

Norma Melchor Heart & Vascular Institute

Mountain View Campus

Transcatheter Mitral Valve Repair: A Handbook for Patients



Getting the Most from Your Mitral Valve Repair Procedure

At El Camino Health, we provide all the information you need to understand and prepare for your heart care procedure. For the best possible outcome:

- Please take time to read this handbook to understand your heart valve condition and the procedure that will correct it.
- Make note of any questions you have for our team. We're available to talk with you at any point — before or after your procedure.
- Follow your doctors' directives closely for the best possible recovery.

Our cardiovascular expertise and dedication to our patients have earned us accolades, but our greatest accomplishment is helping people achieve optimal health.

Your Mitral Valve Repair Is Scheduled

Date and time: _____.

Please arrive at El Camino Health's Mountain View campus, 2500 Grant Road, at (time): _____.

NOTE: Sometimes surgery schedules change at short notice. If your time or date is moved, we will notify you as soon as possible.

Before Your Procedure

Stop taking these medications: _____

on (date): _____.

Stop taking this blood thinner medication: _____

on (date): _____.

Start taking these medications: _____

on (date): _____.

The Night Before Your Procedure

Do not eat or drink anything (including water) after midnight.

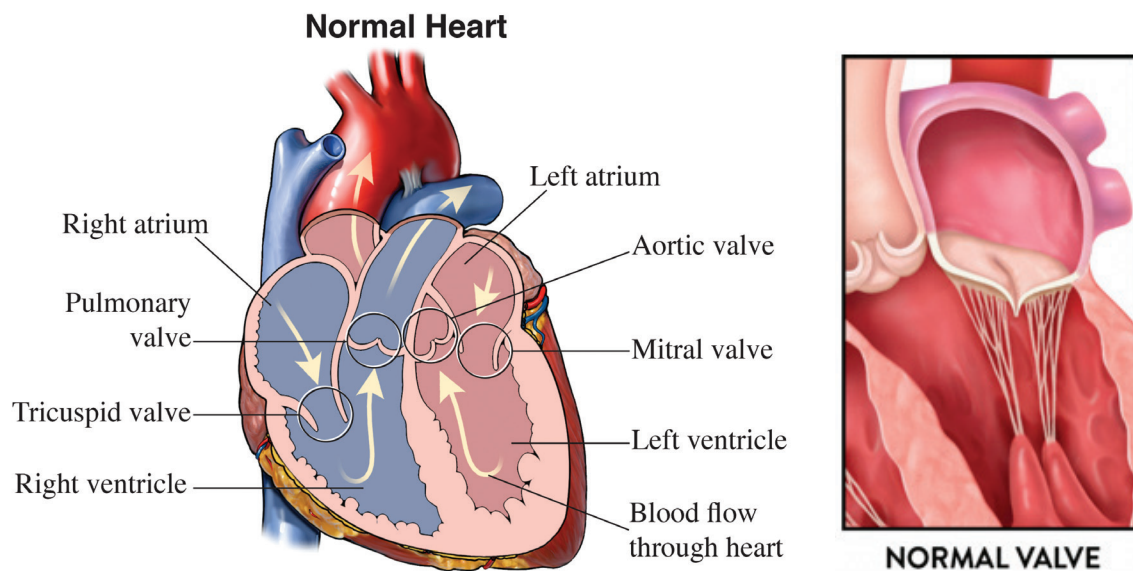
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What Is Mitral Valve Regurgitation?

First, let's review how your heart works when it's healthy. The heart has four chambers. The upper chambers are called atria and the lower chambers are called ventricles. In between these chambers are valves that regulate the flow of blood through the heart. The mitral valve sits between the left atria and left ventricle and allows oxygen-rich blood from the lungs to flow into the left ventricle. From there the blood is sent out to the body through the aortic valve.

Mitral valve regurgitation occurs when the leaflets of the mitral valve do not close effectively. This poor closure of the mitral valve causes blood to flow backward (regurgitate) into the left atrium and eventually into your lungs. Mitral regurgitation is a progressive disease that can eventually impact your quality of life and your ability to perform daily activities. Symptoms of mitral valve disease include an irregular heartbeat (palpitations), cough, shortness of breath especially with physical activity or lying flat, swelling in your legs and fatigue.



