CONDITION

Tricuspid regurgitation

Tricuspid regurgitation is leakage of blood backward through the valve between the heart's right chambers.

WHAT IT IS
Backward blood flow through the heart's tricuspid valve

BODY SYSTEM
Heart and circulation

MAIN SYMPTOMS
Breathlessness, leg swelling, abdominal swelling, tiredness

WHAT CAUSES IT
Valve stretching; less often infection, injury, or congenital changes

HOW IT IS DIAGNOSED
Echocardiogram, supported by heart and circulation tests

MAIN TREATMENT
Monitoring, treating the cause, diuretics, or valve intervention

CAN IT BE CURED?
Sometimes - repair or replacement can correct leakage

IS IT AN EMERGENCY?
Sometimes - severe breathlessness, chest pain, or fainting

LONG-TERM OUTLOOK
Often stable when mild; severe leakage can strain the heart

Overview

Tricuspid regurgitation is a leak in one of the heart's four valves. The tricuspid valve sits between the upper and lower chambers on the right side of the heart. It normally closes when the lower chamber pumps blood toward the lungs.

With tricuspid regurgitation, the valve does not close fully. Some blood moves backward into the upper chamber with each heartbeat. This can raise pressure in the veins and make it harder for the right side of the heart to work efficiently.

A small leak is often found by chance on an ultrasound of the heart and may cause no problems. More severe leakage can lead to swelling, tiredness, breathlessness, and changes in liver or kidney function. Over time, it can enlarge and weaken the right side of the heart.

The importance of the condition depends on how much blood leaks, why it is happening, whether the right side of the heart is affected, and whether you have another heart or lung condition.

Symptoms

Mild tricuspid regurgitation usually causes no symptoms. When the leak becomes more significant, symptoms often result from fluid building up in the body or from the heart pumping less effectively.

Possible symptoms include:

These symptoms are not specific to tricuspid regurgitation. Other heart, lung, liver, kidney, or vein conditions can cause similar problems.

Symptoms do not always match the apparent size of the leak. Some people have severe regurgitation for a time before noticing clear changes.

- Swelling of the ankles, legs, or abdomen
- Breathlessness, especially during activity
- Tiredness or reduced ability to exercise
- A feeling of fullness or discomfort in the upper abdomen
- A fast, pounding, or irregular heartbeat
- Unexplained weight gain caused by retained fluid
- Neck veins that appear more prominent

Causes and risk factors

Most tricuspid regurgitation happens because the right lower heart chamber becomes enlarged. This pulls apart the ring of tissue supporting the valve, so its leaflets can no longer meet properly. The valve itself may initially be normal.

Conditions that can stretch the right side of the heart include:

Less often, the valve leaflets are directly damaged or formed differently. Causes include a heart valve infection called endocarditis, rheumatic heart disease, chest injury, or a congenital heart difference present from birth. Ebstein anomaly is one congenital condition that affects the tricuspid valve.

A pacemaker or defibrillator wire passing through the valve can sometimes interfere with its

movement. Rare causes include carcinoid syndrome, in which certain tumours release chemicals that damage right-sided heart valves, and some medicines that are no longer commonly used for this purpose.

Your risk of important regurgitation is higher if you already have pulmonary hypertension, heart failure, atrial fibrillation, another valve condition, or previous heart surgery.

- Disease of valves on the left side of the heart
- Heart failure
- High pressure in the lung arteries, called pulmonary hypertension
- Atrial fibrillation, an irregular heart rhythm
- Long-term lung conditions
- Previous damage to the heart muscle

Diagnosis

An echocardiogram is the main test used to confirm tricuspid regurgitation. This painless ultrasound shows the valve moving and uses blood-flow imaging to estimate the leak. It also checks the size and pumping strength of the right side of the heart, pressures in the lung arteries, and the other heart valves.

The assessment may also include:

A transoesophageal echocardiogram may be needed before an intervention. For this test, a small ultrasound probe is passed into the food pipe while you receive sedation. It provides closer pictures of the valve.

Heart catheterisation is sometimes used when ultrasound findings are uncertain or when pressure measurements are needed before treatment.

- A physical examination for a heart murmur, swelling, or raised neck veins
- An electrocardiogram, or ECG, to check heart rhythm
- Blood tests to look at kidney and liver function
- A chest X-ray to assess the heart and lungs
- Cardiac MRI for more detailed measurements in selected cases

Treatment and management

Treatment is based on the severity of the leak, its cause, your symptoms, and how well the right side of your heart is working.

A mild leak without symptoms may only need periodic follow-up. Repeat echocardiograms can show whether the valve leak or heart size is changing. The timing of follow-up is based on your individual findings.

When another condition is stretching the valve, treating that condition is important. This may include care for heart failure, pulmonary hypertension, atrial fibrillation, lung disease, or another faulty heart valve.

Diuretics like furosemide or hydrochlorothiazide , sometimes called water tablets, help the kidneys remove extra salt and water. They can reduce leg and abdominal swelling and make breathing easier. They control fluid build-up but do not repair the valve.

Severe regurgitation may require a valve procedure, particularly when it causes symptoms, enlarges the right side of the heart, or is likely to worsen the result of other heart surgery. Treatment is usually considered before lasting damage to the right heart, liver, or kidneys develops.

