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Severe MR and the MitraClip

A clip placed by catheter that reduces a severe mitral valve leak, with no open-heart surgery.

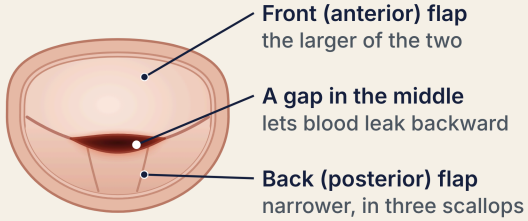
47%
fewer heart failure hospital stays at two years in COAPT (secondary MR)

38%
fewer deaths from any cause at two years in the same trial

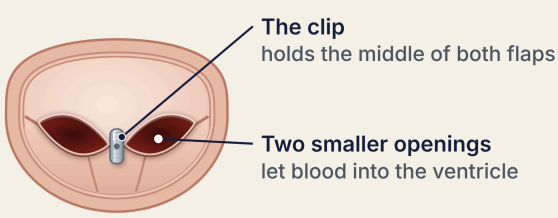
1 to 2 days
in the hospital, typically, with no opening of the breastbone

HOW THE CLIP WORKS

Joining the two flaps at the leak



Severe leak, where the flaps don't meet in the middle



With a clip, the valve opens as two openings

The mitral valve sits between the heart's left upper chamber and its main pumping chamber. In severe mitral regurgitation (MR), a large volume of blood leaks backward with every beat. Left untreated, it overloads the heart and leads to heart failure over time. The MitraClip is a small cobalt-chromium clip lined with polyester fabric. A catheter carries it from the femoral vein in the groin up to the heart and across the wall between the two upper chambers. Guided by X-ray and an ultrasound probe in the swallowing tube, the doctor grasps the front and back flaps at the leak, typically in the middle of the valve, and closes the clip.

TWO KINDS OF LEAK

The cause decides the treatment

Primary MR, a problem with the valve itself
Damaged flaps or torn cords, most often mitral valve prolapse. Surgical repair at an experienced center is the gold standard at low or intermediate surgical risk. The clip is for people at high or prohibitive surgical risk.

Secondary MR, a problem with the heart around it
The valve is normal, but the ventricle has stretched or scarred, usually after a heart attack or from a weak heart muscle. Medicines come first. A clip is added if symptoms persist and the leak is severe out of proportion to the heart's size.

A little leakiness on an echocardiogram, without symptoms and without a severe grade, needs no procedure. The right care is regular check-ups with a cardiologist who watches the trend and acts when it changes.

Keep your medicines

Heart failure medicines should not be reduced after a clip. They are the foundation, and the clip builds on them.

WHO QUALIFIES, THE EVIDENCE AND RECOVERY ARE ON THE BACK

WHO IT HELPS

Who qualifies, what COAPT found and recovery

SECONDARY MR, THE COAPT PROFILE

A chronic severe leak	Severe secondary MR from a weakened left ventricle.
Symptoms despite medicines	NYHA class II to IV (breathless with ordinary activity or worse) on full-strength ARNI (sacubitril-valsartan), beta-blocker and MRA, with an SGLT2 inhibitor now considered foundational.
Pumping strength	An ejection fraction between 20% and 50%.
Heart size and lung pressure	A left ventricle 70 mm or less across when squeezed (end-systolic diameter), and a pulmonary artery systolic pressure of 70 mmHg or less.
Valve anatomy that suits a clip	Seen on TEE. Long enough flaps, not too much calcium where the clip grasps, no severe calcium in the valve ring, and a gap the clip can close.

PRIMARY MR

High or prohibitive surgical risk	The clip is an excellent option when the anatomy suits it, and results are better the earlier it is done after symptoms begin.
Low or intermediate surgical risk	Surgical repair at an experienced center, where repair rates approach 95% and repairs last well past 20 years.

WHAT COAPT FOUND

614 people	With heart failure and severe secondary MR on optimal medicines, given a clip plus medicines or medicines alone.
At two years	Heart failure hospital stays fell from 67.9 to 35.8 per 100 patient-years, and deaths from any cause from 46.1% to 29.1%. The five-year follow-up confirmed the benefit lasted.

1 The procedure
About 2 to 3 hours under general anesthesia, through the femoral vein, with no heart-lung machine.

2 In the hospital
Typically 1 to 2 nights, and most people walk the same day.

3 At home
No heavy lifting or long drives for a few days. Most people do light activity within a week and feel near baseline in 2 to 3 weeks.

AFTER THE CLIP

Blood thinners	In normal rhythm, usually aspirin plus clopidogrel for several months, then aspirin alone. With AFib, keep taking your DOAC or warfarin.
Echo check-ups	Before discharge, at 30 days, at 6 months and every year after that.
Risks	Most common are minor groin bleeding, brief AFib and mild kidney strain. Stroke happens in around 1% at 30 days. Rarer are a clip loosening from one flap, a valve left too narrow and fluid around the heart. Death within 30 days is under 3% in modern registries.
Call 911	Stroke signs, chest pain, sudden breathlessness, fainting or groin bleeding that won't stop after 10 minutes of firm pressure.

DOES IT STOP THE LEAK COMPLETELY?

Rarely. The goal is to bring a severe leak down to grade 1 or less. People who leave the procedure with grade 1 or less have the best long-term results.

READ THE FULL ARTICLE

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severe-mr-mitraclip

For education only, and not a substitute for advice from your own physician. Sources include the COAPT trial (NEJM 2018, 2023), MITRA-FR (NEJM 2018), RESHAPE-HF2 (NEJM 2024), the STS/ACC TVT Registry (JAMA 2023), EVEREST II, EuroSMR, CLASP IID, the 2020 ACC/AHA valve guideline and the 2022 heart failure guideline.

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