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Glossary: Learn the Medical Terms

mitral valve regurgitation – A condition where the mitral valve fails to close completely, and blood leaks backward in your heart.

catheter – A thin, flexible tube inserted into the body during medical procedures.

transesophageal echocardiogram – An ultrasound of your heart that makes moving pictures so your doctor can see the heart muscle and valves working. An ultrasound probe is placed in your throat to provide images of the mitral valve. This is done with anesthesia.

femoral vein – A large vein in the upper leg or groin.

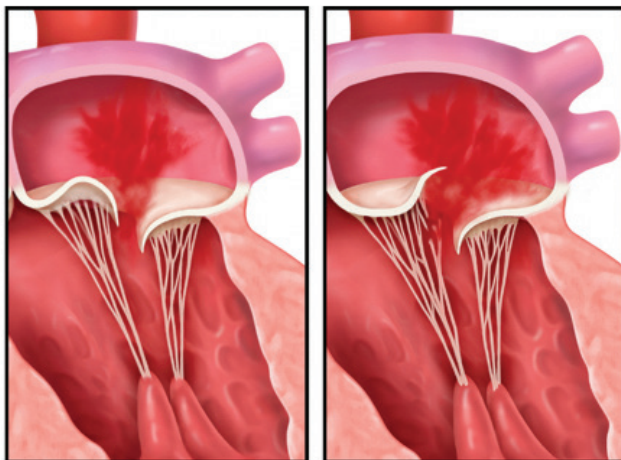
mitral valve repair – A minimally invasive procedure to clip the leaflets of the mitral valve and reduce regurgitation.

MitraClip™ – A device designed to clip the mitral valve leaflets together.

What Causes Mitral Valve Regurgitation?

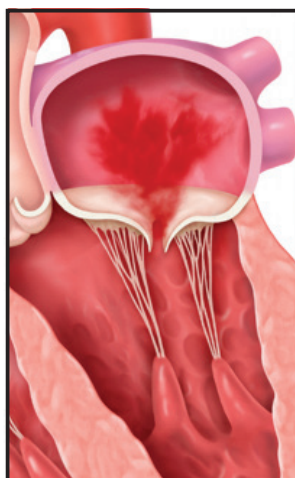
Mitral valve regurgitation has various causes and can be classified as degenerative (primary) or functional (secondary).

In degenerative mitral valve regurgitation there is structural damage to the valves. This can be due to a congenitally malformed valve, damage from an infection, or valve degeneration due to aging.



DEGENERATIVE MR – PROLAPSE **DEGENERATIVE MR – FLAIL**

In functional mitral valve regurgitation the valve is normal but may leak because of an enlarged heart that pulls the leaflets apart. The heart is larger due to damage that has occurred from coronary artery disease/heart attack or atrial fibrillation.



FUNCTIONAL MR

How MitraClip Treats Mitral Valve Regurgitation

The MitraClip brings (clips) the two leaflets of the mitral valve together and helps the valve to close. This will reduce the leak and help the heart pump more effectively.

This procedure is done with general anesthesia. A transesophageal echo probe is placed in your throat to help guide the physician during placement of the clip. A catheter is inserted into your femoral vein and guided to your heart. The catheter is moved from the right to the left side of your heart where the MitraClip is then attached to the mitral valve leaflets, reducing the mitral regurgitation. The implanted clip will become a permanent part of your heart. This is done while your heart is beating with real-time assessment of its effectiveness. The MitraClip can be opened and repositioned. A second or third MitraClip can be used if needed.

MitraClip

You will have a transesophageal echo (TEE) prior to your procedure. This will allow your doctor to evaluate your anatomy and decide whether a mitral valve repair is a good option and which size MitraClip is best for you.

The MitraClip is made of cobalt chromium with a polyester cover designed to promote tissue growth. It is available in four sizes. Your doctor will decide which size is best for you.



Benefits and Risks of Mitral Valve Repair

With a mitral valve repair, there is no need for open-heart surgery. This less invasive approach means you'll recover from the procedure sooner.