Possible procedures include:

A specialist valve team assesses the likely benefits and risks of an intervention. Not everyone with a severe-looking leak needs a procedure, and not every valve can be repaired in the same way.

- Valve repair: The surgeon reshapes or supports the existing valve so it closes better. Repair is often preferred when it is suitable.
- Valve replacement: The damaged valve is replaced with a biological or mechanical valve.
- Transcatheter treatment: In selected people, devices passed through a blood vessel can bring the valve leaflets closer together or replace the valve without open-heart surgery.

Complications

Severe or worsening tricuspid regurgitation can cause right-sided heart failure. This means the right side of the heart cannot move blood forward effectively, leading to fluid build-up.

Possible complications include:

Earlier assessment may allow treatment before some of these changes become difficult to reverse.

- Persistent swelling or fluid in the abdomen

- Abnormal heart rhythms, especially atrial fibrillation
- Progressive enlargement or weakening of the right heart
- Reduced kidney function
- Liver congestion and, in advanced cases, liver damage
- Reduced stamina and quality of life

Prevention

Tricuspid regurgitation cannot always be prevented. Congenital valve differences are present from birth, and some people develop leakage because of heart or lung conditions they could not have avoided.

Managing known heart failure, high blood pressure in the lung arteries, rhythm problems, and other valve conditions may reduce strain on the tricuspid valve. Taking prescribed medicines and attending planned heart checks can help identify changes early.

Good dental care lowers the chance of bacteria entering the bloodstream and contributing to endocarditis. Antibiotics like amoxicillin or doxycycline before dental work are not routinely needed just because you have tricuspid regurgitation; they are reserved for certain high-risk heart conditions.

Avoiding injected non-prescribed drugs also reduces the risk of right-sided valve infection.

Living with it and what to expect

Many people with mild tricuspid regurgitation continue their usual activities and never develop significant symptoms. The condition may remain stable for years, although follow-up may still be needed if another heart problem is present.

Moderate or severe leakage is more likely to change over time. Symptoms may develop gradually as the right side of the heart enlarges or fluid starts to collect. Changes in weight, ankle swelling, exercise tolerance, and breathing can help show whether congestion is increasing.

Regular activity is often possible and useful when the condition is stable. The appropriate type and intensity depend on symptoms, heart function, lung pressures, and other conditions. Stop and seek advice if activity starts causing unusual breathlessness, dizziness, chest discomfort, or palpitations.

If you take a diuretic, you may need periodic checks of kidney function and blood salts such as sodium and potassium. Do not sharply restrict fluids or salt unless your care team has advised it.

Some people eventually need valve treatment, while others are managed with monitoring and medicines. Even after repair or replacement, follow-up continues because the valve, heart rhythm, and right heart function can change.

When to get medical help

Arrange a routine appointment if you develop gradually increasing ankle swelling, abdominal fullness, tiredness, palpitations, or breathlessness. Also seek review if known symptoms are becoming more frequent, your usual activity is harder, or your weight rises quickly with swelling.

Contact your healthcare team promptly if swelling continues despite your usual treatment, you are breathless at rest, or you are passing much less urine than normal. These can be signs of worsening fluid retention and may need treatment soon.

Call emergency services if you have:

These symptoms can have several causes and need urgent assessment rather than waiting for a routine appointment.

- Severe or sudden difficulty breathing
- Chest pain that is severe, new, or does not settle
- Fainting or near-fainting with ongoing symptoms
- Blue or grey lips, severe confusion, or difficulty staying awake
- A very fast or irregular heartbeat with chest pain, faintness, or breathlessness

Common questions

Is tricuspid regurgitation the same as a heart murmur?

No. A murmur is a sound made by turbulent blood flow and may be heard through a stethoscope. Tricuspid regurgitation can cause a murmur, but mild leakage may not produce an obvious one. An echocardiogram confirms the condition.

Can tricuspid regurgitation get better?

It sometimes improves when the problem stretching the valve is treated, such as excess fluid,

high lung-artery pressure, or another valve condition. A valve with structural damage is less likely to return to normal without repair or replacement.

Will I need surgery?

Most people with mild leakage do not need surgery. A procedure may be considered for severe leakage that causes symptoms or affects the right heart, or when another heart operation is already planned. Catheter-based treatment may be an option for selected people.

Can I exercise with a leaky tricuspid valve?

Many people with mild, stable regurgitation can exercise normally. Severe leakage, pulmonary hypertension, abnormal heart rhythms, or right-heart weakness may require limits or a tailored plan. New breathlessness, dizziness, chest discomfort, or a sudden drop in stamina should be assessed.

Does tricuspid regurgitation shorten your life?

A small leak often has little effect on long-term health. Severe regurgitation, especially with right-heart failure or other major heart or lung conditions, is linked with a less favourable outlook. The cause, heart function, symptoms, and response to treatment all matter.

Can tricuspid regurgitation return after treatment?

Yes. Leakage can return after repair if the right side of the heart remains enlarged or the supporting valve ring stretches again. Replacement valves can also change over time. Follow-up echocardiograms remain important after any procedure.

Sources

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