 2025;4(9):102098) *[Clinical]*
  The anchor reference for this guide. A joint review by neurology, cardiology, and maternal-fetal medicine. It states plainly that no guidelines exist for PFO stroke prevention in pregnancy. It walks through five real situations. These include an incidental PFO, planning a pregnancy after a PFO stroke, and a stroke during pregnancy. It is the basis for this guide's honest framing and its team-based approach.
- Beneki E, Dimitriadis K, Vrysis C, et al: Patent Foramen Ovale in Pregnancy: A Call for Action (Cardiology in Review 2025) *[Clinical]*
  A systematic review of 28 reported pregnant women with PFO-related events. Mean age was 29.4 years. It is the source for when events happened: 60 percent during pregnancy, 11 percent around delivery, and 29 percent after birth. It also gives the event types. Ischemic stroke was 57 percent, TIA 14 percent, heart attack 7 percent, and retinal artery blockage 11 percent. These are reported cases only. This guide uses them to show when events cluster, never as a population risk.
- Hagen PT, Scholz DG, Edwards WD: Incidence and size of patent foramen ovale during the first 10 decades of life: an autopsy study of 965 normal hearts (Mayo Clin Proc 1984;59(1):17-20) *[Clinical Trial]*
  The classic prevalence study. The overall PFO rate was 27.3 percent. It was 34.3 percent in the first three decades of life, which covers most reproductive years. Mean size was 4.9 mm. Rates did not differ between men and women.
- Koutroulou I, Tsivgoulis G, Tsalikakis D, et al: Epidemiology of Patent Foramen Ovale in General Population and in Stroke Patients (Front Neurol 2020;11:281) *[Clinical]*
  Pooled PFO rates in healthy people by test type. Autopsy 24.2 percent, TEE 23.7 percent, transcranial Doppler 31.3 percent, and TTE 14.7 percent. This is why 1 in 4 is the standard teaching figure. It also gives the odds ratio for PFO in cryptogenic stroke versus healthy controls, which was 3.1.
- Bistervels IM, Buchmuller A, Wiegers HMG, et al: Intermediate-dose versus low-dose low-molecular-weight heparin in pregnant and post-partum women with a history of venous thromboembolism: the Highlow randomised controlled trial (Lancet 2022;400(10365):1777-1787) *[Clinical Trial]*
  The largest randomized trial of heparin dosing in pregnancy, with 1,110 women. Repeat clots occurred in 2 percent on the higher dose and 3 percent on the low dose. Major bleeding was 4 percent in both groups. It supports low-dose heparin as the right preventive dose. It also supports this guide's point that more blood thinner is not automatically better.
- Armstrong EM, Bellone JM, Hornsby LB, et al: Pregnancy-Related Venous Thromboembolism (J Pharm Pract 2014;27(3):243-52) *[Clinical]*
  The source for clot rates in pregnancy, which run from 0.49 to 2 events per 1,000 deliveries. Women with a past clot have about 4 times the risk of another one. It names the main risk factors. It also supports low molecular weight heparin over unfractionated heparin in pregnancy.

- Regitz-Zagrosek V, Roos-Hesselink JW, Bauersachs J, et al: 2018 ESC Guidelines for the management of cardiovascular diseases during pregnancy (Eur Heart J 2018;39(34):3165-3241) *[Guideline]*
  The main cardiology guideline for pregnancy care. It covers planning before pregnancy, the pregnancy heart team, blood thinner choices, and delivery planning. This guide uses it for the general frame, because no PFO-specific pregnancy guideline exists.
- Gonzalez Guzman D, Andrade-Castellanos CA, Ponce-Gallegos MA, Garcia Valencia A: Patent Foramen Ovale and Pregnancy: A Case Report and Literature Review (Cureus 2025;17(5):e84973) *[Clinical]*
  A third-trimester stroke with a large right-to-left shunt. It was managed with blood thinners by a team. The PFO was closed after delivery with a good result. It supports the point that closure is usually deferred to after birth.
- Bai H, Cho LD, Cooke PV, Ting W: Endovascular Intervention for May-Thurner Syndrome in a Pregnant Patient with a Patent Foramen Ovale and Paradoxical Embolism (Vasc Endovascular Surg 2022;56(5):517-520) *[Clinical]*
  Shows that a PFO is only half the story. A clot must also form. Pelvic vein compression is a treatable cause of leg clots that can then cross a PFO. This is why the workup looks at the veins and not only the heart.
- Fekri S, Mahmoudimehr P, Jafari Fesharaki M, et al: Retinal arterial occlusion and patent foramen ovale: a case study-based review (J Fr Ophtalmol 2024;47(1):104021) *[Clinical]*
  A review of 23 reported eye artery blockages linked to PFO. Most patients were under 50. Pregnancy was one of the listed risk factors. It supports listing sudden vision loss in one eye as a warning sign, not just stroke.
- Verburgt E, Hilkens NA, Verhoeven JI, et al: History of Pregnancy Complications and the Risk of Ischemic Stroke in Young Women (Neurology 2025;105(5):e214009) *[Clinical Trial]*
  A study of 358 young women with a first stroke compared with 714 women without one. Pregnancy complications such as high blood pressure disorders and preterm birth were linked to later stroke. Used for the long-view message that pregnancy carries heart information beyond the pregnancy itself.
- Bereczki D, Szegedi N, Szakacs Z, Gubucz I, May Z: Cryptogenic postpartum stroke (Neurol Neurochir Pol 2016;50(5):370-3) *[Clinical]*
  A stroke three weeks after a cesarean, treated with clot removal and later PFO closure. The source for the fact that 25 to 40 percent of ischemic strokes have no clear cause. It supports the message that the weeks after birth are part of the risk window.
- American Stroke Association: Stroke Symptoms and F.A.S.T. Warning Signs *[Patient Education]*
  Patient-facing source for the F.A.S.T. warning-sign wording used in the emergency callout and the when-to-call section. Chosen so the guide's emergency language matches what patients will encounter elsewhere.
- Cleveland Clinic: Patent Foramen Ovale (PFO) *[Patient Education]*
  Plain-language framing and reassurance calibration for what a PFO is and how rarely it causes trouble. Used for tone and reading level, not for numbers.
- CDC: Venous Thromboembolism (Blood Clots) and Pregnancy *[Patient Education]*
  Patient-facing source for clot warning signs during and after pregnancy (calf swelling and pain, shortness of breath, chest pain) and for the message that clot risk stays elevated for weeks after delivery.

About This Guide

Rias Ali, MD, FACC | Interventional Cardiology · Cardiovascular & Venous Disease

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

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Reviewer note: We reviewed the patient pages from Cleveland Clinic, the American Stroke Association, and the CDC. Each one explains either the PFO or clot risk in pregnancy. None covers the overlap. This guide adds what patients actually ask. How do the two interact? Why do the weeks after birth still count? And what is honestly still unknown?

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

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