Benefits of a Mitral Valve Repair Include:

- No need for open-heart surgery or sternal (breastbone) incision
- No need for a heart-lung bypass machine (a machine that temporarily takes over the functions of the heart and lungs during traditional surgery)
- Shorter hospital stay
- Faster recovery period
- Fewer heart failure hospitalizations

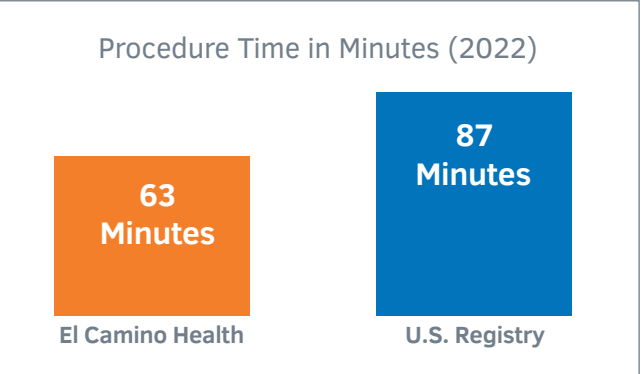
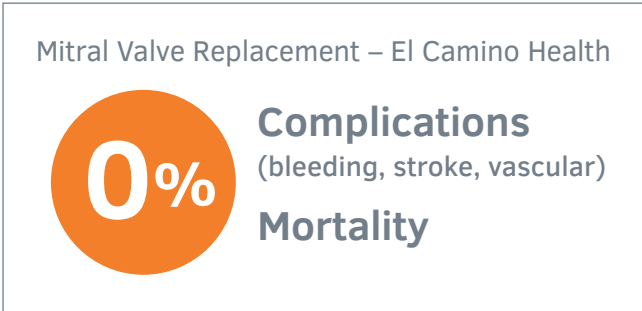
It's always wise to discuss the risks of any procedure with your doctor. Mitral valve repair is considered safe and effective, but like all procedures it carries some risks. These include stroke, bleeding from the incision site, damage to the artery or blood vessels, infection, and very rarely, death. Your physician will discuss your individual risks during your Multidisciplinary Valve Clinic consultation.



Experience Counts: Quality and Safety Data

El Camino Health has always been at the forefront of MitraClip innovation. El Camino Health was one of the first investigational sites for the MitraClip device. Dr. Fred St. Goar, medical director of the Norma Melchor Heart & Vascular Institute, pioneered the MitraClip device starting in the 1990s.

We now have performed approximately 400 commercial and research procedures. We have participated in the major groundbreaking trials that have proven the MitraClip's efficacy and led to approval. As a result, our cardiovascular specialists have extensive experience with this advanced treatment. When it comes to patient outcomes, we are consistently superior to the national benchmarks as compared to the outcomes from all patients across the U.S. tracked by the Society of Thoracic Surgeons and the American College of Cardiology's national Transcatheter Valve Therapy (TVT) Registry.



Multidisciplinary Heart Valve Clinic

Every patient interested in a mitral valve repair will have the opportunity to attend our valve clinic. As a patient, you are an active participant in the decision-making process. At the valve clinic, you will be carefully evaluated by an interventional cardiologist and a cardiac surgeon with special experience in heart valve treatments. They will:

- Review your medical records and test results.
- Listen carefully to your questions, concerns and hopes.

We will only move forward with a mitral valve repair if it is indeed the very best option for you.

Meet Your Medical Team

At the valve clinic, you will meet two highly trained doctors with vast experience in treating heart valve disease. They will discuss the options of mitral valve repair, cardiac surgery, continued medical therapy or more testing.

Members of your care team also include:

- Cardiology physician assistant (PA)
- Structural heart clinical nurse specialist
- Medical assistants

Learn More: Educational Resources

For more details about what happens during the mitral valve repair procedure, visit the Abbott website:

mitraclip.com



How to Prepare for Your Mitral Valve Repair Procedure

Careful preparation on your part helps ensure a successful procedure and smooth recovery.

One Month Before Procedure

Stop smoking.

Smoking prevents your body from receiving the oxygen it needs. If you continue smoking, it may take longer for you to recover from your procedure. Quitting may be difficult, but you must do it. Talk to your doctor if you need help managing nicotine cravings and withdrawal symptoms.

Report new health problems.

Stay in the best health possible. If you develop any new health problems in the month leading up to the procedure, let your doctor know as soon as possible. This includes a fever, cough, sore throat, cold, urinary tract infection, or if a doctor or dentist has started you on an antibiotic.

Dental procedures should be completed prior to your mitral valve repair procedure. Otherwise, you will need to wait until six months after the mitral valve repair procedure to schedule a dental procedure.

The Week Before Procedure

Stop taking medications as instructed by your doctor.

Continue taking antiplatelet medications such as:

- Aspirin (Ecotrin®)
- Clopidogrel (Plavix®)
- Prasugrel (Effient®)
- Ticagrelor (Brilinta®)

One Day Before Procedure

Pack your hospital bag. Wear comfortable clothing to the hospital. You can wear the same outfit on your return home. Please pack lightly as storage is minimal. See below: “What to Pack.”

Stop food and drink at midnight. Do not eat or drink anything (including water) after midnight the night before your procedure.

Remove all jewelry, makeup and nail polish. These may interfere with the procedure and any tests you need.

What to Pack: Travel Light

At the hospital, you will receive a gown, pajama bottoms and a pair of non-skid slipper socks. Bring only:

Toiletries

- Dental care items
- Shaving items
- Lip balm
- Hairbrush or comb

Clothing

- Change of underclothing
- Bathrobe, if desired

Personal Items

- Dentures
- Glasses
- CPAP (continuous positive airway pressure) mask
- Hearing aids with extra batteries

Do not bring jewelry, valuables or personal medications.

About Your Hospital Stay

On the Morning of Your Mitral Valve Repair

Come directly to El Camino Health's Mountain View campus as instructed. Family members may wait with you in the pre/post-procedure room. You will be there for about an hour. While you are there:

- A nurse will review your medical information, start an intravenous (IV) line in your arm, draw blood and give you an aspirin.
- You will undergo an electrocardiogram (checks your heart's rhythm and electrical activity using sensors attached to your skin).
- The anesthesiologist will answer any questions you may have.

During the Procedure

- In the procedure room, a nurse will greet you, check the name on your wristband and review vital information.
- Your anesthesiologist will give general anesthesia. You will be asleep during your procedure.
- The interventional cardiologist will insert a catheter in your right groin area. A transesophageal echo probe will be placed during the procedure.
- You will be in the procedure room approximately two hours, but time varies by patient. Your team will keep you, your loved ones and caregivers informed of any delays.

After the Procedure

- Nurses will take you back to the post-procedure room, attached to a cardiac monitor and IV.
- They will frequently check your blood pressure, mental state and the pulses in your legs.
- Technicians will do another electrocardiogram.



- Your heart rhythm will be continuously monitored.
- About two hours later, you will be moved to your hospital room.
- To reduce any chance of bleeding from the incision site in your groin, you will be required to lie flat for four to six hours.
- After four to six hours, a nurse will assist you out of bed and encourage you to walk as part of your recovery.
- You will resume your normal medication.

Before You Go Home

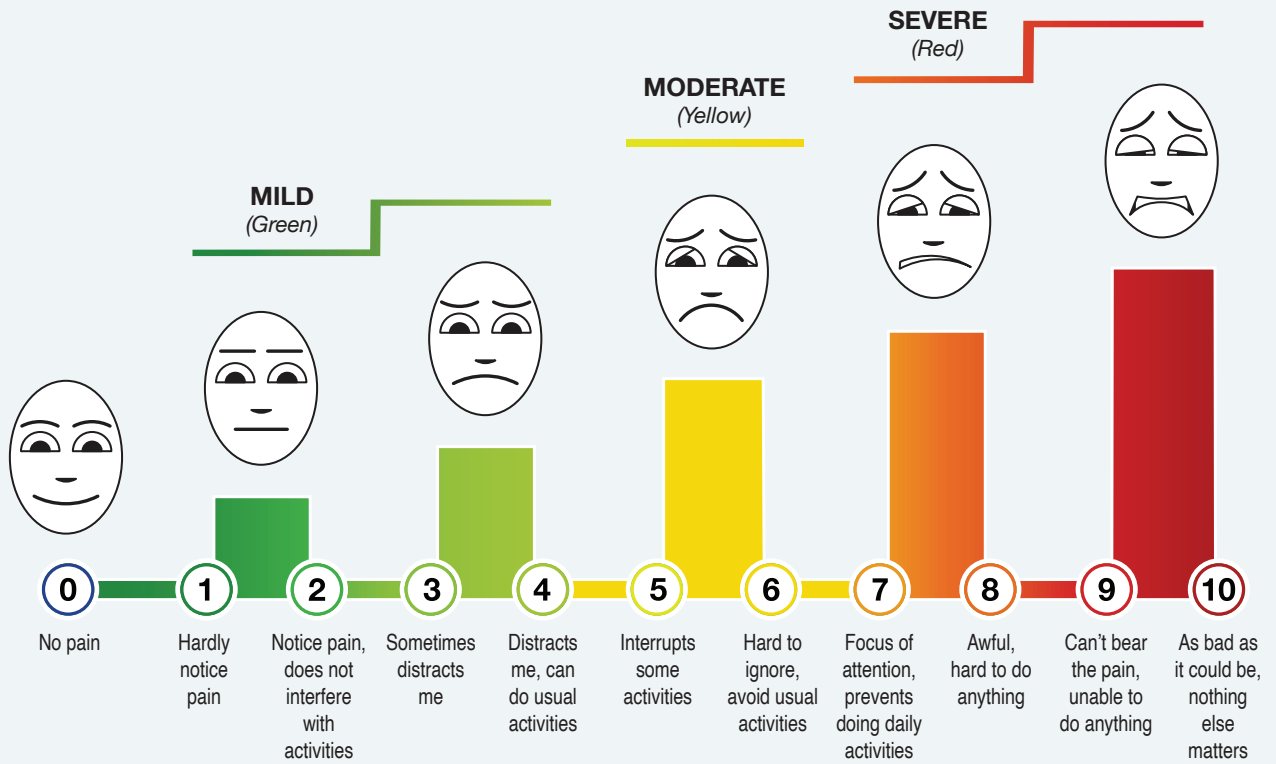
Patients are usually discharged one day after the procedure. Before you return home:

- Your care team will provide you with a list of discharge medications.
- An appointment will be scheduled for one month after your procedure and will include an echocardiogram, labs and ECG. (If you need to change this appointment once you are home, call the mitral valve repair clinic coordinators.)
- Following this appointment, you will return to the care of your primary cardiologist.
- You will be referred to a local cardiac rehabilitation program.

Pain Management

While pain and discomfort are minimal following a Mitral Valve procedure, the experience is different for every patient. Your nurse will ask you to describe any discomfort using the Pain Assessment Scale. Our goal for your pain management is to keep your pain at a comfort level that allows you to do activities that are important to your recovery and quality of your life.

PAIN ASSESSMENT SCALE



DVPRS Pain Scale

v 2.0

Taking Care of Yourself at Home

Watch for Danger Signs

You may experience mild discomfort at the incision (puncture) sites in your groin. However, if you experience any of the following signs or symptoms, call your doctor:

- Bloody drainage from the incisions. If this occurs, first apply manual pressure over the site for 10 minutes. If drainage does not stop after 10 minutes, call your doctor.
- Chest pain or angina symptoms not relieved by rest — angina symptoms include pain in your arms, neck, jaw, shoulder or back.
- Dizziness or faintness.
- Numbness, tingling or cold feeling in feet or legs.
- Rapid or irregular heart rate.
- Shortness of breath not relieved by rest.
- Signs of infection (that is, running a fever greater than 101°F).
- Swelling or increased bruising near the incision sites in your groin.
- Weight gain of more than 2 pounds in 24 hours or more than 5 pounds in a week.

Eat a Healthy Diet

Healthy food and beverages will help you recover more quickly. Aim for meals that are low in saturated fat and high in fiber. Avoid adding salt. Enjoy alcohol and coffee in moderation.

Take Your Medication

Know your medications and take them as prescribed.

Exercise as Much as You're Able

Gradually return to routine activities. Walk as much as you can. As you recover, adopt a regular walking or fitness program for heart-disease prevention. Take advantage of your cardiac rehabilitation referral.

Restrictions on Activity

Bathing. Use caution with hot water because it can make you feel lightheaded. Shower using warm water and mild soap. Do not scrub or apply pressure to the incision areas. Pat those areas dry with a towel — do not rub. Do not submerge your incisions in water. Do not take a bath, swim in a pool or soak in a hot tub until you are completely healed.

Driving. 48 hours after your procedure, you may drive a car.

Lifting. Avoid strenuous activity and do not lift anything heavier than 10 pounds for one week.

Sex. You may resume sexual activity within seven to 10 days.

Working. In one week, you may return to work.

Prevent Infection

People who have had a heart valve repaired are at risk for developing bacterial endocarditis, an infection that causes destruction or scarring of the heart valves. It may occur as a result of dental work, skin infections or surgery.

- Please avoid any dental procedures, including cleaning, for six months after your mitral valve repair.
- To prevent infection from dental work or surgery beyond six months, request a prescription from your doctor for the appropriate antibiotic.
- Inform your doctor of any skin conditions, cuts or abrasions that could become infected.

Keep Up With Your Cholesterol Tests

Checking your cholesterol and talking with your doctor about your health profile are essential to avoiding further risk for heart disease.

Mitral Valve Repair: Frequently Asked Questions

1. **How long does the mitral valve repair take?**
The mitral valve repair procedure takes about two to three hours.
2. **How long is the recovery period?**
Patients must lie flat for four to six hours directly after the procedure. Recovery takes about two to three days for most patients.
3. **How long is the hospital stay?**
Patients are typically discharged after one day.
4. **What restrictions should I expect?**
 - No driving for at least 48 hours.
 - No lifting anything heavier than a gallon of milk (or about 10 pounds) for one week.
 - No exercise that engages the abdomen for one week.
5. **Should I fast before the procedure?**
The day before the procedure, patients should not eat or drink anything after midnight.
6. **Do I need to stop my medications?**
You will be given specific instructions during your valve clinic appointment.
7. **When may I start exercising again?**
We encourage you to walk as much as you are able during your recovery. Please ask your doctor when it is safe to resume more strenuous exercise.
8. **Will I need cardiac rehabilitation?**
We refer all our patients to cardiac rehabilitation. Our physicians strongly encourage you to join a program after your one-month appointment.
9. **Will I be awake for the procedure?**
No, the procedure is done under general anesthesia.
10. **Who will perform the procedure?**
The mitral valve repair procedure is performed by the interventional cardiologist.
11. **What are the major complications related to the procedure?**
Your doctor will discuss your personal risks related to the procedure. Generally, your risks include:
 - Bleeding
 - Stroke
 - Infection
 - Injury to the blood vessels
 - Death
12. **When do I follow up with the doctor after discharge?**
A 30-day follow-up appointment and an echocardiogram will also be arranged with your mitral valve repair cardiologist.
13. **Will my pacemaker be turned off during the mitral valve repair procedure?**
No, your pacemaker will remain on.
14. **After the procedure, will I need antibiotics before going to the dentist?**
We recommend that you do not have any dental work, including cleaning, for six months after the procedure. After that, yes, you will need to take antibiotics prior to any dental work.
15. **Will I need help at home after the procedure?**
We recommend that you have someone spend the first night at home with you.
16. **Can I get an MRI with my MitraClip?**
Yes, you can safely have an MRI with your MitraClip.
17. **Will my MitraClip set off alarms at the airport?**
Your MitraClip will not cause problems with airport security.

At-a-Glance Summary of Your Mitral Valve Repair Journey

Attend the Multidisciplinary Heart Valve Clinic

- **An interventional cardiologist and cardiac surgeon evaluate** your echocardiogram results. They discuss your mitral valve treatment options with you.
- **Nurses educate** you about the procedure.
- **If a mitral valve repair is right for you**, the nurse coordinator schedules your procedure.



Undergo the Procedure at El Camino Health's Mountain View Campus

- **One to two hours before procedure**, you see the cardiologist who will perform your procedure.
- **Your team performs the procedure** which takes about 2-3 hours.
- **You rest in the recovery area** for about one hour.
- **Your mitral valve repair cardiologist sees you** in the recovery area.
- **You stay in the hospital one day** for monitoring.
- **The day after the procedure**, you are evaluated by your mitral valve repair cardiologist and the cardiology physician assistant (PA).
- **After one day**, your mitral valve repair cardiologist and PA discharge you.

Visit Your Doctors for Follow-Ups

- **One month after**, you follow up with your mitral valve repair doctor and have another echocardiogram.
- **Following your one-month-after appointment**, you visit your regular cardiologist, the one who referred you to us for treatment.

About El Camino Health

El Camino Health provides a personalized healthcare experience at two not-for-profit hospitals as well as primary care, multi-specialty care, and urgent care locations across Santa Clara County.

Bringing together the best in technology and advanced medicine, our network of physicians and care teams delivers high-quality, compassionate care.



Mountain View Campus

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Norma Melchor

Heart & Vascular Institute

elcaminohealth.org/heart

